

BRITISH MEDICAL JOURNAL

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION



Edited by

NORMAN GERALD HORNER, M.D., F.R.C.P., F.R.C.S.

Assisted by

HUGH CLEGG, M.B., F.R.C.P.

VOLUME II 1943

JULY TO DECEMBER

Published at the Office of the British Medical Association, Tavistock Square, London, W.C.1. and
Printed by Fisher, Knight & Co., Ltd., Gainsborough Press, St. Albans

KEY TO DATES AND PAGES

The following table, giving a key to the dates of issue and the page numbers of the BRITISH MEDICAL JOURNAL and SUPPLEMENT in the second volume for 1943, may prove convenient to readers in search of a reference.

Serial No.	Date of Issue	Journal Pages	Supplement Pages
4304	July 3	1-30	1-4
4305	" 10	31-62	5-10
4306	" 17	63-94	11-12
4307	" 24	95-126	13-16
4308	" 31	127-158	17-18
4309	Aug. 7	159-190	19-22
4310	" 14	191-222	23-24
4311	" 21	223-256	25-26
4312	" 28	257-288	27-28
4313	Sept. 4	289-318	29-34
4314	" 11	319-350	35-38
4315	" 18	351-380	39-44
4316	" 25	381-410	45-50
4317	Oct. 2	411-442	51-58
4318	" 9	443-472	59-64
4319	" 16	473-502	65-70
4320	" 23	503-534	71-74
4321	" 30	535-566	75-78
4322	Nov. 6	567-598	79-82
4323	" 13	599-632	83-88
4324	" 20	633-666	89-90
4325	" 27	667-702	91-92
4326	Dec. 4	703-736	93-96
4327	" 11	737-772	97-100
4328	" 18	773-804	101-104
4329	" 25	805-840	105-108

INDEX TO VOLUME II FOR 1945

READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate headings—for example, Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Carcinoma; Child and Infant; Goitre and Thyroid. Subjects dealt with under various main headings in the JOURNAL have been set out in alphabetical order under their respective headings—for example, "Annotations," "Correspondence," "Leading Articles," "Obituary," "Reviews," etc. Original Articles are indicated by the letter (O).

A

Adenoma, visceral lesions of, after muscular action, 158
 AL, Lawrence: "Siren diarrhoea," 52
 ALSON, B. R.: In defence of nursery schools, 72, 72S
 ALHAM, J. Johnston: Appreciation of Charles Gibbs, 529
 ALKUMSON, Mervyn: Whole-time security, 182
 case, amoebic liver, an unusual case of (J. A. M. Lamont), 529
 ANGLY, ROYAL OF MEDICINE IN IRELAND:
 Reports of 1-42-3 Session, 656
Journal of Anatomy and Physiology: Ascorbic acid in idiopathic methaemoglobinemia, 335
 Ascorbic acid, planning of (annotation), 112
 Ascorbic acid in a man of 60, 532
 Ascorbic acid, 75 cases of: effect of removal of tonsils and adenoids (H. J. G. Garceau), 57
 Ascorbic acid of tongue successfully treated by diphenamides (A. McCloy), 106; correspondence, 180
 ASH, A. Wilford: Conditions for good work, 52, 11
 — F. Dennett: *Physical Diets* (Richard C. Brock's original work) 13th ed., 75
 Ashtabula, 54
 Ashtabula, arterial hypertension, 31
 Ashtabula: Severe action of vitamin C on the adrenals, 213—Clinical symptoms of adrenocortical hyp- and hypotrophy, 825
 Ashtabula, space, economy in, 57, annotation on, 18; correspondence, 730
 Ashtabula, Centre: Treatment of leprosy, 531
 Ashtabula, soldiers, analysis of acute respiratory conditions in (W. W. MacNaught and R. M. Murray), 324 (O)
 Ashtabula, *Care and Rehabilitation: A "Practitioner" book* 265
 Ashtabula, 690
 Ashtabula, H.: Peripheral arterial embolism, 101 (O); correspondence, 179, 245, 374
 Ashtabula, *Procedures*: Police decoy and the doctor (notation), 719; correspondence, 725, 796, 832
 — Question in Parliament, 733
 ASH-FERRANT, T.: Polymyositis in Malta, 687
 ASH-FERRANT, C. B.: Arsenical encephalopathy, 465
 planning the (annotation), 459; correspondence, 180, 604
 Ashtabula, casualties, colour film of, 840
 Ashtabula, John, obituary notice of, 346
 Ashtabula, Robert: Treatment of lupus vulgaris, 463, 621
 Ashtabula, Helen Bower: Advantages to nitrous oxide anaesthesia, 762
 Ashtabula, John: And the brain (annotation), 112—And nitaminism (annotation), 614; correspondence, 18
 Ashtabula, infection, Gasserian trigeminal neuralgia at an exceptionally early age cured by (Wilfred Harris), 100
 RIDGE, L. W.: Specialist courses for Service (O.S.), 58
 ASH-FERRANT, G. L.: Psychiatry in general hospitals, 14
 Ashtabula, 802
 Ashtabula, Liver, sensitivity to, 29—Bees-stung, 62—Ashtabula, 140—Hay-fever and allergic rhinitis, 4
 ASH-FERRANT, P. R.: Management of acute renal pneumonia, 353 (O); correspondence, 463, 591
 — R. S.: *Sea Diseases: The Story of a Great Naval Experiment in Preventive Medicine* (in the Royal Navy), 338
 ASH-FERRANT, E. N.: Excretion of sulphamides in the sea, 380
 ASH-FERRANT, A. Cecil: Appreciation of A. W. Burre, 6
 Ashtabula: Home service, 172—Availability of, rough Red Cross, 254
 Ashtabula, primary, 834
 Ashtabula, nes, pressor, and arterial hypertension, 32
 Ashtabula, methamine in narcolepsy, 533
 Ashtabula, two-stage: Primary planned amputation in presence of sepsis (E. A. Jack and J. Hamley), 131 (O)

Amlyoid disease, primary (J. A. Dillon and L. R. Evans), 242
 ANAEMIA
 Anaemic (annotation), 237
 Hypochromic, in adolescent males (M. L. Thomson), 454 (O)
 Liver deficiency, in a case of acute infective hepatitis (J. Norman Hill and Walter Hausmann), 262 (O)
 Nutritional iron deficiency in war-time haemoglobin levels of 333 persons from birth to 55 years of age (L. S. P. David and J. Harris), 36 (O)
 Pernicious, and having children, 4-3
 — of pregnancy, 464
 Therapeutic failures (notation), 574
 Anaerobiosis, pathogenic (F. A. G. O.), 52
 ANAESTHESIA
 Anaesthetics, teaching, 527
 Anaesthetics, third hand (P. S. A. Hay), 484; correspondence, 725, 765
 Caudal, continuous in obstetric anaesthesia, 508
 Ether, light, 762
 For laryngoscopy, 312
 Gas-and-oxygen equipment for, 495
 Intravenous, continuous, simple (R. Shaw), 714
 (F. W. Roberts and B. A. Sulick), 713 (O)
 Nasal intubation, 85
 Nitrous oxide, a critical evaluation (R. Shaw Gould), 607 (O); correspondence, 762, 827
 Obstetric, Guthrie's, 700
 Reversal, 660
 Spinal, concentration of narcotic for, 457
 — low during labour in cases of cardiac failure (H. Burton), 359 (O); correspondence, 458
 — use of carbolic after, 179
 — specific gravity of C.S.F. with special reference to (W. Etherington Wilson), 165 (O); correspondence, 245, 250, 514
 Trichloroethylene and muscular paralysis (J. McAuley), 713; correspondence, 828
 Anaesthesia, gas-and-air, apparatus supplied to maternity homes, 696—In midwifery, a "mechanical midwife," 795
 Anaphylactic shock after first injection of tetanus serum (K. Bradd), 11
 Anatomy: Of morals (book review), 41—Teachings of (Nova et Vetera), 49—Vesal, 4 and Gray on 56—Surgical, aids to (book review), 76—Comparative topographical (book review), 10
 Regional (book review), 202—Nomenclature, 345
 —Of female pelvis (book review), 514—A Guide to (E. D. Ewart), 5th ed., 647—Cunningham's *Textbook of*, 8th ed., 782
 Anderson, Hannah Perry, obituary notice of, 530, 593
 — H. S.: Fleas and cockroaches, 840
 — Sir John: Medicine, 52
 — Louisa Garrett, obituary notice of, 695
 — Manuel: Faecal and labial dysphagia, 104 (O)
 — Robert: The common cold, 559
 — Thomas: Effect of chemotherapy on mortality from pneumonia in Glasgow, 77 (O)
 — W. A. D.: *Synopsis of Pathology*, 300
 ANDREWS, C. H.: Typhus fever (OX 19, NK, and undetermined), 521
 ANDREWS, Mr.: Photographing patients in bed, 521
 — Albert H.: *Manual of Ocular Therapy*, 1st ed., 1944, including *Carboxy Dye Hydrolysis and Water Vapor*, 76
 Aneurism, revised procedure for estimation of, in urine by thiochrome test: Assessment of level of nutrition (Y. L. Wang and L. J. Harris), 451 (O)
 Aneurysm, arteriosclerotic, of abdominal aorta with perforation of upper jejunum (W. Hausmann), 362
 — arteriovenous, of neck (M. H. Waters), 106
 — survival after wiring, 442
 Areflexia, paretic, 573
 Ariline intoxication (annotation), 457
 ARNOLD, W. Fraser: Treatment with tuberculin 19

Annotations:

Abortion, among women workers, 338
 Accident services, planning of, 112
 Air, above, planning the, 459
 Alcohol and avitaminosis, 614
 — and the brain, 112
 Anaemia, clinical, 237
 Anaesthesia, in obstetrics, 262
 Aniline intoxication, 457
 Anopheles gambiae, eradication of, in Brazil, 520
 Association, British Medical: Death of President, 175—Lord Dawson, our President (J. M. Charnley), 443
 — membership of Council, 443
 — Hospital, 149
 Beryllium toxic effects of, 450
 Bill of health, 175—great cases, 752
 Borna disease, clinical, 271
 Bath weights, manipulation of, 427
 Blood irradiation therapy, 615
 Cerebral malnutrition, 144
 Chest surgery film, 397
 Children in bordereaux, 238
 — in hospital, 785
 — school, medical care of, 304
 Coarctation, 535
 College, Royal of Surgeons, New Royal, 117
 Fellowship, 82—Endowment of Chair of Human and Comparative Pathology, 518
 Colonial research, 420
 Council, Medical Research, 719
 Dawson, Lord our President, 425
 Demerol, 369
 Deuterium and salivates, 615
 Digitalis, action of, 45
 Dilator for non-patients, psychoses, 517
 ECG diagnosis, a point in, 83
 Electroencephalogram, psychopathic personality, 718
 — and, 718
 Emetics, infantile and breast-feeding in, 140
 Eskimo and Lapland, food and health of, 207
 Europe, food situation in, 16
 Evaluation, a broader picture, 46
 Ever-injured by mustard gas, treatment of, 111
 Evans, G. W.: midwife in 17
 — doctors in, 51
 Friends in need, 744
 Goitre in County Tipperary, 79
 Gonorrhoea, chronic and acute, 120
 Haematocrit, herbal, 236
 Haemoglobin, malaria, 19
 Hormones, plant, 175
 Hospital diets, inadequate, 521
 Hospitals, voluntary, look forward, 302
 Hypertension and health, 365
 — experimental treatment of, 614
 Hypocriticism and patient behaviour, 366
 Insects, half-yearly, 652
 Industrial health in 1942, 559
 Infants' reaction to food, 821
 Influenza, nature of virus, 175
 Journal, British Medical, appeal for book numbers, 256, 45
 — of Industrial Medicine, 554
 Kala-azar, transmission by sandfly, 45
 Kidneys: Phosphate renal calculus, 551
 Lenses, contact for flying duties, 18
 Liver pills, efficacy of, 353
 Lupus vulgaris, treatment of, 356
 Medical: General, a substantial work in
 — Benial, 425—Control in Freeport Harbour, 719
 Males, med. and specialists for, 719
 Measles vaccine, 304
 Medical history of the war, 652
 Medicine in Persia, 820
 Mental health care, views on, 72
 Midwives, shortage of, 333
 Milk: Cleaning bottles, 272
 Ministerial chaos, 650
 Morbidity, familial, and microphemia, 417
 Narcotics, control of, 18
 Oestrogens and endocrine system, 753
 Nervous shock, 110
 Nurses, hospital, health of, 428
 Ophthalmology: Teaching of, 144—Review, 144
 — and, 718
 Organisms of medical profession, 552
 Palsy, facial, medical of, 752

Annotations (continued):

- Pancreatic islets, factors damaging, 17
Paper control and the war of ideas, 518
Parathyroid action, site of, 176
Parent in the dock, 551
Patulin and the common cold, 683
Pellagra, rastric factor in, 18
Penicillin in Tunisia, 650
Poisoning: From hair dye, 490—Tricresyl phosphate, 682—Arsine, 785
Police decoy and the doctor, 719
Polionmyelitis, 459
Proctitis, factitial, 459
Rat, brown, war on the, 786
Respiratory function of digestive tract, 207
Rheumatic fever, 516
Ross Institute of Tropical Hygiene, 17
Shigella, the genus, 237
"Shock" from venous occlusion, 143
Society, Clinical, of London, 651
— Research Defence, 305
— Royal, of Medicine in wartime, 238
Stomach at work, 397
Surgery, psychiatric implications of, 819
Switzerland, chemotherapy in, 333
Threadworm, the ubiquitous, 649
Tonsillectomy, health and, 334
Toxoplasma in man, 753
Tropics, control of disease in, 651
U.S.A.: Social welfare in, 458
Uterus, ergot alkaloids and involution of, 270
Venereal diseases problem in Canada, 80
Vitamin B deficiency, induced, in man, 488
— C and cooking, 271
— D: Massive therapy in rickets, 517
War and the Press, 46
Wellcome museums, 46
Worms, diet of, 333
- Anthrax, sixty cases of (H. Gold), 201
Antifreeze for doctors, 662
Antitoxin, gas-gangrene, therapeutic value of (M. G. Macfarlane), 636 (O); leading article, 648
Anuria, sulphapyridine: Successfully treated by ureteric catheterization (J. P. Cunliffe), 11—Two cases of, due to sulphapyridine calculi, successfully treated by ureteric catheterization (H. Burroughs and A. G. Johnston), 508 (O)
ANWYL-DAVIES, T.: Cerebral reaction to anti-syphilitic therapy, 20
Anxiety: Night sweats and, 61—Anxiety states in the Navy (G. V. Stephenson and Kenneth Cameron), 603 (O); correspondence, 687
Aorta, coarctation of, 3
— abdominal, arteriosclerotic aneurysm of, with perforation into upper jejunum (W. Hausmann), 362
Appointments, 124, 286, 316, 596, 664, 836
ARBOGAST, J. L. (and H. H. Asst): Observations on 21 cases of infectious mononucleosis, 714
ARCHER, G. T. L. (and others): Endemic typhus fever in Diego Suarez, Madagascar, 506 (O)
Area, surface, measuring, 770
Ariboflavin syndrome (leading article), 109; correspondence, 279. See also Riboflavin
Armistead, Hugh Wells, obituary notice of, 121
ARMSTRONG, E. F.: Rock phosphate in sewage, 34
— G. W.: Internal fixation by screw in oblique fractures of fibula, 115
— Katharine F. (and Alice M. Jackson): Teaching in Schools of Nursing, 330
- ARMY:
Detention barracks, soldier's death in, 91, 155, 835
Discharge from, reasons for, 155
Dyspepsia and peptic ulcer in the Army (Sir Henry Tidy), 473 (O); correspondence, 556
Helmet, steel, 833
Inoculation against typhus, 469
Medical Services, 563
— specialists in, 155
Mental health of recruits, 186
Night vision in the Army: report of 10,333 tests (A. Lister and J. W. Bishop), 325 (O)
- ARNOLD, A.: Regional anaesthesia, 660
AROV, Dr.: Use of spirogyra instead of cotton-wool, 115
Arsenic: For Vincent's infection, 360, 433, 464, 622, 729, 763—Antidotes to (leading article), 681
Arsenical compounds, 413
— encephalopathy, 465
Arsine poisoning (annotation), 785
Arterial spasm, traumatic (C. W. Clark), 167 (O)
Arteries, in essential hypertension, 1
Arteriosclerosis, 573
Artery, innominate, gunshot wound of (G. F. Langley), 711 (O); correspondence, 793, 831
— correction, 804
— pulmonary, case of congenital dilatation of (H. L. Heimann and M. M. Posel), 512 (O)
Arthritis: Pyrotherapy for, 288—At menopause, 501
— gonococcal, treatment of, 566
— spinal, differential diagnosis of, in young subjects (C. W. Buckley), 4 (O); correspondence, 179
ARTHUR, W. G. (and L. A. N. Line): Film of first-aid post during raids, 702
Artificial respiration, rocking device for (J. H. Lahiff), 42
Aschheim-Zondek test, 254
Ascites: Treatment of, 29—In case of malignant ovary, 665
- Ascorbic acid, glucose, and insulin, in treatment of infective hepatitis (D. R. Macdonald), 261 (O)
— in idiopathic methaemoglobinemia (Royal Academy of Medicine in Ireland), 336
ASHL, H. H. (and J. L. ARBOGAST): Observations on 21 cases of infectious mononucleosis, 714
ASHFORD, C. A.: Acid haematin method for estimation of haemoglobin, 575 (O)
Aspirin and gastric haemorrhage, 57; correspondence, 117
Aspland, W. H. Graham, obituary notice of, 696
Association, American, of the History of Medicine: William Osler medal awarded, 699
— Medical: Medals and Awards, 124, 409—President elected, 378
— Pharmaceutical Manufacturers: Award of Distinction to Profs. Fleming and Florey, 836
— of Anaesthetists of Great Britain and Ireland: Annual general meeting, 656
— British, for Advancement of Science: No. 8 of official publication, *The Advancement of Science*, 393
— Empire Leprosy Relief: Leprosy relief in the Empire, 81
— Hospitals: Annual meeting, 241—Eight Hundred Years of Service: *The Story of Britain's Voluntary Hospitals*, 647
— Contributory Schemes, 187
- ASSOCIATION, BRITISH MEDICAL: Luncheon to overseas medical services, 82—Suffolk Branch Meeting: "Medical Practice: In the Melting-pot?" (Charles Hill), 83—Death of President (annotation), 174—Election of Lord Dawson as new President, 426—Chairmanship of Council (annotation), 458
- Association, British Medical Students', 309—Books for medical students in Malta, 836
— Orthopaedic: Injuries of the spinal cord, 114—Advances in orthopaedics, 757
— Paediatric: Reports available, 564
— of Physical Medicine: Officers for first year, 348—Inaugural address (Lord Horder), 653
— Provident: Twenty-one years of, 823
— of Scientific Workers, 60
— Central Provident, 720
— of Certified Blind Masseurs: Message from Lord Dawson, 188
— Clinical Pathologists: Subjects of current importance, 521
— European, of officers, 81—1
— Hospital Physiotherapists, 91
— Hospitals Society, 21st birthday
— of Industrial Medical Officers: annual general meeting, 656
— Leicester Christian Medical, 804
— London, of the Medical Women's Federation: State nurseries, 84
— Medical Policy, 733
— National, for Prevention of Tuberculosis: Mass radiography scheme, 208, 254—Mass radiography film, 699
— Prison Medical Officers: Clinical photography, 521
— for Scientific Photography: Clinical photography, 521
— Scottish Nuffield Provident, 720
— Socialist Medical: Industrial health in Leicester, 187
— of Speech Therapists, 275
— Tuberculosis: B.C.G. immunity in tuberculosis, 722
Asthma: Theophylline for, 30, 62—Sulphonamides in, 339
Atebrin. See Mepacrine
ATKINSON, E. C.: General principles for future medical services, 278—Treatment of septic hands and fingers, 432
Atrophy, progressive muscular, 630
Atropine glaucoma, 22
Aubrey, Alfred Reuben, obituary notice of, 561
— Squad, Ldr. T. D. R., killed as result of an accident on active service overseas, 154
Australia: Diphtheria immunization in Brisbane, 19
AVERY, Harris: Septic hands and fingers, 657
Avitaminosis, alcohol and (annotation), 614; correspondence, 735
AYTON, John H.: Obstetrical forceps for fibroid, 151
- BAB, H.: Clinical symptoms of adrenocortical hypoadrenalism and hyper-trophy, 826
BACHARACH, A. L.: Penicillin, 434—The D vitamins, 736
BACK, Marjorie: State nurseries, 84—Wartime nursery schools, 620
Bacter, cholerae-suis, human infection with: report of two cases (Herts Schwabacher and others), 358 (O)
Bacteremia after tooth extraction, 378
Bacteriology of brain abscess (Allan M. McFarlan), 643 (O)
BADENOCH, A. Guthrie: The people and State medicine, 180
BAILEY, A. G. S.: Treatment of septic hands and fingers, 764
— Hamilton (and R. J. McNeill LOVY): *A Short Practice of Surgery*, 6th ed., 234
- BALLET, J. Shackleton: Public opinion on health services, 311, 436
— L. D. (and others): Register of Medical Auxiliaries, 485
BAIN, Alastair: Tossing the needle, 772
BAKER, C. G. (and others): Endemic typhus fever in Diego Suarez, Madagascar, 506 (O)
BAKER, J. R.: Journals for enemy prisoners of war, 389
Balantitis: fusospirochetal, treatment of (G. Thomson), 485; correspondence, 729
BALLENGER, Howard Charles: *Manual of Otolaryngology and Laryngology*, 2nd ed., 548—Diseases of the Nose, Throat, and Ear: *Medical and Surgical*, 8th ed., 611
BALNE, Harold: Some problems of rehabilitation 47 (O); correspondence, 116
BANKART, Surg. Rear-Admiral Sir Arthur Rexnall obituary notice of, 154
BANKS, Sam W. (and Edward L. COMPTON): *Fracture Handbook of Fracture Treatment*, 547
BARBER, H. W.: Recurrent erysipelas, 632
BARCKROFT, H. (and others): Ascorbic acid in idiopathic methaemoglobinemia, 336
BARDHAN, P. N.: Louse-borne typhus fever, 85
BARFORD, Arthur Merion, obituary notice of, 216
— J. L.: Rocking device for stretcher, 551
BARRHAM, G. F.: Shortened puerperium, 666
BARKER, Francis, obituary notice of, 798
BARKLA, Fl. Lieut. J. M., death of, on active service, 376
BARKING, B.: Blood in sulphonamide therapy, 521
— Seymour: Personal tribute to Sir Beck Whitehouse, 216
BARLOW, Hilda (and others): The failure of F to inhibit growth of tumours in mice, 65 (O) leading article, 77; correspondence, 149
— Sir Thomas, 98th birthday of, 334—Ap for R.M.B.F. Christmas gifts, 492, 724
BARNARD, Mildred (and M. C. DAVIS): Nomogram for blood urea clearance, 782
BARNES: Spinal-cord injury, 114
— E. Broughton: Sulphonamides in otitis media, 658
BARNETT, J. W.: H11 for cancer, 559
BARNES, H. H. Fouracre: March fracture of tarsal bones, 608 (O); correspondence, 793
BARTON, Mary: Artificial insemination, 312, 7 (and others): Sterility and impaired fertility, 493
BARWELL, T. E.: Oedema of extremities at sea
BASHFORD, Sir Henry, appointed Medical Adviser to the Treasury, 552, 628—Mind and stomach
Bateman, C. H., commended for brave conduct, 348
Bates, Tom, obituary notice of, 765
Batten, Rayner Derry, obituary notice of, 62
BAUER, Albert W.: Treatment of sweating feet—iodine deficiency, 831
— Walter (and others): *Changes in the joint at Various Ages*, 201
BAUM, I. H.: Plaster-of-Paris wrist splint—simple technique for reinforcement, 139
BAUMGARTNER, J. G.: *Canned Foods: An Introduction to Microbiology*, 170
BAXTER, J. S.: Aids to Surgical Anatomy
BAYNES, H. G., obituary notice of, 438
BEADNELL, C. M.: *An Encyclopaedic Diet and War*, 301
BEATON, Thomas: Mental health services in mouth, 618
BRAUMONT, G. E. (and J. D. ROBERTSON): 1 hypothyroidism with impaired renal function (O)—Renal function in myxoedema, 578 (O) (and E. C. DODD): Recent Advances in Medicine, 11th ed., 749
Bredfield, Henry, obituary notice of, 1
BRIDSON, S. P.: Epidemiology of poliomyelitis, 62
Bee stings, 62, 441
BREFF, Dr.: *Contraception and Fertility in Southern Appalachians*, 139
Beer, Louis, obituary notice of, 766
Beers, Clifford Whittingham, obituary notice of
Beesley, R. W., obituary notice of, 57
Beechey, 349
BEGGS, S. T.: Improvised wheeled stretchers, 2
Behaviour and neurosis, leading article on, 256
— correspondence, 556
Beit Memorial Fellowships for Medical Research, 172
Belgium: Save the Children (Emile Camm), 393—Food for, 733—Tuberculosis in, 800
BELL, G. H.: Visual physiology of the cinema
— Julia: *Treasury of Human Inheritance*, IV, Part IV: *On Pseudoherpetic and Types of Progressive Muscular Dystrophy*, 4
Bellie, Fl. Lieut. Gordon Wordeley, killed in accident, 468
BENDT, L. J.: Artificial insemination, 404
BENHAM, G. H. H.: Symptoms of vitamin deficiency, 619
BENJAMIN, B. (and W. Allen DUFFY): Tuberculosis in London, 712 (O)
BENNETT, C. F.: B.C.G. immunity in tuberculosis, 722
— G. A. (and others): *Changes in the Kidney at Various Ages*, 201
— James, obituary notice of, 591
BENTALL, A. P.: Significance of the Rh factor
BERG, Charles: A case of conversion hysteria, 729
BERNSTEIN, S. F.: Fusospirochetal balantitis, 485
BERRY, R. J. A.: Appreciation of R. H. J. (anon.), 560
Beryllium: Toxic hazard of (annotation)
— X-ray picture of lungs in poisoning (Met)

ST. C. H. (and N. B. TAYLOR): *The Physiological Basis of Medical Practice*, 3rd ed., 642
 THUR, Oscar W.: *The 1942 Year Book of General Therapeutics*, 12
 — Report: N.H.I. and Assumption B, 343—
 A.R.M. Government, and Assumption B, 530—
 White Paper, 799
 — W. M. L. Sublesterol for breast tumour, 5—
 — L. Leslie Lawson, death of, 250
 — and blood concentration of cholesterol in
 effect of diet on (Nancy Gough), 390 (O)
 LINGHIST, W. B.: Ligation of innominate
 artery, 531
 — James Rouse, obituary notice of, 346
 — Chemistry: For medical students (book review)
 02—New links with chemotherapy, 415—Reviews
 of two books on, 679
 — material, small, handling of (Alan C.
 Erdum), 644 (O)
 — tin deficiency, clinical (annotation), 271
 — D. J. H.: Kienbock's disease, 282
 — ASKRO, V. J. and A. E. HANSEN: Thrombo-
 phlebitis migrans, 653
 — rate, declining, 154
 — weights, manipulation of (annotation), 427
 — HOP, J. W. (and A. LISTER): Night vision in the
 army: Report of 10,333 tests, 325 (O)
 — P. M. F.: Oestrogens at the menopause, 244
 — matter for threadworms, 409
 — CLEK, C. P.: *Notes for the R.M.O. of an
 infirmary Unit*, 76
 — (and others): Sterility and impaired fertility,
 19
 — OCKLA, Oliver (and others): Preventive medicine
 through breast-feeding, 374
 — LOCKER, D. B.: The population problem of
 India, 805 (O)
 — older function: Recovery after 21 years, 464—
 — recovery after long disuse, 523
 — LOCKER (and DUNCAN): Tourniquet, applied to an
 injured limb, 359
 — edging. See Haemorrhage
 — Advice to local authorities on, 249
 — prevention: campaign for, 253
 — Queen Elizabeth Home of Recovery, 253
 — WHELFIELD, George W.: H 11 for cancer, 403—
 Early diagnosis of cancer, 691
 300.
 — cholesterol, concentration of, in blood and bile,
 effect of diet on (Nancy Gough), 390 (O)
 — regulation: In arterial hypertension (G. W.
 Pickering) 1 (O), 31 (O)—Acute effects of
 smoking on respiration and circulation (R. J.
 Main), 211
 — regulation (overloading, transfusion reactions and
 fatalities consequent on (R. Drummond), 319 (O)
 — (O): correspondence, 431
 — haematology in infective diseases, 826
 — radiation therapy (annotation), 615
 — potassium concentration, rise in, in blood stream
 following ischaemia of muscle masses (R. E.
 Newell), 48
 — Advantages of a disodium-citrate-
 glucose mixture as a blood preservative (J. F.
 Leuit and P. L. Mollison), 744 (O)
 — th. factor, risks of, 157
 — edimentation rate, 597, 735
 — lea clearance, nomograph for (M. C. Davis and
 Mildred Bernard), 582
 — od clotting. Measurement of clot retraction
 (leading article), 236
 — groups: Grouping in tubes, 118—Transfusion
 of the blood group, 700
 — pressure, barometer and, 598
 — — haib. in pregnancy, 125
 — — See also Hypertension
 — — readings, significance of, in general
 surgical work, with special reference to cardiac index
 Harold Dodd), 811 (O)
 — — transfusion. *Danger of Haemolytic Trans-
 fusion Reactions due to Immunization of the
 recipient to the Rh Factor* (Blood Transfusion
 Committee, M.R.C.), 50
 — — See also Transfusion
 — — vessels peripheral, in health and disease
 (leading article), 751
 — — TH. William: Pseudoecyosis simulated in a male,
 35
 — — urd, Conjunct, in Scotland. Licentiates admitted
 85, 627
 — — Industrial Health Research Report on
 beseitment among women workers (annotation)
 98
 — — BERT, P. (and others): The Spackman case,
 49
 — — JENHAM, D. C.: Burns of eyelids and conjunctiva
 — R.A.F. evidence, 522—Penicillin: vehicles
 or administration and types of wound suitable
 for treatment, 655
 — — JONHETZ, Alexander: Antireticular cytotoxic
 serum, 203
 — — J. Lawrence Temple, obituary notice of, 334
 — — J. W.: Books for prisoners of war, 493
 — — diseases, phosphatase in, 114
 — — marrow, transfusion into, 471, 495
 — — ics, Paget's disease of, 501
 — — factor. *Agglutination of Human Pasteur*,
 68—Ligation of innominate artery, 831
 — — ME, E. J. (and others): Register of Medical
 auxiliaries, 465

BOUND, J. P.: Two cases of congenital absence of
 one kidney in same family, 747
 — BOWEN, George: Medicine and politics, 54—*War-
 time Food for Mother and Child*, 233—Caloric
 values of rations in Europe, 759
 — (and W. D. DONERTY) London Teaching
 Hospitals Committee, 341
 — BOUSFIELD, Guy: Diphtheria alum-precipitated
 toxoid (A.P.T.): observations on immunity re-
 sponse in the human subject to varying LI dosage
 combinations, 706 (O)
 — BOWEL, distension of, 441
 — BOWIE, P. G.: Atmospheric pollution with cement
 dust, 804
 — BOWLEY, Asahi H.: *The Natural Development of
 the Child*, 2nd ed., 679
 — BOWYLL, Prof. William, obituary notice of, 25
 — BOND, J. S. K.: Immunization against enteric group
 fevers, 178
 — — Reynolds H.: Artificial insemination, 434
 — — William: *Textbook of Pathology*, 4th ed.
 456
 — BOYD-COOPER, Brian: Parodontal disease, 632
 — BOND, H. C. (and others): N.H.I. and Assumption
 B, 343
 — BOYES, Augustus, obituary notice of, 57
 — BRADLEY, O. Charnock: *Topographical Anatomy of
 the Dog*, 4th ed. (revised by Tom Grahame), 107
 — — W. H.: Field studies in the enteric fever,
 430
 — BRALSTON, J. F.: Early recognition of cancer, 555
 BRAIN:
 — Abscess: bacteriology of (Allan M. McFarlan)
 643 (O)
 — Alcohol and the (annotation), 112
 — Cerebral reaction to antisyphilitic therapy, 20
 — Circulation in, in essential hypertension, 3
 — Progressive cerebral ischaemia (Trevor H.
 Howell), 746 (O)
 — Symptomatology of cerebral disease, review of
 book on, 138
 — BRAIN, E. Dorothy: Plant hormones, 342
 — BRAITHWAITE, E. Wesley: The common cold, 433,
 559; disclaimer, 566
 — Brain: In the diet, 87, 151, 222—Prepared, supply
 of, 222
 — BRANDL, K.: Anaphylactic shock after first injection
 of tetanus serum, 1
 — BRISTON, J. C. (and E. B. JAMESON), *Cunningham's
 Textbook of Anatomy*, 8th ed., 82
 — Breast, diseases of (book review), 748
 — — stilboestrol for tumour of, 57
 — Breast-feeding: Infantile enteritis and, in Dublin
 (annotation), 367, correspondence 526—Preventive
 medicine through, 374—Nipples and, 471,
 566
 — Breasts, oestrogens for small, 125, 318
 — BRINCKER, J. A. H.: Diphtheria immunization in
 England and Wales, 52
 — Bristol and District Divisional Hospitals Council,
 827
 — *British Pharmacopoeia* 6th addendum, 156
 — — BROCK, R. P., ship surgeon, commendation for
 bravery, 800
 — BROADBENT, Walter: Cancer of lung, a clinical
 sign, 86
 — BROCK, A. J.: The future of medicine, 791
 — — S.F. Laurence: War conditions and mental
 health, 618
 — — C: Surgical treatment of bronchial
 carcinoma, 257 (O)
 — BRODIE, J. I.: State nurses, 84
 — BROVIA, Anna: *Simple Health Hints*, revised
 edition, 715
 — Bronchitis and bronchopneumonia: Therapeutic
 fallacies, 574
 — BROOK, Charles Wortham: *Carbide and the Sur-
 geons*, 202
 — Brooks Capt. T. Henderson obituary notice of,
 562
 — BROWN, Alan: Pasteurization of milk and infant
 mortality rates in Toronto, Vancouver, and
 Victoria, 133 (O)
 — C. Metcalf: Report on health centres,
 presented to Manchester Public Health Committee,
 685
 — — R. Hon. Ernest: Hospital meals, 172
 — — F. R.: Unpadded plaster in open wounds, 692
 — — J. A.: Urea for migraine, 201
 — — Lt.-Col. Stewart, killed in action, 594
 — — W. Thomson: Some therapeutic fallacies, 693
 — BROWN, F. J.: *Advice to the Expectant Mother on
 the Care of her Health and that of her Child*,
 6th ed., 393
 — — (and others): Sterility and impaired fertility,
 493
 — BRUCE, David: *The Future and the Fighting Gen-
 eration*, 139
 — BRIAN-BROWN, D. S. (and others): N.H.I. and
 Assumption B, 343
 — BUCHAN, George F.: Child care in a national health
 service, 273—Foundations of a comprehensive
 health service, 728
 — BUCKLEY, C. W.: Differential diagnosis of spinal
 arthritis in young subjects, 4 (O): correspondence,
 179
 — BURGESS, Robert, obituary notice of, 530
 — BURKETT, James: Lectures on industrial medicine,
 148—*Outlines of Industrial Medicine, Legislation,
 and Hygiene*, 363
 — BURKSTON, J.: Pneumonitis, 792

BURNS: Infection in, 114—Of lids and cornea, 410
 — Of eyelids and conjunctiva (Royal Society of
 Medicine), 52—Analysis of cases in R.A.F. hospi-
 tal, 52—Human fibrin as a haemostat for
 (R. G. Macfarlane), 541 (O)—Unusual, of cornea
 from molten wax (Sydney Tibbles), 547—
 Phosphorus, 666
 — BURROWS, Arthur: Treatment of lupus vulgaris, 432
 — — Harold: Management of pleural empyema,
 463
 — BURS, symptomless, 502
 — BURT-WHITE H. (and A. G. JOHNSON): Two cases
 of anemia due to subpharyngeal calculi success-
 fully treated by ureteric catheterization, 505 (O)
 — BURTON, Harold: Low spinal anaesthesia during
 labour in cases of cardiac failure, 359 (O);
 correspondence, 465
 — Butter and cheese, infected, 315
 — Buttock wound, 501
 — BUTYON, St. J. Gunshot wounds of elbow-joint,
 758
 — BYRNE, Austin William: obituary notices of, 144
 — BYWATERS, E. G. I. Arterial embolism and crush
 syndrome, 432
 C
 — CADE, Stanford: A sulphonamide powder spray,
 514
 — Caesarean section. See Obstetrics
 — CAGILL, William: Intravenous technique in infants,
 417
 — Cadz, Andrew J., obituary notice of, 561
 — Calamine and sulphanilamide for pyogenic skin
 infections, 380
 — Calcium: Of milk, availability of (Katherine H.
 Coward and others), 39 (O)—For an infant, 802
 — CANNAL, Jane Scott: Cult of negative health, 152
 — CALLOW, Bessie R. (and A. FELIX): Types of para-
 thyroid B facility by means of Vi bacteriophage;
 report to M.R.C., 127 (O)
 — CALMAN, C. D.: Skin sensitivity to sulphonamides,
 339
 — CALVERT, Walter: Congenital atresia of oesophagus,
 645
 — CAMERON, J. A. M.: An unusual amoebic liver
 abscess, 329
 — — Kenneth (and G. V. STEPHENSON), Anxiety
 states in the Navy, 693 (O): correspondence 687
 — CAMMERTON, Emily: *Save the Children of Belgium*,
 393
 — Campbell, C. M., obituary notice of, 254
 — — James: The cult of negative health, 214
 — — J. Argyll: Single and multiple lung tumours,
 21
 — Campden method of preserving fruit, 502
 — Canada: Milk, pasteurization of, and infant mor-
 tality rates in Toronto, Vancouver, and Victoria
 (Alan Brown), 133 (O)—Nutrition programme in
 (leading article), 235—Penicillin, production of,
 409—V.D. problem in, 89
 — Cancer: Early recognition of, 313, 402, 493, 555,
 691, 724—Pregnancy stage, 566—And the
 young gynaecologist (Malcolm Donaldson), 696—
 Long-term recurrence in (L. H. Davies-Wes-
 ter), 720 (O)—Radiotherapy available for, 531
 — — Act, 1939: Local authorities' plans, 564
 — — breast: Clinical diagnosis of, 56—Dissemina-
 tion of, with stilboestrol, 659—62—Breast lymph
 and 701
 — — bronchial, surgical treatment of (R. C.
 Brock), 257 (O)
 — — chretia, cause of, 596
 — — H 11 in: Failure of H 11 to inhibit growth of
 tumours in mice (W. E. Gye and others), 65 (O)
 — — Observations on use of (H. A. Kidd), 67 (O)
 — — H 11 for treatment of cancer (leading article), 77;
 correspondence, 149, 211, 403, 456, 659—Effect
 of injections of H 11 on growth of mouse tumours
 (D. L. Woodhouse), 231 (O)
 — — lung: a clinical sign, 86
 — — prostate: Treatment by oestradiol and
 diethylstilboestrol (G. Harvie Duncan), 137—
 Stilboestrol for, 501, 702
 — — rectal, surgical pathology of (R.S.M.), 704
 — — research, 256
 — CAPENER, Norman: Fact and fancy in polymy-
 omy, 279
 — CAPPELL, D. F. (and others): The Rh factor and
 erythroblastosis foetalis, 259 (O)—Significance of
 the Rh factor, 261
 — Carbon monoxide and producer-gas units, 187
 — Carcinoma. See Cancer
 — Cardiff: *Proceedings of Medical Society*, 611
 — CAREW-SHAW, E.: Vasodilators in coronary, 539
 — CARRILL, L. Vernon (and others): Review of
 Medical Auxiliaries, 465
 — Carle and the Surgeon (C. W. Brook), 232
 — CARLING, Esther: The nation's milk, 117—"Milk"
 and "buses," 214—Food for nurses, 52
 — CARLSON, Hjalmar E. (and Nels F. OCKENFELD):
 Urology in General Practice, 485
 — CARE-SUNDERS, A. M. (and others): Sterility and
 impaired fertility, 619
 — CARUTHERS, L. B.: Sulphonamides in asthma, 339
 — CARVER's little liver pill, efficacy of (annotation),
 395
 — Casein hydrolysate, enzymic, minimum requirements
 (A. J. Mueller), 200
 — CASTLE, Sir Felix, endowment of bursaries for
 nurses, 285

- Catheterization, ureteric, sulphapyridine anuria successfully treated by (J. P. Cunniffe), 11
- CAVE, PAUL: A precision method of cephalometry and pelvimetry, 196 (O); correspondence, 338, 375, 495, 526, 558, 658
- CADWADIA, A. P.: *Hermaphrodites: the Human Intersex*, 580—Cos and Hippocrates, 588
- CAWSTON, F. G.: Destruction of schistosome larvae, 840
- Cement dust, atmospheric pollution with, 622, 804
- Cephalometry and pelvimetry, a precision method of (Paul Cave), 196 (O); correspondence, 338, 374, 494, 526, 558, 658
- Cerebral, *See* Brain
- Cerebrospinal fluid, specific gravity of, with special reference to spinal anaesthesia (W. Etherington-Wilkinson), 165 (O); correspondence, 245, 280, 314
- Certification panel at Burnley, 91
- Ceylon, malnutrition in (annotation), 144
- CHADWICK, Henry D. (and Alton S. Pope): *The Modern Attack on Tuberculosis*, 75
- Chadwick prizes and medals, 137
- CHAKRAVARTI, A. (and R. K. Pal): *A Handbook of Modern Physiology*, 107
- CHAMBERLAIN, E. Noble: Symptoms and Signs in Clinical Medicine, 3rd ed., 170
- (and H. Wallace Jones): *Electrocardiograms: An Elementary Atlas for Students and Practitioners*, 2nd ed., 363
- CHAPMAN, L. (and others): An epidemic of erythema infectiosum, 745
- CHARLTON, E. P. H. (and Ellis Stungo): Examining the neurotic, 830
- CHARNEY, J. (and E. A. Jack): The two-stage amputation: primary planned amputation in presence of sepsis, 131 (O)
- CHARTRIS, A. A.: Local application of sulphanilamide powder in radiotherapy, 577 (O)
- CHIEATIE, Sir G. Lenthal: Orthopaedics of "sentry box," 213
- Cheese and butter, infected, 318
- Chemistry, Physical, for Students of Biochemistry and Medicine (E. S. West), 301
- Chemothorax: Local, in chronic (non-rheumatoid) rheumatism (G. L. Scott), 510 (O)—Or serum for scarlet fever? (leading article), 613—Effect of, on mortality from pneumonia in Glasgow (Thomas Anderson), 779 (O). *See also* Sulphonamides
- Chest, examination of, review of book on, 646
- Chicken-pox following contact with shingles, 736, 840
- Childblains, treatment of, 252, 574, 727
- CHILDREN:
- Child care in national health service (G. F. Buchan), 273
- Childhood infection and its relation to adolescent and adult pulmonary tuberculosis; records of Brompton Hospital for last 14 years (A. Margaret C. Macpherson), 98 (O); correspondence, 210, 373, 436, 463, 621, 764
- Children in Bondage, 238
- in hospital (annotation), 785
- Diseases of Infancy and Childhood (Wilfrid Sheldon), 4th ed., 514
- Eyesight, care of child's, 433
- Medical care of (annotation), 304
- Natural development of (book review), 679
- Nutrition, levels of vitamin A and C, in Glasgow school-children and effect of deficiencies on their physical condition (G. Kohn and others), 477 (O)
- Parath in the dock (annotation), 551
- Pyelitis, retention of urine and, in girls, 657
- Rehabilitation of, in occupied countries, use of exercise in (book review), 170
- Scottish, health of, 219
- "Spots" in, 839
- Syphilis, incidence of, among juvenile defectives (J. Lloyd), 420
- Tuberculosis in childhood (leading article), 270; correspondence on, 374; any questions?, 500
- Vitamins and minerals, effect of supplements of, on health of girls (Hilda Fowke), 519
- Wassermann reaction, blood for, in a child, 287
- China: Drugs and supplies for, 144—British Government grant-in-aid to, 187—Doctors for, 249—Medicine in (book review), 580
- root, 255
- Cholecystography: Pheniodol, a new contrast medium for (F. H. Kemp), 674 (O)
- Cholera and deaths from famine in India, 595
- Cholesterol, effect of diet on concentration of, in blood and bile (Nancy Gough), 390 (O)
- Choline derivatives, alarming effects of, 700
- Christip, William Fogitt, obituary notice of, 766
- CHRISTIE, A. B.: Arsenic for Vincent's infection, 433
- R. V.: Clinical trials of penicillin, 655
- CHRISTIE-BROWN, R. (and others): Sterility and impaired fertility, 493
- CLEMENT, S.: Possibilities of research in senile diseases, 239 (O); correspondence, 314
- Chronic sick, care of: A case for treating chronic sick in blocks in a general hospital (Marjory W. Warren), 822 (O)
- Civil Defence casualties, medical care of, 469
- CLANCY, W. J.: Spinal anaesthesia for labour, 465
- Clarey, Lieut. N., death of, 798
- CLARK, C. Denley: Walkers "iron" for leg plasters 364
- C. W.: Traumatic arterial spasm, 167 (O)
- Treatment with tuberculin, 120
- CLARK-KENNEDY, A. E.: Educational background for the profession of medicine, 306; correspondence, 374
- CLARKE, A. Grey (and F. Prescott): Studies in vitamin B deficiency with special reference to mental and oral manifestations, 503 (O); correspondence, 619, 657, 689
- Ashley V.: Treatment of sweating feet, 632
- Major R., presumed killed in action at sea, 315
- Classics, the, 375, 467, 496, 591
- Claudication, intermittent, 254, 350, 410
- CLAY, Austin C.: Chemotherapy of intestinal infections treated with sulphonamide compounds, 35 (O)
- CLAYTON, P. B.: *Cleanse the Leper*, 364
- Cleminson, F. J., obituary notice of, 315
- Clinics, special, 55
- Clonus ether, treated by hexobarbitone soluble (H. L. Heath), 646
- Clothing, delousing of, by fumigation (W. G. L. David), 105
- COBB, Charles C.: Conditions for good work, 121
- Coccioidiomycosis (annotation), 585
- Cock, Frederick William, obituary notice of, 625
- Cockroaches, 502, 840
- Cocliac disease, incipient, improved by sulphaguanidine, 558
- COHEN, H. M.: Tuberculosis in childhood, 374
- Raymond C.: Effect of pregnancy and parturition on pulmonary tuberculosis, 775 (O)
- Cold: Feeling the, 501—First phase of injury from (Killian), 608—Cold extremities, 802
- common, 433, 528, 589—Control of, 159, 218—Vaccines for, 221—Doctor with a cold, 343—Psychology and, 494—Therapeutic fallacies, 574—Patulin and, 683
- COLDREY, Eric: Learning the art of medicine, 341
- COLEBROOK, Leonard: Infection in burns, 114
- Coles, Donald Alexander, obituary notice of, 283
- Colitis: Osteo-arthritis after, 564—Sulphonamides for, 665
- mucous, improved by sulphaguanidine, 558
- COLLEGE, Lionel: Gunshot wound of innominate artery, 793
- College, Epsom: Annual general meeting, 29—Connell Craig Fund, 29
- Royal, of Obstetricians and Gynaecologists: Elections, 185, 626—Gift of £1,000, 185, 626—Members admitted, 626—Diplomas awarded, 627; regulation suspended, 664
- Royal, of Physicians of Edinburgh: Elections, 185, 798—Meetings, 185—Bursaries awarded, 664—Fellows introduced, 664
- COLLEGE, ROYAL, OF PHYSICIANS OF LONDON:
- Awards, 218
- Bradshaw Lecturer, 593
- Charles West Lecture, 593
- Comitia, 218, 593
- Diplomas granted, 218, 594
- Elections, 218, 593
- Harvelian Orator, 593
- Licences conferred, 593
- Membership, 218, 593
- Milroy lecturer, 593
- Reports of Committees on Social and Preventive Medicine and on Psychological Medicine, 553, 593, 617, 648
- Scholarships, 593
- College, Royal, of Surgeons of Edinburgh: Fellowship, 88—Fellows admitted, 154—Fellows elected, 594—Elections, 594
- COLLEGE, ROYAL, OF SURGEONS OF ENGLAND:
- Appointments, 122, 218
- Arnott demonstrator, 122
- Atter and Gale Lectures, 122
- Bernhard Baron Research Laboratories, 561
- Blane Medal, 562, 697
- Bradshaw Lectures, 561, 835
- Chair of Human and Comparative Pathology, 798
- Centenary celebrations, 140
- Diplomas granted, 122, 218, 562, 697, 835
- correction, 286
- Elections, 58, 697
- Erasmus Wilson demonstrators, 122
- Examiners, Court of, 697
- Fellowship: new regulations, 80, 90
- Fellowships granted, 122, 562, 835
- honorary, 80, 140, 335, 664
- Gift of £100,000 by Mr. W. H. Collins, 518
- conference, 122, 697
- 562
- 218
- arch Fund, 561
- Moynihan Lecture, 430
- Museum, restoration of, 14
- President: Re-elected, 122—Address to Fellows, 401
- COLLIER, Howard E.: Neurotic and psychiatric states as causes of inability to work in England, 1940-1, 461; correspondence, 556, 660
- COLLINS, E. G.: Ear, nose, and throat casualties in a general hospital in the Middle East, 356
- COLLIS, Edgar L.: Appreciation of D. A. Coles, 283
- Colon and rectum, functional diseases of (R. S. M.), 51; correspondence, 117, 310, 403, 462
- Colonies, higher education and research in, 123
- COLSEN, Kurt: *Fractures and Fracture Treatment in Practice*, 169
- COLT, G. H.: Survival after wiring an a, 442
- COLTART, W. D.: Injuries of the astragalus Commission, National Radium: List of approved for supplies of radon, 433
- Royal, on Birth Rate, 767
- Committee, British X-ray and Radium Protection, 146
- Central Advisory Water: Report of Boards (leading article), 457
- Interdepartmental, on Rehabilitation of settlement of Disabled Persons, 155
- Joint, for Soviet Aid, 156
- London Teaching Hospitals, 341
- Medical Personnel (Priority) of North land, 113
- Ministry of Health Standing, on Medical Nutritional Problems, 187
- Parliamentary Medical, 836
- Representative: Report of, 244—Committee of, 594
- Rushcliffe, on training of nurses for service, 699
- Standing, on Nutrition, 187
- COMPER, E. L. (and S. W. Banks): *Handbook of Fracture Treatment*, 547
- COMPTON, Arthur: Comparative value of sulphonamides in acute bacillary dysentery. Concurrence, greatest are of, 771
- CONNELL, M. C. (and B. L. Della Vigna): Leukaemic myeloid leukaemia, 417 (O); correspondence, 527
- Constitution: Some therapeutic fallacies, 575
- Contraception, sterility and, 256, 350, 434, 445, 587, 691, 796
- Contraceptives, fertility and, 154, 350
- Contraception for herpes (E. S. Hawkes), 391
- Convulsion therapy: Misadventure under current treatment (E. H. Larkin), 299—Hemiparesis for, electrotherapy (E. Frison) 519
- CONWELL, H. E. (and J. A. Key): *Management of Fractures, Dislocations, and Sprains*, 316
- CONYBEARE, J. J.: *Textbook of Medicine*, 616
- 76—Transmission of kala-azar by the sandfly
- CONYNGHAM, M. A.: Perforated gastric ulcer in adolescent, 256
- COOKE, W. Trevor: Pleuro-pericardial rub, 8
- COOPER, W. C. J.: Bovine tuberculosis in S. 214—Surgical tuberculosis in S. Africa, 71
- COPE, V. Zachary: Actinomycosis of tongue (and others); Register of Medical Authorities, 465
- COPPEMAN, W. S. C.: Aetiology of the filarid nodule: a clinical contribution, 263 (O); correspondence, 373, 494
- (and Harold Edwards): Dyspepsia: investigation, 640 (O)
- CORDIER, D. G.: Methods of artificial respiration, 381; correspondence, 493
- CORFIELD, W. F. (and H. Loewenthal): Successful treatment of chronic paratyphoid carrier sulphaguanidine, 105 (O)
- CORKERY, R. A. P. (and others): The Spaccase, 249
- Cornea. *See* Ophthalmology
- Corporation, the public (D. Harcourt Kuttel), 359, 399 (B.B.C., National Electricity Supply London Transport), 423 (Assistance Board, culture, Health Services)—Corporation of 4 ment? (leading article), 425
- Correspondence:
- Actinomycosis of the tongue, 180
- Adder bite, 56
- Advertising space, economy in, 57
- Agents provocateurs, 725, 796, 832
- Anaesthesia, ether, light, 762
- for laryngoscopy, 312
- nasal intubation in, 86
- nitrous oxide, 762, 827
- regional, 660
- spinal, 687—Site of embolus after, 179
- labour, 465
- Anaesthetics, teaching of, 827
- Anaesthetist's third hand, 728, 763
- Analgesia in midwifery, 795
- Anatomy, Vesalius and Gray on, 56
- Anxiety and hysteria, 687
- Ariboflavinosis syndrome, 279
- Army's steel helmet, 833
- Arsenic for Vincent's infection, 433, 464, 729, 763
- Arsenical encephalopathy, 465, 559
- Artery, innominate: Wound of, 793—Li of, 81
- Aspirin and gastric haemorrhage, 57, 117
- Atmospheric pollution with cement dust, 62
- Balanitis, fucosporillary, 729
- Bladder function, recovery of: After 21 464—After long disease, 523
- Blast injuries, 118
- Blood, grouping in tubes, 118
- Breast-feeding: Preventive medicine through—Infantile enteritis and, 526
- British Medical Journal, appeal for backers of, 343
- schools and Austrian doctors, 436
- Cancer: Clinical diagnosis of breast tumour—H 11 fer, 149, 211, 314, 403, 466, 559—a clinical view, 85—Early recognition of, 402, 493, 555, 691, 724—Sublethal for tumour, 57, 659, 762

- DAVID, W. A. L.: Delousing of clothing by fumigation, 108
- Darwent, Edgar Nicholas, obituary notice of, 153
- DAUBE: Four cases of "pervitin psychoses," 499
- DAVEY, E. N.: Cutaneous diphtheria in an infant, 521
- DAVIDSON, L. S. P. (and others): Nutritional iron deficiency anaemia in wartime: haemoglobin levels of 3,338 persons from birth to 55 years of age, 95 (O)
- DAVIE, T. M.: Misuse of vasoconstrictors in coryza, 763
- Davies, Surg. Lieut. C. M., missing, presumed killed, 498
- G. L.: Old lamps for new, 555—Some therapeutic fallacies, 657
- J. L.: Facts about dairy production, 113
- DAVIS, John J.: Arsenicals in Vincent's infection, 464
- M. C. (and Mildred BARNARD): Nomograph for blood urea clearance, 782
- DAVISON, A. W.: Two cases of epilepsy, 158
- DAVSON, H. (and J. F. DANIELL): *The Permeability of Natural Membranes*, 485
- DAWKINS, Massey: Audible warning of empty oxygen cylinders, 548
- DAWSON OF PENN, Viscount: Elected President of B.M.A., 426—*Presidential Address: Medical service and social change: some reflections and convictions*, 429
- Deafness: After scarlet fever, 125—Batteries for deaf-aid appliances, 155—Lip-reading for the deaf, 317
- DEAN, C. W.: The Edinburgh Surgical Fellowship, 88
- Deaths, reporting to coroners, 694
- DENHAM, R. K.: War surgery in the Middle East, 223 (O)
- DEEY, J. (and others): Ascorbic acid in idiopathic methaemoglobinemia, 336
- DELLA VIDA, B. L. (and M. C. CONNELL): Acute aleukaemic myeloid leukaemia, 417 (O); correspondence, 527
- Dementia praecox. See Schizophrenia
- Demerol (annotation), 367
- Denham, Fl. Lieut. John Kenneth, obituary notice of, 562
- DENHOLM-YOUNG, H. M.: Prevention of midge bites, 472
- Denmark: Mortality rate, 1941-2, 343
- Dentistry as a specialty of medicine, 590, 726, 797
- Dentists, alien, 498
- Denture Base Readjustment (H. Hirsckorn), 611
- Dentures, keeping clean, 502
- DERHAM, W. H.: Selective action of vitamin C on suprarenals, 213
- Dermatitis, occupational, 802
- Dermatology, review of book on, 392
- and Syphilology, 1942 Year Book of, 138
- military, experiences in (R. M. B. Mackenna), 191 (O); correspondence, 283
- desert sores, 590
- deoxycorticosterone acetate, effects of administration of, on young chicks (Hans Selye), 559
- JERRY, E. B.: *Food Poisoning: Its Nature, story and Causation: Measures for its Prevention and Control*, 547
- diabetes: Diet in, 21, 115—Diabetic retinitis, 212, 312—Legs, painful, in elderly diabetic, 255—Views on, 374—Injured diabetic, the, 472, 566—Glucose available for patients, 733—Pneumonia in a diabetic, 734
- Diagnosis, Physical (Cabot's), 76
- Diamidines, 413
- Diatomy and suction holder, a new (Ralph Friedman), 301
- Dictionary, *Encyclopaedic, of Science and War* (C. M. Beadnell), 301
- *Pocket Medical* (Lois Oakes), 456
- *of Science* (E. B. Uvarov), 268
- of skin diseases (book review), 486
- Dicumarol and salicylates (annotation), 615
- Diet: In diabetes, 21, 115—Bran in, 87, 151, 222—Effect of, on concentration and bile (Nancy Gough) in reproduction and Richards), 418 (O)—In for peptic ulcer patients, 464, 520, 521
- Diethylstilboestrol and oestradiol, treatment of prostatic carcinoma by (G. Harvey Duncan), 137
- Digestive tract, respiratory function of (annotation), 207
- Digitalis, action of (annotation), 45
- maintenance dose of, 283
- Dilantin for non-epileptic psychoses (annotation), 518
- DILLON, Frederick: The classics in medical education, 591
- J. A. (and L. R. EVANS): Primary amyloid disease, 242
- DINGLEY, A. R.: Nasal intubation, 86
- Diphtheria: Epidemiology (leading article), 44; correspondence, 116—Faucial and labial (M. Anderson), 104—Control of, 162—Problems (Fever Group of Society of M.O.S.H.), 177—Bacilli, strains of, 189—Incidence and deaths (England and Wales), 219—Of glans penis (J. Singh), 275—Prophylaxis, combined diphtheria and pertussis, 349—Cutaneous and conjunctival: series of cases (H. C. M. Williams), 416, (O)—Cutaneous, in an infant (E. N. Davey), 521—Carriers: what to do with them, 596—Unusual cases of (J. W. Crowther), 646; (J. B. Fleming), 677
- Diphtheria immunization: In Brisbane, 19—Questions in Parliament, 27—Statistics for England and Scotland, 52, 628—Campaign in Scotland (R.S.M.), 53—In Northamptonshire, 187—Publicity campaigns, 231, 698—Immunized and unimmunized, deaths in, 662—Alum-precipitated toxoid (A.P.T.): observations on immunity response in the human subject to varying Lf dosage combinations (Guy Bousfield), 706 (O)—Immunity, artificial active, duration of (H. L. Duke and W. B. Stott), 710 (O)
- Disabled, resettlement of (leading article), 143; Parliamentary question, 836
- Disclaimers, 126, 502, 534, 566—
- Disease, control of, in the Tropics (annotation), 651
- Diseases, functional, of colon and rectum (R.S.M.), 51
- of Nose, Throat, and Ear: *Medical and Surgical* (Ballenger), 8th ed., 611
- Disinfectants, transparent, 502
- Dislocation, plantar, of fourth metatarsal (G. B. Mair), 169
- Diverticulitis, complications of, 61
- Dixon, Francis, obituary notice of, 498
- Dizziness, postural, 471, 840
- DOBSON, Margaret: "Better sight without glasses," 87
- Dock workers, rehabilitation centre for, 554
- Doctor: With a cold, 343—In the State, ancient and modern (Sir Weldon Dalrymple-Champneys), 586
- Doctors, alien: In hospitals, 123—In the Colonies, 219—Question in Parliament, 498
- Austrian, British schools and, 436
- distribution of, 594
- French, in revolt (annotation), 517
- interned, 91, 733
- practising as dentists, 734
- prisoners of war in Japanese hands, 378; in Borneo, 378
- recruitment and allocation of, 440
- repatriation of prisoners of war (Parliament), 27
- Service, and White Paper, 531
- women, in Germany, 554
- DODD, Harold: Significance of blood-pressure readings in general surgical work, with special reference to cardiac index, 811 (O)
- (and F. Prescott): Methedrine in surgical operations, 524
- DODDS, E. C. (and G. E. BEAUMONT): *Recent Advances in Medicine*, 11th ed., 749
- (and Kenneth WALKER): Stilboestrol for prostatic enlargement, 436
- Gladys (and others): Sterility and impaired fertility, 493
- DOGRA, Lieut.-Col. J. R.: *A Handbook for Emergency Commissioned Officers of the I.M.S.*, 202
- DOHERTY, W. D. (and Geoffrey BOURNE): London Teaching Hospitals Committee, 341
- William Brown (and D. D. RONES) (editors): *Rehabilitation of the War Injured: A Symposium*, 715
- DONALD, Pollok: New method of gas training, 81
- DONALDSON, G. M. M. (and others): Nutritional iron deficiency in anaemia in wartime: Part II—Haemoglobin levels of 3,338 persons from birth to 55 years of age, 95 (O)
- Malcolm: Early recognition of cancer, 402—Cancer and the young gynaecologist, 686
- DOUGLAS, C. G. (and others): Are hospital diets adequate? 619
- DOUTHWAITE, A. H.: Aspirin and gastric haemorrhage, 117
- DOWNES, Rupert M.: *Medical Ethics*, 233
- DRINKER, C. K.: *The Lymphatic System: Its Part in regulating Composition and Volume of Tissue Fluid*, 330
- Drugs: some conundrums, 126
- DRUITT, A. W. N.: Cutaneous hypersensitivity to sulphonamides, 148
- DRUMMOND, R.: Blood grouping in tubes, 118—Transfusion reactions and fatalities consequent on circulatory overloading, 319 (O); correspondence, 436
- DUDLEY, Surg. Vice-Adm. Sir Sheldon: Meals in Naval hospitals, 172
- DUKE, H. L. (and W. B. STOTT): Duration of artificial active immunity against diphtheria, 710 (O)
- DUKES, C. E.: Surgical pathology of rectal cancer, 790
- DUNCAN (and BLALOCK): Tourniquet applied to an injured limb, 359
- G. Harvey: Treatment of prostatic carcinoma by oestradiol and diethylstilboestrol, 137
- Louis Ingram, obituary notice of, 249
- DUNN, Samuel: Post-vaccinal encephalomyelitis, 199 (O)
- "Duodenitis," 688, 828
- Dyes and analogous substances, 412
- Dysenteries, the review of book on, 392
- Dysentery, bacillary: 273 cases of Flexner and Sonne infections treated with sulphonamide compounds (A. C. Clay), 35 (O)—Control of, 161—Comparative value of phage and sulphonamides in acute cases, 178—Genus *Shigella* (annotation), 237—Explosive epidemic of Sonne dysentery (C. A. Green and M. C. McLeod), 259 (O)—prophylaxis, 335—Sulphonamides for, 665
- Dysmenorrhoea, oestradiol benzoate for, 838
- DYSON, M. (and G. PLAUT): A study of the accuracy of serum protein estimations and of diurnal variations in their level, 6 (O)
- Dyspepsia: And peptic ulcer in the Henry Tidy), 473 (O); correspondence, 521—An investigation (Harold Edwards and Copeman), 640 (O)—putrefactive, 532
- Dystocia dystrophica, 61

E

- Ear: Noises in the, 410—Irritation of, nancy, 501
- inner (book review), 421, 514
- nose, and throat casualties in a hospital in the Middle East (E. G. Collins), 233 (O)
- Ear-drums, blast perforation (G. W.), 233 (O)
- Earwigs, invasion of, 62, 158, 190
- EATON, M. L. (and B. A. PETERS): Treated with sulphamerazine: report of 230 (O)
- EAST, W. Norwood: Psychiatry in relation criminal, 554
- Eastwood, W. J., obituary notice of, 26
- EATES, A. R.: Cult of negative health, 5
- ECCLES, W. McAdam (and others): *Medical Auxiliaries*, 465
- Eclampsia, electro-encephalograms in 20 (M. Rosenbaum and G. L. Maltby), 26
- Eczema, 667
- Eden, Major K. C., death of, on active, 627; obituary notice of, 697
- EDGAR, Bowman: Resuscitation by adaptation for first aid, 119—"Load sit two bearers," 832
- Edington, George Henry, obituary notices, 529
- EDMONDS, E. P.: Mind and stomach, 688
- Education: Higher education and research Colonies, 123—And health services are New Authoritarianism in Education, biological criticism of (Sir John Grah), 623
- EDWARDS, Harold (and W. S. C. C.): Dyspepsia: an investigation, 640 (O)
- Mary G. H.: Nipples and breast-feeding, 724
- Peter W.: Attack on pulmonary tuberculosis, 724
- R. Tudor: Disappearance of bra with stilboestrol, 659
- W.: Analgesia in midwifery: a "midwife," 799
- Eire: Goitre in County Tipperary, 79 enteritis and breast-feeding in Dublin (1942), 367—Registrar-General's quarterly, 60, 408, 837—Public health in, 801
- ELAM, John: The medical superintendent Light ether anaesthesia, 762
- Electrocardiography. See Heart
- Electro-encephalogram, psychopathic (and the annotation), 718
- Electroshock therapy: speculation (Any One), 666
- ELLIOTT, M. H.: A shorter pericardiectomy, 256
- ELLIS, F.: Early recognition of cancer, 7
- ELLISON, J. B.: D. and V. and mastoiditis
- ELLMAN, Philip: Financial allowances, 657
- Embolism, air, fatal, after vaginal insufflation (Partridge), 390 (O)
- peripheral arterial (H. Agar), 101
- response, 179, 245, 374, 432
- Emphysema: Subcutaneous, in smallpox, 190
- Empyema, acute pleural, management of (Allison), 383 (O); correspondence, 463
- tuberculous, sulphonamide therapy in Emulsifying agents, 803
- Encephalitis with atypical pneumonia, fatal (H. Perrone and M. Wright), 63 (O)
- lethargic, family history of, 631
- Encephalomyelitis, post-vaccinal, 30—(S 199 (O)—In File (G. Matthew Tyle and Fleming), 671 (O)
- Encephalopathy, arsenical, 465, 589
- Endocrine factor in migraine, 255
- Endocrinology: And psychoneurology, 11 book on, 169—Short stature and, 59
- Endometrium, biopsy of (O. C. Lloyd), 42
- Endorhachal harness (M. W. P. Hudson), 234
- tubes, self-inflating cuff for (R. R. M.), 234
- England and Wales, Registrar-General's returns, 124, 499
- ENGLISH, W. L.: Boiled milk and gas poisoning—Two cases (mucous colitis and peritonitis) improved by sulphamonomide, 54
- Enteritis, infantile, and breast-feeding (annotation), 367; correspondence, 521
- ENTONOV, Mrs.: Training for nurses
- EPIDEMIOLOGICAL NOTES:
- Diphtheria, 285
- Dysentery, 531
- Eire, public health in, 801
- Health: Of the nation, 663—In Scotland, 769—In South Africa, 377
- Paratyphoid in Schleswig-Holstein, 34
- Quarterly returns: Eire, 60, 418, 837—England and Wales, 124, 499—Scotland, 34
- Northern Ireland, 499
- Smallpox, 769

EPIDEMIOLOGY:
Diphtheria, leading article on, 44; correspondence, 116
Dysentery, Sonne, explosive epidemic of (C. A. Green and M. C. McLeod), 259 (O)
Erythema infectiosum (L. Chargin and others), 745
Food, infections due to, 253
Hepatitis, epidemic infection (leading article), 650
Infants, statistics of, 92
Infectious diseases and vital statistics, 28, 60, 92, 124, 156, 188, 220, 253, 285, 315, 347, 377, 408, 439, 470, 499, 531, 563, 595, 629, 633, 699, 732, 769, 801, 832
— Some problems in the control of (Robert Cruickshank), 159 (O)—Blood changes in (Society of M.O.H.s: Fever Group), 826
Mononucleosis, infectious (J. P. A. Halcrow and others), 443 (O); correction, 534; correspondence, 658—Observations on 21 cases (H. H. Ash and J. L. Arbogast), 714
Polomyelitis (R.S.M.), 686
Precautions against world-wide epidemics, 698
Weill's disease, 659
—*Sideromysis pullosa*, 597, 666
—*Sideromysis*, 632
—*Spleen*: Two cases of, 93, 158—Prognosis in, 288
—*Glutamic acid* for, 248—Inheritance of, 378—*Incidence and prognosis* of (F. J. Nairns), 451 (O)
—*rection*, incomplete, 665
—*ret*, alkaloids and involution of uterus (annotation), 270
—*SKINE, David*: Vincent's infection during arsenical treatment, 72
—*Wegelin*, recurrent, 533, 632
—*Ythema*, recurring, of face, 30, 94
—*infectious*, epidemic of (L. Chargin and others), 745
—*vibrio* of foetus, Rh factor and, an investigation of 50 families (R. R. Race and others), 259 (O)—Treatment with Rh-negative blood (Janet C. Gimson), 802 (O)—Notes on 5 cases: occurrence of Rh antigen in the population (Edward D. Hoare), 297 (O)—Rh in prognosis and treatment of hemolytic disease of newborn (leading article), 303
—*kumies and Lapps*, food and health of (annotation), 207
—*HERINGTON-WILSON, W.*: Specific gravity of C.S.F. with special reference to spinal anaesthesia, 165 (O); correspondence, 245, 280, 314
—*rope*: Food situation in (annotation), 16—Post-war problems of (book review), 647—Renewal of civilization: problems of feeding Europe, 789
—*acuation*, c. brighter picture (annotation), 46
—*ANS, L. R.* and *J. A. DILLON*: Primary amyloid disease, 24
—*Geoffrey*: Functional diseases of rectum and colon, 51
—*Griffith*: Financial allowances in tuberculosis, 724
—*ART, E. D.* *A Guide to Anatomy* 5th ed. 647
—*ney, Gerald S.*, obituary notice of, 121
—*used*, spurious, and composite Ziehl-Gran staining method for, 232 (O)
—*c.* See Ophthalmology

F

ice, war wounds of upper part of, early treatment of (M. C. Oldfield), 163 (O)
—*culty of Radiologists*: Pass lists, 798
—*Royal of Physicians and Surgeons of Glasgow*: Elections, 627—Fellows admitted, 376, 728
—*URFIELD, Letitia*: Ophthalmia neonatorum, 793
—*ll* of 700 feet, recovery after (F. G. Neill and C. M. Mackenzie), 546
—*illa, Stephen Thomas*, obituary notice of, 560
—*tigue, element of*, in disease to-day, 793
—*WERT, Richard*: X-ray diagnosis in pulmonary tuberculosis, 692
—*cundity*, low, 559
—*et*: Plantar dislocation of fourth metatarsal (G. B. Main), 169
—*— burning*, 736
—*— sweating*, treatment of, 558, 632
—*hling's test*, tobacco and, 534
—*resure, S. M.* (and others): Eight cases of allergic reaction to liver extract, 418
—*LIX, A.*: Recent advances in laboratory control of typhoid and paratyphoid fevers, 430
—*— (and Bessie R. Callow)*: Typing of paratyphoid B bacilli by means of Vi bacteriophage, 707
—*— (and M.R.C.)*: 127 (O)
—*tear, fractured*: Emergency splint for (P. L. W. Williams), 330—Emergency treatment of, 557
—*INTON, James*: Smith Award made to, 147
—*— (and Cuthbert Wallace)*: Reporting deaths to coroners, 694
—*M. J.*: Appreciation of Eric Pritchard, 760
—*FRUSON, James M.*, obituary notice of, 249
—*R. L.*: Sandfly fever and the rheumatic series, 554 (O)
—*FRUSON, John Newbery*, obituary notice of, 695
—*BRONDS, H. P.*: Childhood infection and adolescent and adult phthisis, 436
—*stility*, and, 619, 690—Female, physical training and, 493
—*thornton, Richard Herbert Joseph*, death of, 518; obituary notice of, 560

Fever, blackwater, treatment of, 86
—*dehydration* (S. McDermott), 455
—*glandular*: Treatment of, 64—Followed by paralysis of serratus anterior (H. C. Sakken), 267
—*paratyphoid*: Successful treatment of a chronic carrier with sulphaguanidine (H. Loewenthal and W. F. Cerfield), 105 (O)—Control of, 161
—*puerperal*, suppressing lactation in, 564
—*rheumatic* (leading article), 516
—*— See also Rheumatism*
—*sandfly*: Outbreak in two general hospitals in the Middle East (E. R. Cullinan and S. R. F. Whitaker), 543 (O)—And the rheumatic series (R. L. Ferguson), 545 (O)
—*scarlet*: Deafness after, 125—Control of, 162
—*incidence and deaths*, 219—Chemotherapy or serum for (leading article), 735—Increased prevalence, 735—Value of immunization, 735
—*swine*: Human infection with *Bact. cholerae*—*suis*: report of two cases (Herta Schwabacher and others), 358 (O)
—*typhoid*, 161—Sternal puncture in, 471
—*typhus*, 469—Institute of research at Lemberg, 500—Endemic, in Diego Suarez, Madagascar (G. G. Baker and others), 506 (O)—Neurological signs in early diagnosis (Wenschel), 546—The rickettsiae (leading article), 450—in North Africa and Sicily, 595
—*undulant*, treatment of, 734
—*Yellow*: Research in Africa, 628—Waller Reed and, review of book on, 714
Fever, enteric group of Immunization against, 178
—*Laboratory control of* (Fever Group, Society of M.O.H.), 430
Fibrin, human, as a dressing for burns (R. G. Macfarlane), 41 (O)
Fibroid, obstetrical forciers for (J. Stallworthy), 41; correspondence, 151
Fitzmaurice, L. (and others): N.H.I. and Assumption B 343
Filaria, in the Middle East (J. F. and Dr. Lums), 327 (O)
FINDLEY, G. W. M.: Treatment of typhoid neurosis by phage 431
FIST, J. (and Dr. Lums): Filariasis in the Middle East, 327 (O)
Fire Protection and A.R.P. Year Book, 1943-4, 81
FISKE, W. B. (editor): The 1942 Year Book of Radiology, 611
First aid and, in air raids, 14—Principles of (penny cards on), 76—Resuscitation by reekins, 119
—*Fractured spine*, 158—*You and Your Comrades*, review of book on first aid for Home Guards, 170—*First Aid at the Incident* (book review), 224
—*Essential* (book review), 456—Post during raids, film of, 702
FISHER, Joseph (and L. E. Wolfson): The Inner Circle, including Otolaryngology, Otorrhoea, and Problems in Modern Warfare, 421, 514
FISH, E. Wilfred: Parotid disease, 726
FISHER, R. A. (and F. YATES): Statistical Tables for Biologic, Agricultural and Medical Research, 2nd ed., 76
Fishes for employment, 562
FITZGERALD, Gibbon: Sterility and contraception, 350
FITZWILLIAMS, Duncan C. L.: Sulphacetol for breast cancer, 762
Flavines: Recent Glaxo products, 456
Fleas, war against, 472, 840
FLEMING, A.: Penicillin (address to R.S.M.), 654—Award of distinction, 836
—*James B.*: An unusual diphtheria infection, 677
—*(and G. Matthew Fyfe)*: Encephalomyelitis following vaccination in Fife, 671 (O)
—*Norman*: *Pedicular pubis* in the eyelashes, 85
FLEMING, C. E. S.: Appreciation of John Lewis, 767
FLETCHER, Ernest: Fibrositic nodule, 494
—*(and others)*: War Wounds and Injuries, 2nd ed., 393
Flies, pest of, 441
Flying stress, human response to (C. P. Symonds): Lecture I: Neurosis in flying personnel, 703 (O); Lecture II: The foundations of confidence, 740 (O)
FLOREY, H. W.: Penicillin (address to R.S.M.), 654—Award of distinction, 836
—*Mrs.*: Penicillin in generalized infections, 656
FOLY, C. H.: Menopausal flushes, 840
Food:
—*Communal restaurants*, 790
—*Conference at Hot Springs*, 152
—*Eskimos and Lapps*, food and health of (annotation), 207
—*Europe*, situation in (annotation), 16
—*Index to the Literature of Food Investigation*, 364
—*Microbiology of canned foods* (book review), 170
—*Statistical value of*, 251
—*Packed*, introduction of, 697
—*Poisoning* (book review), 547
—*Relief for Greece*, 628
—*Wise eating in wartime* (book review), 170
—*World problem of adequate food*, 836
Food-values and farming methods, 627
Foot, athlete's, intractable, 631
FOOTE, R. R.: Subcutaneous fistula of varicose veins, 22
Forces, armed: Medical board rejections, 91
Forearm, circulation in, in essential hypertension, 2
Foreign bodies, retrieving, 772

FOREST, W. P.: Medical services for the Merchant Navy, 466
FOSTER, John: The classics and medical education, 496
FOURIE, Hilda: Effect of supplements of vitamins and minerals on health of crisis, 519
Fov, I. S.: Immediate blood transfusion in obstetric shock, 781
—*R. D.*: Freedom or State control, 372
—*W. W.* (and others): N.H.I. and Assumption B, 343
FOWEN, Lieut.-Col. H. missing, believed killed at sea, 495
Fracture or Perthes's disease? (medico-legal), 538
Fracture-dislocation of spine, 246, 339
Fractures: And dislocations (book review), 12, 160, 547—And joint injuries (book review), 14—And dislocations, for practitioners (book review), 782
—*"fatigue"*, 25
—*of femur*: Emergency splint for, 330—Emergency treatment, 557—Immobilization and transportation of in war (R. Wood Power), 509 (O)
—*of forearm*: Supination and pronation in, 115
—*of great toe*, 52
—*gunshot*, of limbs, treatment of (Sergei S. Yudin), 567 (O)
—*metallic internal fixation of in air-crew cases* (N. Vere-Hodge), 419 (O)
—*of metatarsal bones*, march fracture of (H. H. Fourie Barnes), 665 (O)—correspondence, 793
—*of tibia*, internal fixation of by screws, 115
FRANKEL, E. M.: Toxic gastritis, 531
FRANKLIN, E. M.: The Army's steel helmet, 833
FRANKAU, I. M.: Acceleration of co-ordinated muscular effort by neotomazine: preliminary report to M.R.C., 401
FRANKLIN, Marjorie: O Comp, 551
FRANK, D. M.: Symptomatology of malaria, 65, 152
—*Peter*: *Papers of a Pioneer—Sir Penzance Turner-Jones*, 12
—*Russell*: Statistics of neurotic states, 649
FRAZER, A. D.: Sulphaguanidine and calamine for pyogenic skin infections, 380
Freeman, Elmer Burkart: Death of, 250
FRED, J. D.: Artificial venous body, 313
—*Richard Austin*: obituary notice of, 626
FELMANT, Sir Francis: Report of Representative Committee, 244—Death of, 305—Obituary notice of, 344
FRED, P. (and others): Herpes zoster in the newborn, 811
FRED, F.: British schools and Austrian doctors, 436
FRIEDMAN, M. H.: Some therapeutic fallacies, 656
FRIEDMAN, Ralph: A diathermy and suction holder, 301
Friends' Ambulance Unit (annotation), 786
Friendry, 409
FRIEDLICH, J.: Syndrome, 349
FRIEDMAN, J. B.: Abdominal viscera in thorax of newborn infant, 762
FRI, C. C.: Mental Health in College, 745
Fuchsin paint, 255
Fulton, Adam: obituary notice of, 467
Furmentation, delousing of clothing by (W. A. L. David), 105
Fund, King Edward's Hospital: Future of voluntary hospitals, 209—Radium Committee's first general report, 242
—*Mackenzie Mackintosh Research: Research Fellow appointed*, 654
—*Royal Medical Benevolent: Christmas gifts appeal*, 492, 724—Bequest to, 564
FUSCO, J.: 471
FYE, G. Matthew (and J. B. FLEMING): Encephalomyelitis following vaccination in Fife, 671 (O)

G

Garg, mouth, for edematous patients (H. L. Thernton), 202
GAMES, M.: A case of traumatic ventricular pneumocephalus, 512
GAINSBROUGH, H. (and others): N.H.I. and Assumption B, 343
GALLON, E.: Mind and stomach, 688
GALTUNG-HANSEN, O.: B.C.G. immunity in tuberculosis, 722
Gamlen, Harold Ernest: obituary notices of, 497, 695
GAMLEN, R.: Control of head house, 20
GASANO, Walter: Blast injuries, 118
Gargene, gas, leading article on, 14
GARDNER, R. H.: Treatment of septic hands and fingers, 525
GAREAU, H. J.: Effect of removal of tonsils and adenoids in 57 (out of 75) cases of acrotydia, 7
GARICK, Phyllis L.: *The Wholeness of Man: A Study in the History of Healing*, 300
GARISON, (the late) F. H.: *A Medical Biography. A Check-list of Texts Illustrating the History of the Medical Sciences* revised by L. T. Morton, 548
GARSON, Percy: Local oral medication with sulphaguanidine in leprosy form, 452 (O)
GARTY, A.: Omens of influenza, 793
Gas poisoning, chlorine and phosphene, 665
—*— training*, a new method of (Pollok Donald), 81
Gas-pneumonia, antitoxic, therapeutic value of (M. G. Macfarlane), 363 (O); leading article on, 644
GASKELL, H. S.: The future health services, 322

- Gastro-enteritis: Neonatal, 116—Control of infantile diarrhoea, 161
- GAULT, E. S. (and L. W. SMITH): *Essentials of Pathology*, 107
- GECKLER, E. O.: *Fractures and Dislocations for Practitioners*, 3rd ed., 782
- Genetics of the mouse, review of book on, 816
- Gentian violet for threadworms, 30
- Germany: Women doctors in, 554—Principles for prescription of quinine, 578—Specialist service at health offices, 674—Cases of suspected leprosy, 759
- GESCHICKTER, C. F.: *Diseases of the Breast: Diagnosis, Pathology, Treatment*, 748
- GIBBONS, A. P. (and others): Register of Medical notice of, 529
- Gibson, Major R. S.: died on active service, 498
- GILDER, Stanley: A prisoner of war on State Medical Service, 278
- GILES, C.: Refresher courses for Service M.O.s, 405
- GILL, A. M. (and C. A. KILLE): Pepsin inactivation in ulcer therapy, 194 (O)
- GILLESPIE, J. R.: Treatment with tuberculin, 19
- GILLET, H. T.: Low fecundity, 559
- Gilmour, John, obituary notice of, 250
- Major John, obituary notice of, 766
- GIMBLETT, C. L. (and others): Register of Medical Auxiliaries, 465
- Gimlette, Surgeon Rear-Admiral Sir Thomas Desmond, obituary notice of, 530
- GIMSON, Janet D.: Haemolytic disease of the newborn (erythroblastosis foetalis): its treatment with Rhesus-negative blood, 293 (O)
- GIRDLESTONE, G. R.: Advances in orthopaedics, 757
- GISSANE, W.: "Rehabilitation shops," 758
- GIVEN, Surg. Capt. D. H. C.: Treatment of sweating feet, 632
- Glasgow: Gift by Lord Weir to Victoria Infirmary, 440
- GLASS, D. V. (and others): Sterility and impaired fertility, 619
- Glaucoma, atropine, 22
- Glaxo: Recent products, 486
- GLAZENROCK, A. J.: Wilson's disease, 804
- Glennie, Surg. Lieut. G. C., missing, presumed killed, 498
- Glucose, insulin, and ascorbic acid in treatment of infective hepatitis (D. R. Macdonald), 261 (O)
- Glycerin in ointments, 565
- Glycogen, vaginal, oestrogens and (annotation), 753
- GLYN-HUGHES, F.: Treatment of lupus vulgaris, 495
- (and others): Arsenical encephalopathy, 589
- Goitre: In Co. Tipperary (annotation), 79—Some therapeutic fallacies, 574; correspondence, 831
- GOLD, H.: Six cases of anthrax, 201
- Harry: Maintenance dose of digitalis, 283
- GOLDSTEIN, H. (and others): An epidemic of cytomegalic infection, 745
- Kurt: After-effects of Brain Injuries in War: Their Evaluation and Treatment, 138
- GOMME, G.: Training and resettlement of the disabled, 758
- otrophin, chorionic, origin of (annotation), oca. See Venereal diseases
- YES, V. P.: Sterility and contraception, 442
- ON, IAN: Infective hepatitis, with special reference to the oral hippuric acid test, 807 (O)
- M. E.: Kienbock's disease: aetiology, 200
- R. M.: Tapeworm segments wanted, 288
- GORDON-TAYLOR, Surg. Rear-Adm. G.: Appreciation of Surg. Rear-Adm. Sir William Wheeler, 437—Sergei Sergeevitch Yudin, 687
- GOODHART, G. W.: Blood changes in infectious diseases, 826
- Gossage, William Herbert, obituary notice of, 834
- Gostling, George Wilfrid, obituary notice of, 696
- GOUGH, Nancy: Effect of diet on concentration of cholesterol in blood and bile, 390 (O)
- GOULD, R. Blair: Nitrous oxide anaesthesia: a critical evaluation, 607 (O)
- GOURLAY, R. J.: Chicken-pox following contact with shingles, 736
- Government: Ministerial changes (annotation), 650
- White Paper, 767, 799
- GRAFF, E. L.: Refresher courses for Service medical officers, 19
- Greta (and others): Sterility and impaired fertility, 493
- GRAHAM, George: The diet in diabetes, 115—Dietetic deficiencies, 172
- GRANGER, E.: Rocking apparatus for artificial respiration, 22
- GRANT, L. J. (and C. E. WILLIAMS): Hemiplegia complicating whooping-cough, 9 (O); correspondence, 350
- Granulomatosis, chronic epithelioid (book review), 300
- GRAY, A. M. H.: Scabies and impetigo, 830
- G. D.: Medical boarding for the Merchant Navy, 340—Mosquitoes and static water tanks, 559
- Jessie Milner Campbell, obituary notice of, 834
- GRAYSON, C. C.: Sterile solutions and vaccines, 246
- Retention of urine and pyelitis in girls, 657
- GREANY, H. W.: Medical boarding for the Merchant Navy, 435
- GRAVES, Marion: Shortage of institutional provision for mental defectives, 559
- Greece: Food relief for, 628, 733—Death from
- GREEN, A. (and others): Sterility and impaired fertility, 493
- C. A. (and M. C. MACLEOD): Explosive epidemic of Sonne dysentery, 259 (O)
- GREEN-ARMYtage, V. B.: Sterility and contraception, 524, 691
- (and others): Sterility and impaired fertility, 493
- GREENE, A.: Pruritus ani, 566
- GREENWOOD, A.: Chicken-pox following contact with shingles, 840
- Major: "The Classics," 375—Authority in Medicine: Old and New, 611
- Greeves, Capt. H. G., killed, 594
- GRINKER, R. R.: Recent experience of war neurosis, 336
- GRUNBERG, Hans: Genetics of the mouse, 816
- GUARDHAM, A.: Vitamin B deficiency, 657
- GUNN, William: Agranulocytosis, 826
- Gunter, Hermann Arthur, obituary notice of, 696
- GURIAN, S. (and others): Herpes zoster in the newborn, 811
- GUTHRIELCH, A. N.: Peripheral arterial embolism, 245
- GUTTMAN, Eric (and Desmond CURRAN): *Psychological Medicine: a Short Introduction to Psychiatry*, 300
- Guyot, Frédéric, death of, 250
- GYE, W. E. (and others): Failure of H II to inhibit growth of tumours in mice, 65 (O); leading article, 77; correspondence, 149
- GYNAECOLOGY:
- Air embolism after vaginal insufflation, 329 (O)
- Blocked tubes, 565
- Vagina, congenital absence of, treated successfully by the Baldwin technique (Thomas O'Neill), 746 (O)
- Gynecomastia, 287, 403, 442, 597
- H
- H II: Failure of, to inhibit growth of tumours in mice (W. E. Gye and others), 65 (O)—Observation on use of, in carcinoma (H. A. Kidd), 67 (O); leading article on, 78; correspondence, 149, 211, 314, 403, 466, 589—Effect of injections of, on growth of mouse tumours (D. L. Woodhouse), 231 (O)
- Haematocrit values, determination of, in wound shock: a routine procedure (Max Reiss), 328 (O)
- Haematologist's herbal (annotation), 206
- Haematoma, subungual, 804
- Haemoglobin: Levels of 3,338 persons from birth to 55 years of age: nutritional iron-deficiency anaemia in wartime (L. S. P. Davidson and others), 95 (O)—Observations on acid haematin method for estimation of (C. A. Ashford), 575 (O)
- Haemoglobinometer for general practice, 94
- Haldane's, and CO, 701
- Haemoglobinometry, a physiological factor in (E. F. McCarthy), 362 (O)
- Haemolysis: Haemolytic mechanisms (annotation), 79
- Haemolytic disease of newborn. See Erythroblastosis foetalis
- Haemorrhage: After tooth extraction, 30, 158, 380
- Fallacies concerning, 574, 727
- gastric, aspirin and, 57, 117
- HAIN, A. M. (and J. C. B. SYM): Control of menopausal flushes by vitamin E, 8 (O); correspondence, 526
- Hair: Premature greying of, 126—Sudden loss of, 157—Total loss of, 288—Rapid loss of, 596—Pigments and greying, 317
- dye, poisoning from (annotation), 490
- focal, in young women, 442
- HALCROFT, J. P. A. (and others): Infectious mononucleosis, 458 (O); correction, 534; correspondence, 648
- HALDIN-DAVIS, H.: Total loss of hair, 288
- HALE, R. N. and S. M.: *Social Therapy: An Introductory Study*, 581
- HALL, J. W.: Nail trephining, 772
- R. N.: Treatment of blackwater fever, 86
- Hallam, Martin, obituary notice of, 438
- HALLETT, D. B. I.: X rays and the colon, 403
- HALLDAY, J. L.: Mind and stomach, 586
- HAMILTON, John (and others): Eight years' experience of a miniature State Medical Service, 616
- HAMMOND, J.: Nutritional relief after the war, 759
- HARDFIELD-JONES, R. M. (and A. E. FORRY): *The Essentials of Modern Surgery*, 2nd ed., 781
- Hands and fingers, septic, treatment of, 432, 525, 556, 657, 764
- HANNAN, J. H.: H II for cancer, 314, 466
- HANSEN, A. E. (and V. J. BIRNBERG): Thrombophlebitis migrans, 653
- HANSON, F. R.: Experience of war neuroses in the forward area, 337
- HARDY, T. L.: X rays and the colon, 462—Wartime diet for peptic ulcer, 725
- HARE, Tom: Water for rabbits and guinea-pigs, 24
- HARDEN, A. J.: Gentian violet for threadworms, 30
- HARDING, Beryl: Principles of first aid (penny cards on), 76
- Hardy, Edward William Dacre, obituary notice of, 766
- HARRIS, L. J. (and Y. L. WANG): Assessment of level of nutrition: revised procedure for estimation of urea in urine by thiochrome test, 451 (O)
- Wilfred: Trigeminal neuralgia in an exceptionally early age: cured by Gasserian alcohol injection, 39 (O)—Treatment of facial palsy, 828
- HARRISON, D. C. (and others): Ascorbic acid idiopathic methaemoglobinemia, 336
- William John, obituary notice of, 625
- HART, P. D'Arcy (and others): N.H.I. and Assumption B, 343
- HARTLEY, J. Blair: "Fatigue" fractures, 728
- Leslie: Care of the child's eyesight, 433
- Percival: Vitamin E and other standards, 12
- HARVEY, Clare (and others): Sterility and impaired fertility, 493
- R. E. M. Coke: Psychiatry at the cross-roads, 764
- HASLER, J. K.: Specific gravity of cerebrospinal fluid, 314
- Hastings, Sir George, obituary notice of, 345
- W. H.: Precision cephalometry and pelvimetry, 658
- Hattersley, Col. Sidney Martin, obituary notice of, 627
- HAUGHTON, Col. S.: Treatment of tapeworm, 3
- HAULTAIN, W. F. T.: Shortened puerperium, 85
- HAUSMANN, W.: Arteriosclerotic aneurysm abdominal aorta with perforation into upper jejunum, 362
- (and J. Norman Hill): Liver deficiency anaemia in a case of acute infective hepatitis, 262 (O)
- HAWKES, Ewart S.: Contramine for herpes, 391
- HAWKING, Frank: Intramuscular injection of mercurine (atracin): histological effect, 198 (O)
- HAWTHORNE, C. O.: Teaching of ophthalmology, 210
- HAYWARD, J. B. W.: Medicine under State control, 496
- Head, an asymmetrical, 94
- injury, unconsciousness after, 630
- Headache, "postural," 286
- HEAL, J. Carlton: A table-knife holder for use by the partially paralysed, 782
- HEALD, C. B.: Rehabilitation, 117
- (and others): Register of medical auxiliaries, 465
- Health: Eskimos and Lapps, food and health (annotation), 207—And social medicine (leading article), 174; correspondence, 243, 342—National policy, 279—And tonsillectomy (annotation), 334
- correspondence, 404, 433—Housing and, 440—charter for, 623—Simple health hints (book review), 715—A bill of, for Manchester and Liverpool (annotation), 752
- centres, 152—Report on, to Manchester Public Health Committee (C. M. Brown), 685
- industrial: Absenteeism among women workers (annotation), 398—Fitness for factory work, 41
- Report of Chief Inspector of Factories for 1942 (annotation), 550
- maternal and child (leading article), 584
- mental: Effect of war conditions on, 618—undergraduates (book review), 748—Views on mental health service (annotation), 785
- negative: review by Sir Wilson Jameson, 663
- negative, cult of, 55, 120, 151, 214
- public: Diploma in, 90—Contradictory signals (leading article on summary report Ministry of Health), 516
- HEALTH SERVICES:
- Areas of, and education areas, 181
- "Charter of Health," 525
- Comprehensive, 123—Radiological practice, 182—Foundations of, 278
- Effective, conditions for, 372
- Future, 311, 342, 436
- National, child care in (G. F. Buchan), 273
- Post-war: Recent speeches by Minister of Health, 491
- Public opinion on, 311, 405
- Reform of (leading article), 609
- Representative Committee's discussions, 520
- Social order, future, and, 181
- White Paper on, 251
- HEART:
- Achalasia of cardia, 189
- Cardiac bruits, 573
- failure: Low spinal anaesthesia during labour in cases of (H. Burton), 389 (O)—Treatment over prolonged period by mercuric diuretics (C. M. McIntyre), 609
- index: Blood-pressure readings in general surgical work, with special reference (H. Dodd), 811 (O)
- Congenital disease, 93
- E.C.G. diagnosis, a point in (annotation), 80
- Electrocardiography, review of two books on, 3
- Fibrillation, paroxysmal auricular, 574, 802
- Heart-block, complete, 189
- Rehabilitation of heart patients (Basil Parsons Smith), 298 (O)
- Tachycardia, simple and paroxysmal, 573
- HEATH, H. L.: Ether clonus treated by hexobarbitone soluble, 646
- HEIDEL, W. A.: *Hippocratic Medicine: Its Spirit and Method*, 177
- HEIMANN, H. L. (and M. M. POSTER): Case of congenital dilatation of pulmonary artery, 512 (O)
- Helmholtz, von: Letter from Chicago, 1873 (Not et Vetera), 49
- Hemiplegia complicating whooping-cough (L. Grant and C. E. Williams), 9 (O); correspondence, 350
- HENDERSON, Norman P.: Specialists and State service, 88—X rays and the colon, 247—Radiology, empiricism or science? 692—"Duodenitis," 52
- William Elmslie, obituary notice of, 153

- James Alexander, obituary notice of 184
NELL, Mr.: Clinical photography in colour, 521
AY, C. Bawdler: Arsenicals in Vincent's infection, 465
atius, epidemic: Recent field investigations (S.M.), 737
— infective, 803
— with special reference to the oral purpura and test (Ian Gordon), 807 (O)—Treated with insulin, and ascorbic acid (D. R. Macdonald), 261
— acute: Liver deficiency anaemia in a case of (N. Hill and W. Hausmann), 262 (O)
— epidemic, leading article on, 680; correspondence, 760
— See also Jaundice
ben, Capt. L.: Killed on active service, 498
BEN, Human inheritance (book review), 421
MITE, L. C. D.: *Essential First Aid for Quick reference on the Field*, 2nd ed., 456
NAIN-JOHNSEN, F.: Adolescent spondylitis, 179
nail, direct inguinal, 22
— urthral, 71
— contraindication for (E. S. Hawkes), 391
— zoster in the newborn (P. Freud and others), 18
Dorothy G. (and others): The Spackman case, 249
ER, C. Langton: Specific gravity of cerebrospinal fluid, 245—Inflammability of tetrachlorethane, 472
LETT, R. F. L.: Blood changes in enteric fever, 31
Samuel, obituary notice of, 695
WORTH, P. S. A.: Anaesthetist's third hand, 86; correspondence, 728
GNS, C. C.: *Renal Lithiasis*, 234
nec, Campbell, obituary notice of, 153
L. Charles: Medical practice in the melting pot, 83—*How Eating in Wartime*, 10
— Hormonal treatment of schizophrenia, 534
Norman (and W. Hausmann): Liver deficiency anaemia in case of acute infective hepatitis, 262 (O)
— Sr. Leonard: Brain in the det., 151—Interstitial hormones, 588
pocrates, Cos and (Nova et Vetera), 492; correspondence, 68
pocrates (and Nova et Vetera), 177
pure acid test, oral: Infective hepatitis, with special reference to (Ian Gordon), 807 (O)
SEKON, H.: *Denture Base Readjustment*, 611
St. Katherine: Stute curies, 84
TENSTEIN, Arnold: Pediculosis capitis and ureal lesions, 72
ME, E.: Occurrence of Rh factor in the population: notes on five cases of erythroblastosis fetalis, 297 (O)
TAN, H. L.: Views of doctors in Services, 372
Lund, Eardley (and others): Sterility and impaired fertility, 619
LOW, M. H. W.: Nitrous oxide anaesthesia
mes, Geoffrey, obituary notice of, 253
MS, Selwyn: Arsenicals in Vincent's infection, 53
ST, J.: Speech at luncheon to Oversea Medical Services, 32—B.C.G. immunity in tuberculosis, 22
T, P. F. and others: H11 for cancer, 149
T, Guard: medical examination of (Parliamentary), 90
GEBELER, M.: Aspirin and fasting haemorrhage, 57; correspondence, 117
on, Lieut.-Gen. Sir Alexander: Meals in Army hospitals, 17
GEBELER, M.: *Cecilia: The Expectant and Nursing Mother's Cookery Book*, 782
nec, Lord: Hospital meals, 172—Doctors technique, 249—Inaugural address to British Association of Physical Medicine, 653
— (and others): Sterility and impaired fertility, 19
ran David St. Heller, obituary notice of, 624
nec, Thomas Plant (annotation), 172; correspondence, 72—Interstitial (leading article), 487; correspondence, 555
re, Major Jack: obituary notice of, 731
SEALL, F. L. (and others): *Virus Diseases*, 80
SLEY, J. S.: Physicians at the cross-roads, 620
SEW, J. L. (and Helen Paving Wright): International state of staff in a London Sector hospital, 171
spital accommodation in African territories, 531
— administration, improvement of, 372
— Birmingham United, Hospital, 275
— Birmmington: Report of Research Department, 928-42, on childhood infection and its relation to adolescent and adult pulmonary tuberculosis
A. Margaret C. Macpherson, 98 (O); correspondence, 210, 373, 436, 453, 621, 674
— diets, inadequate (leading article), 395
— correspondence, 431, 619, 680, 795; annotation, 21
— domestic staff: Conditions of service, 662
— E.M.S. resuscitation ward in (Daniel Lambert), 45
— London Sector, nutritional state of staff in Helen Paving Wright and J. L. Hoskins, 171
— Malvern: Physiotherapy Department, 255
— posts under local authorities, 405, 590
— Queen Charlotte's: *Textbook of Obstetrics*, 3d ed., 678
Hospital, Queen Elizabeth, Gateshead, 185
— Victoria Cottage: Gift from United States (Brnuh War Relief Society), 500
— Royal Cancer: Selected papers from, Vol. II, 647
— services in Tunisia, 59—Surveys of (Nuffield Trust), 209
— ships: Bombing of the *Newfoundland*, 564
— staffs: And Catering Wages Bill, 155—Shortage of, 469
— Stalinalrad, Fund, 156
Hospitals approved for radon (George F. Siebman), 432
— general, psychiatry in, 54, 118, 213, 341
— lock, 265
— orthopaedic in Yorkshire, 245
— Scottish: Hetherington Committee report, 562
— Hospital partnership for Scotland (leading article), 552
— voluntary: Future of, 209—Looking forward (annotation), 332—Saving the surveys in north-east England and Merseyside, 371—Eight Hundred Years of Service (British Hospitals Association), 647
HOUGHTON, C. H.: Treatment of appendicitis, 840
HOUSSEN, L. G.: The Parents' Responsibility for their Children, annotation on, 551
HOWELL, Trevor H.: Research in senile diseases, 314—Progressive cerebral ischaemia, 745 (O)
HOWITT, H. G.: Infection and the welfare centre, 350
Hudlicka, Alex.: obituary notice of, 437
HUBBARD, W. St. Aubyn: Resuscitation by rocking, 772
HUNDOY, M. W. P.: An endotracheal harness, 647—Anaesthetist's third hand, 728
— R. Vaughan: Clinical trials of penicillin, 655
HUGGOTT, A. St. G.: Social medicine and the physician, 270
HUGHES, Trevor: Care of elderly infirm, 23
Hull and District Provident Society, 520
HUME, E. M. M.: Nutritional relief after the war, 759
Hunger, death from in Greece, 800
HUNT, E. F.: Continuum research on cancer, 256
— *Elaborate Diseases Affecting the Vagina*, 2nd ed., 107
— John William, obituary notice of, 376
HUNTER, J. B. (and C. P. G. WARELEY): *Rose and Carless Manual of Surgery for Students and Practitioners*, 421
HUXFORD, J. V.: Tuberculosis in childhood, 374
HUXST, Sir Arthur: Functional diseases of colon and rectum, 117; correspondence, 117, 310
— Astoria and gastric haemorrhage, 57; correspondence, 117—Wartime diet for peptic ulcer patients, 523, 725—Treatment of scabies: an essay on debunking, 733 (O)—X-rays and the Clinical Society of London, 795
HUTCHINSON, J. R.: X-ray on value of phage typhoid in investigation of typhoid, 154
HYGIENE, Tropical, Ross Institute of (annotation), 17
HYPEROSIS, Of axillae, 440, 502—Of feet, 558
HYPERTENSION Problems of (leading article), 43—And height (annotation), 305
— arterial, circulation in (G. W. Pickering), 1 (O), 31 (O)
— essential, 572
— experimental, treatment of (annotation), 614
— See also Blood pressure
HYPERTHYROIDISM: menorrhagia and, 534—Thyroid in (leading article), 783
HYPOTERMIA: Testing the needle, 772
HYPOTERMIA: endogenous (spontaneous), diagnosis of (R. D. Lawrence), 70
— and neurotic behaviour (annotation), 368
HYPONATREMIA: tests for, 222
HYPOTENSION, 513
HYPOTHYROIDISM: patients, with impaired renal function (G. E. Beaumont and J. D. Robertson), 356 (O)
Hysteria and anxiety, 657

I
Immunity after virus infection, 62
Immunization: See Diphtheria, Fevers
Imperio, 667—761—Sulphathiazole, in, 761—Scabies and 830
Impotence and infertility, some problems of, 734

INCOME TAX:
Amount payable, 702
Annuity policy, 193
Appointments, Successive, 256—Expenses, 701—Commission for, 839
Assessment, error in notice of, 379
Books, purchase of, 222
Board and lodging, 379
Car, private use, 350
Date, book: Inclusion of, 379—Purchase of, 379
Depreciation allowances, adjustment of, 442
Expenses, general: Proportion of, 701—Deduction for, 804
Fees received from medical board, 839
Forces pay and balance of civil pay, 736
Free quarters in State institution, 190
House furnished but uninhabited, 379
Illness, break in work from, 839
Interest, payment of, 94
Life assurance: wife's interest, 772
Maid cost of, when only one kept, 630

INDEX to the Literature of Food Intoxication, 354
Index, half-yearly, 552
India: Co-operative antimalarial work in Bengal, 423—Cholera and death from famine, 574—Food and health in, 662—Committee to investigate public health, 664—Medical supplies for famine districts, 800—Population problem of (D. R. Blacklock), 805 (O)
Industrial diseases, lectures on, 145
— lead poisoning (leading article), 515
— premises, slum conditions in, 495

INFANTS:
Calcium for, 802
Diarrhoea, vomiting and dehydration, a complication of (P. W. Leathart), 165 (O); correspondence, 245, 250
Diseases of Infancy and Childhood (Willing Sheldon), 4th ed., 514
Enteritis, infantile, and breast-feeding in Dublin (annotation), 387
Environment and infant mortality (book review), 781
Feeding reaction to (annotation), 821
Intravenous drip transfusion in, technique of (D. MacCarthy), 35 (O); correspondence, 117
— Infusions in Infancy (W. C. Kidney), 105
Massed, support, (D. S. Lewis), 815
Mortality rates, pasteurization of milk and in Toronto, Vancouver, and Victoria (Alan Brown), 133 (O)
Neonatal Mortality of the Human Infant (book review), 679
Resuscitation and oxygen-therapy apparatus for (R. H. O'Hanlon), 422

Infection and the welfare centre, 350;
— Infections, intestinal, treated with sulphathiazole compounds, chemotherapy of (A. C. Clegg), 34 (O)
— Infectious diseases, some problems in control of (R. Cruickshank), 159 (O)
— Infertility and impotence, some problems of, 734
— Infant, elderly care of, 23, 350
— Lady Mary, Royal, Worcester, *Hastings Memorial*, 675
— Infanzza: Control of, 159—Nature of virus (annotation), 175—Therapeutic failures, 554—Outbreak of (leading article), 717; correspondence, 770
— Complicated by myxomatous pneumonia (leading article), 53—Onens of, 793—Parliamentary question, 836
— Infusions, intravenous, in infancy (W. C. Kidney), 105
— Insect pests, control of (book review), 330
— Immunization, artificial, 219, 312, 434, 434, 476, 553

Institute of Hospital Ambulances: Annual report, 53
— List of Preventive Medicine, Fifth anniversary report, 335
— National for the Blind, Band physiotherapy, 255
— of Natural Science in Year Class: Use of spurs instead of cotton-wool, 115
— Queen's of District Nurses: Report on medical cases 1942, 203
— Ross Report of Industrial Advisory Committee (annotation), 651
— Royal of Public Health and Hygiene: *Hastings and Smith award*, 14
— for the Service: Treatment of Diphtheria, Library established, 316
— Spanish Cultural Bureau: Award: Hygiene Laboratory dedicated to the memory of Ramon y Cajal, 837
— Wellcome Research: Grants in diphtheria, 112

INFLUENZA:
Globulin-inactivated, some experiments on (D. Lawrence), 103 (O); correspondence, 210, 211
Hepatitis, infective, treated with, and fluoro and ascorbic acid (D. R. Macdonald), 261 (O)
Lipidolysis, 71
Packers, standard red, of different types and sizes, 733
Price of, 816
Standardization of supplies, 429

Insurance, National Health, and Accidents B 343
Interventions, review of, 608, 659
International obstructive pulmonary disease, 17
International Conference (W. H. Perry), 74
Intestinal catarrhs, catarrhs, and a Listeria

- INWALD, P. (and others): N.H.I. and Assumption B. 343
- Iodine deficiency, 620, 831
- Ireland, Northern: Home Guard M.O.s in, 91—
Medical Personnel (Priority) Committee, 113—
Maternity services (leading article), 458—Registrar-
General's quarterly returns, 499
- Iritis. See Ophthalmology
- Iron: Nutritional iron deficiency anaemia in war-
time: haemoglobin levels of 3,338 persons from
birth to 55 years of age (L. S. P. Davidson and
others), 95 (O)
- IRONSIDE, A. E.: Care of elderly infirm, 350
- Ischaemia of muscle masses, rise in potassium con-
centration in blood stream following (R. E.
Rewell), 483 (O)
- progressive cerebral (Trevor H. Howell),
746 (O)
- ISHIHARA, Shinobu: *The Series of Plates Designed
as Tests for Colour-Blindness*, 9th ed., 486
- Ilets, pancreatic, factors damaging (annotation), 17
- Italy: *Rivista de Neurologia* temporarily sus-
pended, 316
- J
- JACK, E. A. (and J. CHARNLEY): Two-stage ampu-
tation: primary planned amputation in presence
of sepsis, 131 (O)
- Jacklin, Surg. Lieut. I. S., posthumously mentioned
in dispatches, 627
- JACKSON, Alice M. (and Katharine F. ARMSTRONG):
Teaching in Schools of Nursing, 330
- Chevalier and Chevalier L.: *Diseases and
Injuries of the Larynx: A Textbook for Students
and Practitioners*, 2nd ed., 267
- Edward, death of, 346
- Ian M.: The cry of the child in utero,
266 (O)
- Margaret Hadley: Contraception and sterility,
691
- (and others): Sterility and impaired fertility,
493 (O)
- W. P. U.: Arsenicals in Vincent's infection,
465—Differential diagnosis of chronic sciatic
pain: a note, with a short analysis of 100 cases,
776 (O)
- JACOBS, A. L.: Medicine and politics, 120
- JACOBY, F.: Sections, in C. F. V. Smout's
Anatomy of the Female Pelvis, on histology of
the female reproductive tract and a chapter on
ovarian endocrine function, 514
- Jamaica, vomiting sickness in, 392, 464
- JAMES, H. H.: The Government's proposals, 24
- N. R.: A non-electric suction apparatus, 88
- JAMESON, Sir Wilton: The nation's health, 663
- JAMIESON, E. B. (and J. C. BRASH): *Cunningham's
Textbook of Anatomy*, 8th ed., 782
- Japan: East Asiatic Medical Congress, 564
- JAUNDICE: After serum injection, 125—*"Epidemic
catarrhal," acute lymphocytic meningitis in (J.
Waring)*, 228 (O); correspondence, 388—Con-
genital, in man aged 77, 690, 763—Notification
forms of, 733. See also Hepatitis
- Jayne, Frederick James, obituary notice of, 26
- JEFFREY, J. S.: Clinical trials of penicillin, 656
- Jehu, Thomas John, obituary notice of, 184
- JELLINEK, S.: Peculiarities of electrical lesions, 827
- Jelly, George Aubrey, obituary notice of, 498
- JENKINS, G. Neil (and John YUPKIN): Vitamins
and physiological function, 265 (O); correspond-
ence, 338
- JEWESBURY, E. C. O.: Misuse of intravenous
N.A.B. for Vincent's infection, 360 (O); corre-
spondence, 433, 464, 622, 729, 763
- Johns, W. Walton, obituary notice of, 249
- JOHNSON, A. G. (and H. BURT-WHITE): Two cases
of amputa due to sulphapyridine calculi success-
fully treated by ureteric catheterization, 508 (O)
- D. W.: Epidemiology of Weil's disease, 659
- ASTON, D. J. Gair: Childhood infection and
later pulmonary tuberculosis, 210
- John Macpherson, obituary notices of, 730,
834
- T. B.: *A Synopsis of Regional Anatomy*, 5th
ed., 202
- JOHNSTONE, R. W. (and others): Sterility and im-
paired fertility, 493
- Joint disease, degenerative, review of book on, 201
- IONAS, Herbert C.: Salmon in the Thames, 566
- JONES, Arthur T.: Hemiplegia in pertussis, 350
- E. Collin: Treatment of sweating feet, 558
- H. M. Roys: Medical boarding for Merchant
Navy, 831
- H. Wallace (and E. Noble CHAMBERLAIN):
*Electrocardiograms: An Elementary Atlas for
Students and Practitioners*, 2nd ed., 363
- J. C.: Treatment of gynaecomastia, 442—
Strychnine for paralysis, 534
- Philip Theodosius, obituary notice of, 696
- R. Forbes (and others): H11 for cancer, 149
- S. A., honoured by Arabia, 500
- T. R. Lloyd (and F. G. MAITLAND): A new
approach to the treatment of early syphilis by
intensive therapy, 448 (O)
- IOULES, H. (and others): National Health Insur-
ance and Assumption B. 343
- Journal, British, of Industrial Medicine, annotation
on, 584
- Medical: Appeal for back numbers, 238,
288, 343, 552 (annotation), 840
- T.: Speech at luncheon to Oversea

K

- Kala-azar, transmission of, by sandfly (annotation),
45; correspondence, 148
- KAPLAN, Ira I. (editor): *The 1942 Year Book of
Radiology*, 611
- KARSKER, H. T.: *Human Pathology*, 6th ed., 301
- Karstaedt, Capt. A. O., killed, 154
- KASSNER, Elsie W. (and others): Availability of the
calcium of milk, 39 (O)
- KAY, H. D.: Nutrition, agriculture, and milk, 113
- Keals, Lieut.-Col. H. C., obituary notice of, 121
- KEELE, C. A. (and A. M. GILL): Pepsin inactivation
in ulcer therapy, 194 (O)
- KEEVILL, J. J.: Eve's method of artificial respira-
tion, 179
- Norah L.: Rupture of rectus abdominis during
pregnancy, 245
- KEFALAS, A.: *Agents provocateurs*, 796
- KELLEHER, W. H.: Sulphaguanidine for child of
one year, 826
- KEMP, F. H.: Pheniodol: a new contrast medium
for cholecystography, 674 (O)
- KENNAWAY, E. L.: Water for rabbits and guinea-
pigs, 87
- Kennedy, John Robert, jubilee presentation to, 187
- KENNETH, J. H.: Gestation periods: a table and
bibliography (compiled for Imperial Bureau of
Animal Breeding and Genetics), 679
- Kenny Concept of Infantile Paralysis and its
Treatment, 141
- KENTON, C.: Precipitating factor in war neuroses,
337
- KERR, Sir John Graham: A biological criticism of
education, 823
- J. M. Munro: Foundations of a compre-
hensive medical service, 371
- KEY, J. A. (and H. E. CONWELL): *Management of
Fractures, Dislocations, and Sprains*, 3rd ed., 169
- KIDD, H. A.: Observations on use of H11 in
carcinoma, 67 (O); leading article, 77; corre-
spondence, 149
- KIDNEY:
- Absence, congenital, of one kidney: two cases
of, in same family (J. P. Bound), 747
- Calculi, 441
- phosphatic (annotation), 551
- Circulation in, in essential hypertension, 3
- Pyelitis: Retention of urine and, in girls, 657—
In a diabetic, 734
- Renal function, impaired, pituitary hypo-
thyroidism with (G. E. Beaumont and J. D.
Robertson), 356 (O)
- tests, 222—In myxoedema (G. E.
Beaumont and J. D. Robertson), 578 (O)
- lithiasis (book review), 234
- KIDNEY, W. C.: Intravenous infusions in infancy,
106
- Kienbock's disease: aetiology (M. E. Gordon),
200; correspondence, 282
- Kien, Walter Herman, obituary notice of, 766
- KILLIAN: First phase of injury from cold, 608
- KILNER, S. D.: Vesalius and Gray on anatomy, 56
- T. Pomfret: Clinical photography, 521—Graft
treatment of ectropion (film), 522
- King, Surg. Lieut. W. L., missing from the
St. Croix, 498
- Kirk, Major-General Norman T., appointed Sur-
geon-General of U.S. Army, 156
- KIRMAN, B. H.: Health and social medicine, 342
- KITCHIN, D. Harcourt: *The public corporation*,
369, 400, 423
- KITCHING, E. H.: Psychology and the common
cold, 621
- Knappett, E. A., commended for brave conduct,
500
- Knee: Regeneration of menisci of knee-joint, 115
- Patella, excision of, 22
- Knight, Major H. M. R., killed in action, June,
1944, 469
- KNOTT, F. A.: Pathogenic anaerobes, 521
- KOHN, G. (and others): Levels of vitamin A and
C nutrition in Glossop school-children and effect
of deficiencies on their physical condition (pre-
liminary communication), 477 (O)
- Kollonychia, 771
- KON, S. K.: Milk nutrients, 113
- Kraurosis vulvae, 500
- KUNKEL, L. O. (and others): *Viral Diseases*, 580
- Kyphosis, adolescent, 348
- L
- Laborde's method of artificial respiration, 29
- Lactation: Ending, 157—Dietary factor in, and
reproduction (Marion B. Richards), 418 (O)—And
hormones, 770
- LADELL, R. M.: Psychology and the common cold,
622
- LAHIFF, J. R.: Rocking device for artificial respira-
tion, 42
- Labour and State medicine, 53
- LAIDLAW, S. I. A. (and A. MACLEAN): Treatment
of lupus vulgaris, 659
- LAING, G. D.: Health and tonsillectomy, 464—
Emergency treatment of fractured femur, 557
- LAIRD, S. M.: *Veneral Disease in Britain*, 42
- LAKE, Norman C.: Specific gravity of cerebrospinal
fluid, 280
- (and others): Register of Medical Auxiliaries.

- LAKIN, C. E.: Appreciation of Louis Beer,
LAMPY, Daniel: Resuscitation ward in an
hospital, 345
- LAMPARD, M. E.: Medical history of India,
792
- LANDAU, Maxwell: Excision of patella, 22
- LANE, C. Rickword: Artificial insemination,
—Ronald E.: Industrial lead poisonings, 7
- LANE-ROBERTS, C. (and others): Sterility
impaired fertility, 493
- LANG, J. F.: Theophylline for asthma, 62
- demology of diphtheria, 116
- LANGDON-BROWN, Sir Walter: Urea and water
bolism, 431
- LANGLEY, G. F.: Gunshot wound of innom-
ate artery, 711 (O); correspondence, 793,
correction, 804
- Lapland: Food and health of Eskimos and
(annotation), 207
- LARKIN, E. H.: The costive patient, 51—
adventure under convulsant treatment, 299
- Laryngofissure, anaesthesia for, 312
- Laryngoscopy, 286
- LAVERICK, J. V.: The Government's proposed
Lavoisier, bicentenary of birth of, 275
- LAW, Frank W.: Diathermy in eye disease, 5
- LAWRENCE, R. D.: Globin-zinc-insulin: some e-
ments, 103 (O); correspondence, 212, 250—
nosis of endogenous (spontaneous) hypoglyca-
760
- (and Wilfrid OXLEY): Diabetic retinitis
Lead poisoning, industrial (leading article),
correspondence, 760
- Leading Articles:
- Aridobnavirus syndrome, 110
- Arsenic, antidotes to, 681
- Behaviour and neurosis, 487
- Blood vessels, peripheral, 751
- Cancer, H11 for, 78
- Chemotherapy or serum for scarlet fever?
- Clois retraction, measurement of, 236
- Corporation or department? 425
- Diphtheria, epidemiology of, 44
- of, 64
- Health and social medicine, 174
- public: contradictory signposts, 516
- services, reform of, 109
- Hepatitis, epidemic infective, 680
- Hormones, intercellular, 487
- Hospital diets, inadequate, 365
- partnership for Scotland, 582
- Hypertension, problems of, 43
- Influenza, outbreak of, 717
- Lead poisoning, industrial, 515
- Leucopoiesis, stimulation of, 365
- Maternal and child health, 584
- Maternity services in Northern Ireland, 458
- Medicine: In transition, 302—And society
Milk, Government policy, 173
- Misrepresentation, 549
- Mosquito breeding in static water tanks, 32
- Nutrition movement in Canada, 235
- Ophthalmology, research in, 426
- Penicillin: Position, 269—In U.S.A., 552—In
wounds, 750
- Physiology, Pavlovian, and war neurosis, 2
- Pneumokoniosis and working conditions in
mines, 395
- Pneumonia, staphylococcal, complicating influ-
783
- Polimyelitis, fact and fancy in, 141
- Psychiatry at the cross-roads, 331
- and social medicine, 612
- Rh factor in prognosis and treatment of haem-
disease of newborn, 303
- Rickettsiae, 530
- Rivers of England, 457
- Roehampton and rehabilitation, 819
- Sitrus cup for the panzers, 396
- Sulphonamide treatment, 204
- Tetanus immunization, 818
- Thioracil in hyperthyroidism, 783
- Tuberculosis: In childhood, 270—Immuni-
against, 716
- White Paper, before the, 77
- League, International, against Trilery: *Trilery*
official journal, 715
- LEAK, W. N.: Health and social medicine,
Public opinion on health services, 49—
micrography with ordinary camera: a
technique, 787 (O)
- LEATHART, P. W.: A common cause of diarr-
vomiting, and dehydration in infants 168
correspondence, 245, 280, 403, 587, 693—Inf-
enteritis and breast-feeding, 526; correspond-
587
- LEIF, H.: Hypersensitivity to sulphonamides,
Leish, George Hamer, obituary notice of, 731
- LEITCH, Alex.: Artificial insemination, 44
- LEITNER, St. J.: *Der Morbus Reine-Brock-
mann: Chronische epitheloidzellige Penetration
theliose der granulosa*, 300
- LEVY, Alan C.: On the handling of a
biopsy material, 644 (O)
- Lenses, contact, for flying duties (see 229)
- Lennox: Relief in the Empire, 81—Treatment
Central Africa, 531—Cases of suspected let-
in Germany, 759
- LEWIS, L.: Psychology and the com- 415
- LEWIS, W.: Cult of negative health, 120
- LEWIS, W. A.: Hospital treat, 172

- Leucopoiesis, stimulation of (leading article), 365; correspondence, 433
- Leukaemia, acute leukaemic myeloid (B. L. Della Vida and M. C. Connell), 417 (O); correspondence, 527
- Levick, Capt. R. E. K., killed on active service, 594
- Lewis, John S., obituary notices of, 694, 767
- Lewis, D. S.: Suppurative mastoiditis in an infant, 815 (O)
- Lewis, G. M.: *An Introduction to Medical Mycology*, 2nd ed., 816
- Kingley Wassell, obituary notice of, 624
- N. D. C. (and others): Editors of *The 1942 Year Book of Neurology, Psychiatry, and Endocrinology*, 169
- Lewis-Fanning, E.: Respiratory tuberculosis: Effect of the war on length of interval between notification and death, 684 (O)
- Leitch, M.: Specialist courses for Service M.O.s, 466
- Leyton, Nevil: Skin sensitivity to sulphonamides, 313
- Light and vision (Illuminating Engineering Society), 210
- Lighting, fluorescent, for daylight, 662
- Lindsay, Ernest Charles, obituary notice of, 730
- G. E.: Fulminating meningococcal septicaemia, 50
- Robert, obituary notice of, 767
- S. T. (and others): Nutritional iron deficiency anaemia in wartime: haemoglobin levels of 3,338 persons from birth to 55 years of age, 95 (O)
- Line, L. A. N. (and W. G. Arthur): Film of first 348 post during rashes, 702
- Living, J. F. (and others): The Spackman case, 249
- Linnell, J. W. (and W. A. R. Thomson): Some therapeutic fallacies, 572 (O); correspondence, 656, 693, 700, 727, 761, 796, 831
- Lipodystrophy, indolent, 771
- Lisby, A. A.: Epidemic hepatitis, 787
- Lister, A. (and J. W. Bishop): Night vision in the Army: report of 10,333 tests, 525 (O)
- Liver abscess, unusual amoebic (J. A. M. Cameron), 320
- extract: Intravenously, 221—Allergic reaction to (S. M. Fambler), 418—Too much, 598
- Liverpool, health of, 72
- School of Tropical Medicine: Warrington Yorkie mental hospital, 564
- Livingston, J. Prunus ani, 566
- Living, Dr. (and J. Fine): Filariasis in the Middle East, 327 (O)
- Lloyd, J.: Incidence of syphilis among juvenile defectives, 30
- O. C.: Torsion of the endometrium, 521
- Lloyd-Williams, K. G.: Teaching anaesthetics, 32
- Local government: Review of *Municipal Year-Book 1943*, 26
- Locke, Capt. A. E., death of, 672
- Lowenthal, H. (and W. F. Corfield): Successful treatment of a chronic paratyphoid carrier with sulphaguanidine, 105 (O)
- Lordon, maternity beds in, 187
- County Council: Vote for hospitals and medical services, 1023-4, 348—Report of County Medical Officer of Health, 1942, 788
- paste, 188, 379
- Lord, Surg. Lieut.-Colonel S. L., missing on active service, 62
- Louse, head, *See* Pediculosis capitis
- Loutin, J. F. (and P. L. McIlloin): Advantages of a disodium citrate-glucose mixture as a blood preservative, 744 (O)
- Love, R. J. McNeill (and Hamilton Bailey), 4
- *Short Practice of Surgery*, 6th ed., 234
- Low, E. Crook, H. H. for cancer, 211
- Lowenthal, Nathan, death of, 250
- Lowy, J. Sulphanilamide and mumps, 62
- Lowy, Jul. A. "charter of health," 623
- Lucas, R. E.: Cult of negative health, 151
- Ludford, R. J. (and others): Failure of H 11 to inhibit growth of tumours in mice, 65 (O); leading article, — correspondence, 149
- Lungs: Tumours of, single and multiple, 21—Complications of, after operation, 85—X-ray picture of, in beryllium poisoning (Meyer), 824
- Lutz, G. R. W. N.: The diet in diabetes, 21
- Lymph vulgaris, treatment of (annotation), 366; correspondence, 432, 463, 495, 621, 659
- Lymph, breast, and cancer, 701
- Lymphatic system, review of book on, 330
- McCloy, A.: Actinomycosis of tongue successfully treated by sulphonamides, 106; correspondence, 188
- John Moorcroft, obituary notice of, 25
- McCormack, Henry: Three skin diseases (scabies, impetigo, eczema) in wartime, 667 (O)
- McCurloch, W. E.: Retrieving foreign bodies, 772
- McCurry, J. T.: *The Structure of Morale*, 41
- McCurry, H. J.: Unity in the profession, 496
- McDonnell, S.: Dehydration fever, 455
- McDonald, D. A.: Facial nail growth, 442
- D. M.: Hyperindole avillae, 502
- McDonald, D. R.: Infective hepatitis treated with glucose, insulin, and ascorbic acid, 261 (O)
- E. K.: Leicester Christian Medical Association, 804
- McDonald, Duncan: Oedema of extremities at sea, 148
- E. D.: *First Aid at the Incident*, 234
- McDonnell, M. F.: Public vaccination, 155
- McGawen, William: Stilboestrol for cancer, 702
- McFarlan, A. M.: Bacteriology of brain abscess: report to the M.R.C., 643 (O)
- McFarlane, M. G.: Therapeutic value of gas-gargling antitoxin, 636 (O); leading article on, 648
- McFarlane, Marjory N. (and others): Rh factor and erythroblastosis foetalis: investigation of 50 families, 289 (O)—Significance of Rh factor, 690
- McFarlane, R. G.: Human fibrin as a dressing for burns, 541 (O)
- McGibbon, C.: Arsenical encephalopathy, 559
- McGill, James Murdoch, obituary notice of, 497
- McGraw, Myrtle B.: *Neuromuscular Maturation of the Human Infant*, 679
- McGregor, A. L.: *A Synopsis of Surgical Anatomy*, 5th ed., 234
- McGuckin, F.: *The mastoid and D and V*, 245
- McGush, R.: Self-inflating cuff for endotracheal tubes, 424
- McIntyre, C. M.: Cardiac failure treated by mercurial diuretics over prolonged period, 609
- McKain, Helen: State nurses, 84; correspondence, 527
- McKen, C. W. F.: Nurses' pay and hours, 214
- McKenzie, W. Bryce: Health and tonsillotomy, 15
- McKendrick, F. Y.: Commended for bravery, 835
- McKenna, Peter J.: Government's milk policy, 281
- McKenna, R. M. B.: Experiences in military dermatology, 191 (O); correspondence, 283
- McKenzie, C. M. (and F. G. Neill): Recovery after "too fit" fall, 546
- McKinnon, Ronald, obituary notice of, 529
- McKintosh, James: New fields for the almoner, 83
- McLachlan, Ian: Treatment of venereal diseases, 152
- McLaren, D.: Mascares in R.A.F. Medical Service, 406
- McLary, Malcolm, obituary notice of, 89
- McLennan, C. (and S. L. A. Laidlaw): Treatment of lupus vulgaris, 659
- McLean, Robert Reid, obituary notice of, 57
- McLeod, Alex. J.: Manual dilatation of pelvis: four further cases, 454
- Kenneth I. E.: Fitness for factory work, 406; disclaimer, 502
- McLennan, C. (and C. C. Green): Explosive epidemic of some dysentery, 259 (O)
- McMillan, R. B.: Pseudoscleroderma, 229 (O)
- McMurray, T. P.: *A Practice of Orthopaedic Surgery*, 2nd ed., 455
- McNally, Sir Arthur S.: The comprehensive attack on pulmonary tuberculosis, 509 (O)
- McNally, V. W. (and S. M. Murray-Lyon): An analysis of acute respiratory conditions in African soldiers, 324 (O)
- McNaughton-Jones, H.: Postural dizziness, 840
- McPherson, A. Margaret: Childhood infection and its relation to adolescent and adult pulmonary tuberculosis: records of Brompton Hospital for last 14 years, 98 (O); correspondence, 210, 373, 436, 463, 621, 764
- McPherson, Duncan Campbell Macewen, obituary notice of, 216
- McPherson, Lieut.-Col. George, death of, 187
- McRae, R. D.: Acute dilatation of stomach, 579
- MacSherry, D.: T. killed at sea, 250
- McSorley, J. G. (and others): Nutritional iron deficiency anaemia in wartime: haemoglobin levels of 3,338 persons from birth to 55 years of age, 95 (O)
- McWilliam, E. U.: "Opponents of medical profession," 693
- Madagascar: Endemic typhus fever in Diego Suarez (G. G. Baker and others), 506 (O)
- Magee, J. A. L.: Stilboestrol for prostatic enlargement, 403, 558
- Magnuson, P. B.: *Fractures*, 4th ed., revised, 547
- Mahon, Ralph Bodkin, obituary notice of, 497
- Mann, R. J.: Acute effects of smoking on respiration and circulation, 310
- Mansour, R. (and others): War Wounds and Injuries, 2nd ed., 393
- Mair, G. B.: Plantar dislocation of fourth metatarsal, 169
- Maitland, F. G. (and T. R. Lloyd Jones): New approach to treatment of early syphilis by intensive therapy, 448 (O)
- Malaria, *See* Malaria
- Malaria: Antimalarial unit at ... 317
- Malaria ... 394—Co-operative ... (annotation), 428—Control in Freetown harbour (annotation), 718—Eradication of *Aropheles gambiae* in Brazil (annotation), 820
- Malaria, cerebral, fatal case of (J. B. Sredden), 814 (O)
- malignant tertian, 761
- Malkin, S. L.: Contribution of orthopaedic surgery to hospital development, 791
- Mallenes, Joan: Sterility and contraception, 434, 587, 796
- Malpas, D. D. (and others): Register of Medical Auxiliaries, 465
- Malla, ... (annotation), 710
- Maltby, G. L. (and M. Ross): Electroencephalograms of 20 cases of eclampsia, 264
- Manchee, Dorothy: *Social Services in the Clinic for Venereal Diseases*, 456
- Manchester, health of (annotation), 752
- Manclark, Richard A.: Labour and State medicine, 153
- Manel, Leopold: Mind and stomach, 556
- Manelbaum, M.: Test for therapeutic value of new sulphonamides, 827
- Mendhall, H.: Clinical photography, 521
- Mann, Ida: The scope of prevention in ophthalmology, 482
- Mason-Baird, Sir Philip: *The Dysenteric Disorders: The Diagnosis and Treatment of Dysentery, Sprue, Colitis, and Other Diarrhoea in General Practice*, 2nd ed., 392
- Maplestone, Philip A.: Appreciation of Prof. Warrington Yorkie, 767
- Marlow, Frank W., death of, 346
- Marlack, J. R.: Nutritional relief after the war, 153
- Marsden, Hilda: Clinical photography, 521
- Marsh, Frank, obituary notice of, 407
- Marshall, J. F.: Mosquitoes and static water tanks, 523
- Stanley: Composite Ziehl-Gram staining method for syphilis, pus, and exudates, 232 (O)
- Martin, Alexander Angus, obituary notice of, 25
- Frank William, obituary notice of, 132
- Messner, J. H.: *Behavior and Neurology: An Experimental Psychiatric Approach to Psychobiologic Principles*, leading article on, 45
- Messers in R.A.F. Medical Service, 406
- Mastecres, commissioned rank of, 91
- Masterson, A. M.: *Electrocardiogram and X-ray Configuration of the Heart*, 2nd ed., 363
- Mastoiditis: A common cause of diarrhoea, vomiting, and dehydration in infants (P. W. Leathart), 168 (O); correspondence, 245, 280, 403, 587, 693—Without middle-ear signs (W. S. Thacker Neville), 678
- suppurative, in an infant (D. S. Lewis), 415
- Masturbation in women, 349
- Materia medica, notes of books on, 76, 193
- Maternity Beds in London, 187—Services in Northern Ireland (leading article), 453—And child welfare services, future, 824
- Mattews, A. D.: Views on diabetes, 372
- Matwick, A. T. R.: Technical aspects of pasteurization, 113
- Mauritus, antimalarial unit, 187
- Mayo, O. H.: Nurses' pay and hours, 248
- Maxwell, James: "Primary atypical pneumonia" or "pneumonitis"? 689
- Meyer-Gross, W.: Psychiatry in general hospitals, 113
- Meachin, G. N.: Teaching of dermatology, 253
- Measles: Control of 161—Vaccine (annotation), 304
- Meat, home-preserved, 598
- Medical Annual, 1943, 679
- Auxiliaries, Register of, 465
- Bibliography (book review), 548
- Boarding for the Merchant Navy, 248, 314, 340, 355
- Director, 190
- Education: Planning of, 179—Compressed curriculum, 410—Classics in, 496, 591
- Ethics, review of book on, 233
- History of individuals, 792
- History of the war (annotation), 682
- Man-power, 835
- Officers and general practitioners, 596
- Regimental, notes for (book review), 76
- Service, Refresher courses for, 19, 181, 405, 435—Specialist courses for, 83, 404, 466
- Returning, 559—Views of, 799, 808
- Pilgrims: "Dinner to representatives of United Nations, 29"
- MEDICAL PROFESSION:
- Conditions for good work, 53, 121, 311
- Dignity of (Nova et Vetera), 825
- Doctors and the future, 85
- In the Services, views of, 372
- Freedom of State control, 372
- Government proposals, 25, 43—Before the White Paper (leading article), 77
- Misrepresentation (leading article), 549; correspondence, 598
- "Opponents" of the profession (annotation), 552; correspondence, 623, 693
- Practice and precept, 152
- Professional proposals, 25, 43
- Responsibility and freedom, 243
- Service under a lay council, 54
- Unity in the profession, 405, 495, 591
- Medical radiology, postgraduate course in, 29
- Register, 1943, 13—Cost of production of, 90
- rehabilitation center, Roffey Park, Horsham, 500
- relief in theatres of war, 519
- research in wartime (Sir Edward Macfarlane), 351 (O)

- Medical schools: Arrangements for compressed curriculum for new session, 307; correspondence, 410
— service and social change: some reflections and convictions (Viscount Dawson of Penn), 429
- MEDICAL SERVICES:**
Army, 563
Chaos in (book review), 513
Departmental, 27
Emergency, 799
Future, general principles for, 278, 371
Government Departments, 90
Malayan: interned doctors, 29
Merchant Navy, 466
Reorganization of, 835
Specialists for Malta, 719
Tunisia, 59
White Paper, 469, 628
- Medical student, 251
— superintendent, 281, 337
Medicine: And politics, 54, 120—Textbook of (book review), 76—In the French Colonies (annotation), 176—In transition (leading article), 302
— Educational background for profession of (A. E. Clark-Kennedy), 306; correspondence, 375—Learning the art of, 341—British and American of yesterday (Nova et Vetera), 424—Future of (book review), 513; correspondence, 591, 661, 791—A hundred years ago, 534—In China (book review), 580—Authority in (book review), 611—Physiological basis of (book review), 146—And society (leading article), 648—“Descriptive,” in the lay press, 660—March of: lectures to the laity (book review), 678—Recent advances (book review), 749—Human side of, 61, 797—In Persia (annotation), 820—pre-Nazi, Vienna, 833
— clinical, symptoms and signs in (book review), 70
— Industrial (book review), 748
— preventive, through breast-feeding, 374
— social: Health and (leading article), 174; correspondence, 243, 342—Psychiatry and (leading article), 612—Its meaning and scope (John A. Ryle), 633 (O); leading article on, 648; correspondence, 724—Possible developments in (John Pemberton), 754 (O)—In Scotland: review of Department of Health pamphlet, 789
— State: Labour and, 53—Specialists and, 88—The people and, 311—Prisoner of war on, 278—Service doctors and, 311—State control, 496—Eight years' experience of a miniature State Medical Service (Edward Thomson and others), 616
Medicines, proprietary, advertising, 462
- MEDICO-LEGAL:**
Detention barracks, conditions in, 764
Fracture or Perthes's disease? 833
Spackman decision: appeal of G.M.C., 182, 217
Negligence, proof of, 183
- Medico-religious policy over-seas (book review), 300
Eikle, David, obituary notice of, 25
EIKLEJOHN, A. P.: Nutritional relief after the war, 759
ELLANBY, Sir Edward: Medical research in wartime, 351
— Kenneth: Scabies, 795
embrancs, permeability of (book review), 485
emigrants, acute lymphocytic, in “epidemic catarrhal jaundice” (John Varing), 228 (O); correspondence, 338
ENNELL, James: Intermittent claudication, 410
menopause: Arthritis at, 501—Control of menopausal flushes by vitamin E (A. M. Hain and J. C. B. Sym), 8 (O); correspondence, 526, 840
— Oestrogens at, 190, 244
enorrhagia: And hyperthyroidism, 534—And yrotocisins, 598—Progesterone for, 802
— I defective, shortage of institutional provision, 559, 658
— border, shock treatment of, 829
— patient at home (book review), 107
— acrine (atrine), intramuscular injection of: histological effect (Frank Hawkins), 198 (O)
Merchant Navy: Medical boarding for, 248, 314, 340, 435, 831—Medical services for, 466
MERRIMAN, B. M.: The common cold, 528
Metabolism, water, urea, and, 431
Metatarsalgia, Morton's, 94, 126, 190, 442
Methaemoglobinemia, idiopathic, ascorbic acid in (Royal Academy of Medicine in Ireland), 336
Methedrine (pervitin): A stirrup cup for the panzers (leading article), 396—In surgical operations, 524
Methyl acetamide, toxicity of, 495
MEYER: X-ray picture of lungs in beryllium poisoning, 824
— Inez (Mrs. Stuckman), obituary notice of, 153
MICHAELIS, L.: Dentistry as a speciality of medicine, 590
MICHELSON, L. C.: Ocular manifestations of neuroses found among soldiers, 538 (O)
MICKS, R. H.: *Essentials of Materia Medica, Pharmacology and Therapeutics*, 3rd ed., 76
Microbiology of canned foods, book review, 170
Midge bites, prevention of, 287, 380, 472
Midwifery, review of textbook of, 610
Midwives: Salaries, 219, 242—Shortage of (annotation), 333—Instruction in use of analgesia, 348
Migraine: Urea for (J. A. Brown), 201; correspondence, 431—Endocrine factor in, 255
— menstrual, 379
- MILES, T. F.: Lung complications after operation, 85
MILLER, J. B.: Speech at luncheon to Oversea Medical Services, 83
- MILK:**
Boiled, and raw protein, 339
Bottles, cleaning (annotation), 272
Calcium of, availability of (Katherine H. Coward and others), 39 (O)
Cleaner, 123
Government policy (leading article), 172; correspondence, 247, 281, 340—House of Lords debate, 250
Inspection, local authorities' powers of, 498
National, 117—And vitamin schemes, 187
Nurses and, 314
Pasteurization of, 435—And infant mortality rates in Toronto, Vancouver, and Victoria (Alan Brown), 133 (O)
Preservation of, 472
Problems of (Nutrition Society discussion), 113
Raw, supplies of, 252
Safety of, 532
Tuberculin-tested and attested, 187, 469
- MILLIGAN, E. H. M.: Education and health services areas, 181—Vitamins and fitness, 338
— (and others): Levels of vitamin A and C nutrition in Glossop school-children and effect of deficiencies on their physical condition (preliminary communication), 477 (O)
— E. T. C.: Appreciation of Cecil Rowntree, 561
MILLINGTON, E.: X rays and the colon, 117—Precision method of cephalometry and pelvimetry, 338, 405
MILNER, A.: ... in petit mal, 222
Miner, injured, restoring the (Miners' Welfare Commission), 553
Minerals and vitamins, effect of supplements of, on health of girls (Hilda Fowke), 519
Mines: Pneumokoniosis and working conditions in (leading article), 395—Accidents in, 563—Conscription for work in, 836
MINETT, J. S.: Malignant tertian malaria, 761
MINSKI, Louis: Psychiatry in general hospitals, 214
Misrepresentation (leading article), 549; correction, 598
Mitchell, Harold Alexander, obituary notice of, 184
MITCHELL-HEGGS, G. B. (and others): Endemic typhus in Diego Suarez, Madagascar, 506 (O)
MITCHNER, Philip H. (and A. Hedley Whyte): *A Pocket Surgery*, 514
Moir, J. Chassar: Recovery of bladder function after long disuse, 523—Ophthalmia neonatorum, 723
MOLLISON, P. L.: Rh factor, 521
— (and J. F. Loutit): Advantages of a disodium citrate-glucose mixture as a blood preservative, 744
MONCRIEFF, Alan (and Charles Newman): Tuberculosis in nurses, 792
Monks, Fl. Lieut. K. W.: death of, at sea, 530
Mononucleosis, infectious: With an account of an epidemic in an E.M.S. hospital (J. P. A. Hallow and others), 443; correction, 534; correspondence, 658—Observations on 21 cases (H. H. Ash and J. L. Arbogast), 714—Paul-Bunnell test in, 771
MONRO, A. K.: Subcutaneous ligation of varicose veins, 147
MONTGOMERY, H. (and O. S. ORMSBY): *Diseases of the Skin*, 6th ed., 392
MONTUSCHI, E. (and C. K. VARTAN): National health policy, 279
MOOR, Frewen: Scabies and impetigo, 762
Moore, Athol Raymond, obituary notice of, 696
— D. Fitzcerald: Aribosavinosis syndrome, 279
— E. A.: A difficult skin case, 410
— Frederick Craven, obituary notice of, 730
— Irwin: London paste, 379
MOORHEAD, T. G.: Appreciation of Surg. Rear-Adm. Sir William Wheeler, 437
Morale, anatomy of, review of book on, 41
MORGAN, A. E.: *Young Citizen*, 611
— George, obituary notice of, 625
— Robert Owen, obituary notice of, 834
Mortality, familial, and schizophrenia (annotation), 490
MORTON, H. J. V.: Trigeminal paralysis after trichloroethylene anaesthesia, 828
— L. T.: Revised text of *A Medical Bibliography: A Check-list of Texts illustrating the History of the Medical Sciences*, originally compiled by the late Fielding H. Garrison, 548
Mosquito breeding in static water tanks (leading article), 332; correspondence, 435, 523, 559
MOSS, Adam: Treatment of lupus vulgaris, 495
Moulds on leather cases, 666
Mouse, genetics of (book review), 816
MOYLE, R.: Refresher courses for Service M.O.s, 181
MUCKENFUS, Col.: B.C.G. immunity in tuberculosis, 723
MUELLER, A. J.: Minimum requirements of enzymic casein hydrolytase, 200
Muir, Victor Vartan, life lost at sea, 346
MULVANY, Desmond: First aid for fractured spine, 158
MUMFORD, W. B.: Refresher courses for Service M.O.s, 435
MUMMERY, N. Howard: Sulphathiazole in impetigo, 761
- Municipal Year Book and Encyclopedia of Government Administration, 1943, 267
MUMPS: Sulphanilamide and, 62—Orchitis
MUSKRO, A. H. G.: Fracture-dislocation, 246
MURPHY, P. K.: Conditions for effective service, 372
MURRAY, D. Stark: *The Future of Medicine*, 591—Human side of medicine, 797
— H. M. L.: Fractured great toe, 527
— John, obituary notice of, 284, 345
— R. C.: Injuries of spinal cord, 11
ture-dislocations of spine, 339
MURRAY-LYON, R. M. (and W. W. MacN): Analysis of acute respiratory conditions in African soldiers, 324 (O)
Muscle masses, rise in potassium concentration, the blood stream, following ischaemia of (Rewell), 483 (O)
— rectus abdominis, rupture of, during nancy (R. C. Thomas), 136 (O)
Muscles, circulation in, in essential hypertension
MUSHIN, W. W.: Spinal anaesthesia, 687
Mustard gas, treatment of eyes injured by (tion), 111
Myasthenia gravis, thyroectomy for (N. Nellen), 778 (O)
Mycogenous remedies for infections, 415
Mycology, medical, review of book on, 816
MYERS, V. C.: *Laboratory Directions in chemistry*, 677
Myxoedema, renal function in (G. E. Bea and J. D. Robertson), 578 (O)
- N
- N.A.B. Intravenous, misuse of, for Vincent's tion (Eric C. O. Jewsbury), 360 (O); correspondence, 433, 464, 622, 729, 763
Naqib Mahfouz Pasha, admission to Hor F.R.C.S., 335
Nail trephining, 772
Nails: Mycotic, 221, 380, 702—Failure of a of, 442—Atrophic hollowed, 772—Subungual haematoma, 804
Narcotics: amphetamine in, 533
Narcotics, control of (annotation), 718
Nason, Edward Noel, obituary notice of, 40
NATARAJAN, C. V. (and B. Rao): Outbreak of pot in Kolar Gold Fields, 505
National Insurance Acts: Certification fees (P. ment), 27
NATTRASS, F. J.: Are incidence and prognosis epilepsy, 481 (O)
Navy, anxiety states in (G. V. Stephenson K. Cameron), 603 (O); correspondence, 681
Neander, Gustaf, death of, 346
Neck, arteriovenous aneurysm of (M. H. Wal 106
Needham, Capt. E. J. A., presumed lost at sea
NEELLY, J. E.: Analysis of cases of burns in R. hospital, 522
Negligence, proof of (medico-legal), 183; correspondence, 502
NEILD, F. G. (and C. M. MACKENZIE): Reco after 700-foot fall, 546
NELIGAN, A. R.: Resuscitation by rocking, 772
NELLEN, Maurice: Thyroectomy for myasthenia gravis, 778 (O)
NELSON, R. B. (and others): Arsenical encephalopathy, 589
Nephritis: Arterial hypertension in, 4—Streptococcal, 125
Nerves, vasomotor, in arterial hypertension, 31
NEUNGER, Max: *British Medicine and the Vets School: Contacts and Parallels*, 240
Neuralgia, post-herpetic, 666
— trigeminal, at exceptionally early age: cure by Gasserian alcohol injection (Wilfred Hart 39 (O)
Neurofibromatosis, 665
Neurosis: Hypoglycaemia and neurotic behavior (annotation), 368—Neurotic and psychiatric states as causes of inability to work in England, 1940-1 (H. E. Collier), 461; correspondence, 5, 660—Behaviour and neurosis (leading article 487; correspondence, 556—Ocular manifestations of neuroses commonly found among soldiers (I. C. Michaelson), 538 (O)—In flying personnel (C. P. Symonds), 703 (O)—Examining a neurotic, 830
— war, Pavlovian physiology and (leading article), 205
NEVILLE, W. S. Thacker: Intermittent claudication, 350—Mastoiditis without middle-ear signs, 678
New Zealand: Advertising of medicines, 241
NEWELL, A. G.: Mosquitoes and static water tank, 435
Newfoundland, nutrition in, 469
NEWMAN, Charles (and Alan Moorhead): Tuberculosis in nurses, 792
Newsholme, Sir Arthur, bequest of, 316
NICOL, Hamish: Public attitude to venereal diseases, 338
— Hugh: *Biological Control of Insects*, 339
NICOLE, J. L.: *Psychopathology: A Survey of Modern Approaches*, 3rd ed., 364
Nicotinamide, acceleration of co-ordinated muscular effort by: preliminary report to M.R.C. (H. W. Frazer), 601 (O)
— Glavo, 486
Nicotinic excretion of, in milk and urine of cigarette-smoking mothers (H. H. Fennell and others), 522

- the frights in an adult, 597.
 test, see Frank Wake, obituary notice of, 695
 Cox, W. C. W.: Inadequate hospital diets, 431
 (and others): Sterility and impaired fertility, 93
 DEL, E.: Feeding Austria and prostrated countries in 1919, 759
 duple, fibrotic, aetiology of the: a clinical condole, (W. C. C. Copeman), 263 (O); certificate, 375, 494
 duple, fibrotic, injection of, 255
 EL-JACKSON, J.: Anaesthetist's third hand, 763
 ematuration: "Genu valgum" and "genu varum", 288
 ENAM, Vincent: Hospital pests under local authorities, 596
 (way): Compulsory examination of lunatics by screen photography, 261
 Notes, Letters, Answers, etc.:
 Achalasia in a man of 60, 532
 Agar, salivary, colour film of, 840
 Air-raid casualties, colour film of, 840
 Alkalosis, 802
 Allergy: Sensitivity to liver 29—Bee stings 62
 —Potassium in, 440—Allergic nose, 735
 Alopecia areata, 380
 Amnorrhea, primar, 534
 Anaemia, pernicious, and having children, 664
 Anesthesia, Gwathmey's obstetric, 700
 Anus, surgical abscess, 442
 Anatomical nomenclature, 348
 Ante-natal care, 840
 Arthritis: Pyrotherapy for, 288—At menopause, 501
 —gonococcal, treatment of, 566
 Asclites: Treatment of, 29—In case of malignant ovary, 665
 Association, Leicester Christian Medical, 804
 Asthma, theophylline for, 30, 62
 Atmospheric pollution with cement dust, 804
 Atrophy, progressive muscular, 630
 Bacteriemia after tooth extraction, 378
 Bee stings, 62, 441
 Begsaw, 549
 Blood group, transmission of, 700
 —pressure barometer and, 598
 —Rh factor: Risks of, 157—Another question, 630
 —sedimentation rate, 597, 735
 Bowel, distension of, 441
 Brain, prepared supply of, 222
 Breast-feeding nipples and, 471, 566
 British Medical Journal: Back numbers wanted, 258, 840—Copies for enemy prisoners of war, 380
 Burns, lid and corneal, treatment of, 410
 Burr holes in skull, 736
 Burns, symmetrical, 502
 Butter and cheese, infected, 318
 Buttock wound, 502
 Calcium for an infant, 802
 Camden method of preserving fruit, 502
 Cancer, breast lymph and, 701
 —cachexia course of, 596
 —continuing research, 256
 —precarious stage, 566
 —prostate, suboesophageal, 501
 —suboesophageal, 702
 Chicken-pox following contact with shingles, 736, 840
 Childbirth treatment of, 256
 China root, 255
 Choline derivatives, "alarming effects" of, 700
 Classification, intermittent, 254, 350, 410
 Cockroaches, 502, 840
 Cold, feeling the, 802
 —common: Vaccines for, 221—Control of, 318
 —extremities, 802
 Conception, greatest age of, 71
 Coriander, 256, 350, 472, 534, 598, 702, 804
 Cory, rheumatism, and streptococci, 125
 Deafness: After scarlet fever, 125—Lip-reading for the deaf, 317
 Dentures, keeping clean, 502
 Dermatitis, occupational, 503
 Dermatomyositis, 701
 Diabetes 5 Painful legs in elderly diabetic, 255—Insulin diabetic, 472, 566—Psychitis in a diabetic, 734
 —thermy in eye disease, 442, 502
 —bacteria bacilli, strains of, 189
 —carriers, 596
 —and pertussis prophylaxis, combined, 349
 —glucose, 126, 502, 534, 566
 —infectious, transparent, 502
 —reticulitis, complications of, 61
 —zoster, postural, 471, 840
 —for practicing as dentist, 734
 —as some conundrums, 126
 —Amnorrhea, oestradiol benzoate for, 838
 —Purpura, putrefactive, 532
 —Nervous dyspnoea, 61
 —in roses in, 410
 —invasion of, 62, 158, 190
 —infection, care of, 350
 —retrochock therapy: speculation, 566
 —Tubercula, interstitial, 190
 —shifting aetia, 803
 —Nervous lethargy, family history of, 631
 —Nephrolytic, post-aetia, 30
 —Nephrolytic, short stature and, 597
 —Nephrolytic, bullae, 597, 666
 Notes, Letters, Answers, etc. (continued):
 Epidemic typhus, 632
 Epilepsy: Two cases of, 91, 158—Prognosis in, 288—Glutamic acid for, 348—Inheritance of, 378
 Erection, incomplete, 668
 Erysipelas, recurrent, 533, 632
 Erythema, recurring, of face, 30, 94
 Feet, burning, 736
 —swelling, treatment of, 632
 Fertility, female, physical training and, 630
 Fever, glandular, treatment of, 94
 —scarlet Deafness after, 125—Epidemiology of, 735
 Fibrillation, paroxysmal auricular, 802
 First aid: For fractured spine, 158—Film of post during raids, 702
 Fleas: War against, 472—And cockroaches, 840
 Flies: Pest of, 441
 Foot: athlete's, intractable, 631
 Foreign bodies, retrieving, 772
 Fragilitas ossium, 287
 Frigidity, 409
 Frohlich's syndrome, 349
 Fuchsian paint, 255
 Fusipyrrolone, 565
 Glycerin in ointments, 565
 Gynaecomastia, 287, 442, 597
 Gynaematoma, subcutaneous, 804
 Haemoglobinometer: For general practice, 94—Haldane's and CO, 701
 Haemorrhage after tooth extraction, 30, 158, 350
 Hair: Premature greying, 126—Sudden loss of, 157—Total loss of, 288—Pigments and greying, 317—Facial, girl with, 442—Rapid loss of, 596
 Head, asymmetrical, 94—Unconscious after injury, 630
 Headache, "postural", 286
 Heart: Congenital heart disease, 93—Achalasia of cardia, 189—Heart-block, complete, 189
 Hepatitis, epidemic infective, 803
 Hernia, umbilical, 771
 Hodgekin's disease, 157
 Hospitals, lock, 565
 Hypodermis of axillae, 440, 502
 Hypodermis, Tossing the needle, 772
 Hypogonadism, tests for, 222
 Income tax, 30, 94, 158, 190, 222, 256, 288, 350, 379, 442, 598, 701, 736, 772, 804, 839. See general index for details
 Infertility and impotence, some problems of, 734
 Influenza, 770
 Insulin hypodystrophy, 771
 Insulin, 666
 Jaundice after serum injection, 125
 Kidney: Streptococci and nephritis, 125—Renal function tests, 22—Renal calculus, 441
 Kollomychia, 771
 Kraurosis vulvae, 500
 Kyphosis, adolescent, 348
 Lactation Ending, 157—Suppressing, in puerperal fever, 566—And hormones, 70
 Laryngoscopy, 256
 Liver: Sensitivity to, 29—Too much, 598
 —extract intravenously, 221
 London paste, 158, 379
 Malana, quinine resistance in, 317
 Meat, home-preserved, 598
 Medical curriculum, compressed, 410
 —Director, 184, 190
 —officers and G.P.s, 596
 Medicine 100 years ago, 534
 Menopausal flushes, 840
 Menorrhagia: And hyperthyroidism, 534—And thyrotoxicosis, 598—Progesterone for, 802
 Metatarsalgia, Morton's, 94, 126, 190, 442
 Midge bites: prevention of, 257, 332, 472
 Migraine: Endocrine factor in, 255—Menstrual, 379
 Milk: Preserving, 472—Safety of, 532
 Mononucleosis, infectious, Paul-Bunnell test in, 771
 Moulds on leather cases, 666
 Mumps: Sulphanilamide and, 62—Orchitis of, 838
 Muscular atrophy, progressive, treatment of, 285
 Myopic schoolboy, 631
 Nails: Mycotic, 220, 350, 702—Failure of growth, 442—Trephining, 772
 Narcoclepsy, amphetamine in, 533
 Negligence, proof of, 502
 Nephritis. See Kidney
 Neuralgia, postherpetic, 666
 Neurofibromatosis, 665
 Neurosyphilis, treatment of, 410
 Night frights in an adult, 597
 Nodules, fibrous injection of, 255
 Oedema of extremities at sea, 190
 Oestrogens: For small breasts, 125, 318—At the menopause, 190
 Osteo-arthritis after colitis, 564
 Paget's disease of bone, 501, 632
 Pancreatitis, chronic, 770
 Paracetamol, toxic properties of, 62
 Paralysis, temporary tonic motor, 566
 Parkinsonism, unilateral, 22
 Parodontal disease, 534, 632
 Penicillin therapy, a shorter, 256
 Pertussis. See Whooping-cough
 Phlebitis, 30
 Pillows, 254
 Pleuro-pericardial rub, 533, 804
 Pneumonia: Unresolved treatment of, 61—Extraventricular sputum in, 440
 Poison, scheduled, prescribing a, 502
 Poisoning, chlorine and phosgene gas, 665
 Notes, Letters, Answers, etc. (continued):
 Polyuria, 566, 701
 Potassium chloride, reaction to, 565
 Pregnancy: Pruritus in, 93—High blood pressure in, 125—Aschheim-Zondek test, 254—Diet in, 441—Irritation of ear in, 501—Hyperemesis of, and Rh factor, 533—Anaemia, pernicious, o., 564
 Prisoners of war, medical books for, 442
 Proctitis, chronic, 257
 Professional secrecy, 222
 Prostate, enlarged, 804
 Pruritus ani, 410, 566
 —in pregnancy, 93
 Psoriasis, 803—Of face and scalp, 472—Of elbows and knees, 534
 Peripartum: Shortened, 62, 666—Postpartum, 378, 771
 Respiration, artificial, Laborde's method of, 29
 Resuscitation by rocking, 598, 772
 "Safe" period, 286
 Salmon in the Thames, 566
 Schistosoma larvae, destruction of, 840
 Schizophrenia, treatment of, 189, 410, 534—Note on, 665
 Seborrhoeic state, the, 379
 Senile disease, research in, 318, 640
 Septicaemia, fulminating meningococcal, 30
 Serum sickness from A.T.S., 838
 Shock, heat in treatment of, 700
 Sinusitis, chronic infective, 630
 Skull: A difficult case, 317, 410—Sulphanilamide and calamine for pyogenic infections, 380
 Spinal cord: prognosis of subacute combined degeneration, 190
 Spondylitis, 700
 "Spots" in children, 839
 Sterility and contraception, 256, 350, 442
 Sterilization, voluntary, and the law, 701
 Sterilizing blades and needles, 666
 Stillboerol in petal mat, 222
 Stomatitis, ulcerative, recurrent, 839
 Stretchers, wheeled, improvised, 256
 Strychnine for paralysis, 534, 702
 Styes, recurrent, 839
 Sugar curve, lag, 221
 "Sulphamezathine": New name for sulphamezathine
 Sulphanilamide: And mumps, 62—Sensitivity to, 533
 Sulphapyridine, effects of, 30
 Sulphonamides: For dysentery and colitis, 665—For rheumatism, 701—Action of, 734—For bronchitis, 442
 Surface area, measuring, 701
 Sweats, night, and anxiety, 61
 Syphilis, treatment of, 349
 —A.B.C. of, 442
 Tapeworm infection, treatment of, 157, 330, 344, 345—segments wanted, 288
 Temperature: For cadaver, 257—Low, 472
 Testis, undescended, 665, 701
 Theophylline for asthma, 30, 62
 Thermometer, refurbishing a, 94
 Threadworms: Gentian violet for, 30—Bismuth for, 409
 Throat, sore, recurrent, 94
 Tobacco and Ehlking's test, 534
 —habit, 502
 Tongue: Sore, 93—Black hairy, 317
 Tonsils and teeth, septic, 517
 Torticollis, spasmodic, 665
 Transfusion into bone marrow, 471, 593
 Tremors, diagnosis before treatment, 409
 Trichothrysis, inflammability of, 472
 Tuberculosis: chemoprophylaxis in phthisis, 773—In children, 500
 Tubes, blocked, 565
 Typhoid, sternal puncture in, 471
 Ulcer: On l.p. 93—Dressing for a clean, 19—Perforated gastric, in adolescent, 256—Peptic, pain of, 378
 Undulant fever, treatment of, 734
 Utericaria, 189
 Vaccination: Post-vaccinal encephalomyelitis, 50—Primaries of adolescents, 125—Public, 154
 Valrus, varus: A point of nomenclature, 288
 Virus infections: Immunity after, 62—Sulphonamides in, 189
 Viscera, abdominal in thorax of newborn infant, 702
 Visceral leishmaniasis after muscular action, 158
 Vitamin A and the cornea, 598
 —B: And yeast, 93—And alcohol, 735
 —C: Saturation test, 255—Deficiency in peptic ulcer, 410
 —D, 379, 736
 —E and other standards, 126
 —requirements (statistics), 61
 —therapy in peptic ulcer, 222
 Vulval warts, treatment of, 631
 Wassermann test: Doubtful, 222—In a child, 247
 Welfare centre, infection and the, 350
 Whooping-cough: Treatment of, 256—Types of pertussis vaccines, 317—Combined pertussis and diphtheria prophylaxis, 349—Vaccine treatment of, 350—Hemiplegia in, 250
 Wilson's disease, 804
 Yawn, what is a? 764
 Nova et Vetera:
 Anatomy, teaching of, 49
 Cos and Hippocrates, 492
 Hippocrates, the, 177

NOVA ET VETERA (continued):

- Medical profession, dignity of, 825
Medicine, British and American, yesterday, 424
Plaster splints in American Civil War, 825
Salerno; its medical school and medical legends, 402
Vienna School, 240
von Helmholtz's visit to America in 1893, 49

Nuffield Provincial Hospitals Trust: Surveys of hospital services, 209

Ulster Provident Association, Ltd., 59

Nursery schools, 84, 527, 620, 728

Nurses: Return of State-registered nurses to special training, 187—Pay and hours of, 214, 248, 252, 254—Supply of, 252—Milk and, 314—Instruction for (book review), 330—Domiciliary services (book review), 401—Hospital, health of (annotation), 428—Employment to be obtained through Ministry of Labour, 440—Food for, 527—Tuberculosis in, 792—Committee on salaries, 799—mental, pay of, 155

(Scotland) Bill, 123, 252

Nutrition: Malnutrition in Ceylon (annotation), 144—Nutritional state of staff in a London sector hospital (Helen Payling Wright and J. L. Hoskins), 171 (O)—Nutrition of mother and child (book review), 233—Nutrition movement in Canada (leading article), 235—Assessment of level of: revised procedure for estimation of anaemia in urine by the thiochrome test (Y. L. Wang and L. J. Harris), 451 (O)—In Newfoundland, 459—Levels of vitamin A and C nutrition in Glossop school-children and effect of deficiencies on their physical condition (preliminary communication) (G. Kohn and others), 477 (O)
Nye, Adèle: Shortened puerperium, 151

O

Oakes, Lois: *A Pocket Medical Dictionary*, 6th ed., 456

Oakley, Wilfrid (and R. D. LAWRENCE): Diabetic retinitis, 312

Obituary:

- Aitken, John, 346
Allan, Capt. G. F., 594
Anderson, Hannah Perry, 530, 593
— Louisa Garrett, 695
Armstrong, Hugh Wells, 121
Aspland, W. H. Graham, 696
Aubrey, Alfred Reuben, 561
— Squad, Ldr. T. D. R., 154
Bankart, Surg. Rear-Admiral Sir Arthur Reginald, 154
Barford, Arthur Morton, 216
Barker, Francis, 798
Barkla, Fl. Lieut. J. M., 376
Bates, Tom, 765
Batten, Rayner Derry, 626
Baynes, Helton Godwin, 438
Beddingfield, Henry, 625
Beer, Louis, 766
Beers, Clifford Whittingham, 498
Beesley, Robert William, 57
Bellis, Fl. Lieut. Gordon Worsley, 468
Bennett, James, 593
Bigelow, Leslie Lawson, 250
Binnie, John James Rouse, 346
Bond, Lawrence Temple, 834
Boxwell, William, 25
Boyes, Auguste, 57
Brooks, Capt. T. Henderson, 562
Brown, Lieut.-Col. Stewart, 594
Burgess, Robert, 530
Byrne, Austin William, 184, 376
Caird, Andrew J., 561
Campbell, Charles Macfie, 284
Chapman, William Foggitt, 766
Clarey, Lieut. N., 798
Clarke, Major R., 315
Clemenson, Frederick John, 315
Cock, Frederick William, 625
Coles, Donald Alexander, 283
Cotter, Cornelius, 25
Coulson, S., 767
Cowen, George Hebb, 625, 767
Cronk, Herbert George, 731
Daniel, Edgar George Clement, 730
Darwent, Edgar Nicholas, 153
Davies, Surg. Lieut. C. M., 498
Davies, Surg. Lieut.-Cmdr. H. de L. N., 697
Denham, Fl. Lieut. John Kenneth, 562
Dixon, Francis, 498
Duncan, Louis Ingram, 249
Eastwood, W. J., 26
Eden, Major Kenneth C., 627, 697
Edington, George Henry, 467, 529
Ewen, Gerald S., 121
Falla, Stephen Thomas, 560
Fergusson, James M., 249
Fergusson, John Newbery, 695
Fetherston, Richard Herbert Joseph, 518, 560
Foxton, Lieut.-Col. H., 498
Freeman, Elmer Burkitt, 250
— Richard Austin, 626
Fremantle, Sir Francis, 305, 344
Fulton, Adam, 647
Gamlen, Harold Ernest, 497, 695
Gibbs, Charles, 529
Gibson, Major R. S., 498

Obituary (continued):

- Gilmour, John, 250
— Major John, 766
Gimlette, Sir Thomas Desmond, 530
Glennie, Surg. Lieut. G. C., 498
Gossage, William Herbert, 834
Gostling, George Wilfrid, 697
Gray, Jessie Milner Campbell, 834
Greeves, Capt. H. G., 594
Gunther, Hermann Arthur, 696
Guyot, Frédéric, 250
Hallam, Martin, 438
Hardy, Edward William Dacre, 766
Harrison, William John, 625
Hastings, Col. Sir George, 346
Hattersley, Col. Sidney Martin, 627
Henderson, William Elmslie, 153
Hendry, James Alexander, 184
Herbert, Capt. L., 498
Hey, Samuel, 695
Hight, Campbell, 153
Holmes, Geoffrey, 283
Horgan, David St. Hellier, 624
Horne, Major Jack, 731
Hrdlicka, Alex, 437
Hunt, John William, 376
Jackson, Edward, 346
Jayne, Frederick James, 26
Jehu, Thomas John, 184
Jelly, George Aubrey, 498
Johns, W. Wilton, 249
Johnston, John Macpherson, 834
Jones, Philip Theodosius, 696
Karstaedt, Capt. A. O., 154
Kiepe, Walter Herman, 766
King, Surg. Lieut. W. L. Mackenzie, 498
Kirkpatrick, Surg. Lieut. R. McF., 768
Knight, Major H. M. R., 469
Lask, Capt. S., 731
Leigh, George Hamer, 731
Levick, Capt. R. E. K., 594
Levis, John S., 694, 766
Lewis, Kingsley Wassell, 624
Lindsay, Ernest Charles, 730
— Robert, 767
Locke, Capt. A. E., 627
Lord, Surg. Lieut.-Cmdr. S. L., 627
Lowenthal, Nathan, 250
Macalister, Charles John, 624
McCall, Capt. I. G., 594
McCaw, Alexander Todd, 185
McCloy, John Moorcroft, 25
Macdonald, Lieut.-Col. A., 89
McGill, James Murdoch, 497
McKenna, Capt. N. V., 697
Mackinnon, Ronald, 529
McLarty, Malcolm, 89
McLean, Robert Reid, 57
McLellan, Capt. Archibald, 697
MacPherson, Duncan Campbell Macewan, 216
McPherson, Lieut.-Col. George, 187
MacSherry, D. L. T., 250
Mahon, Ralph Bodkin, 497
Marlow, Frank W., 346
Marsh, Frank, 407
Martin, Alexander Angus, 25
— Frank William, 184
Meikle, David, 25
Meyer, Inez, 153
Mitchell, Harold Alexander, 184
Monks, Fl. Lieut. K. W., 530
Moore, Athol Raymond, 696
— Frederick Craven, 730
Morgan, George, 625
Morris, Robert Owen, 834
Morrison, Capt. K. P., 834
Muir, Victor Vartan, 346
Murray, John, 284, 345
Nason, Edward Noel, 497
Neander, Gustaf, 346
Needham, Capt. E. J. A., 376
Nixey, Essex Frank Wake, 695
Oliver, Archibald, 695
Osborne, Major H. N., 315
Padshah, Jal Pestonji, 696
Palmer, Lieut. R. A., 627
Pask, Edward Henry Allon, 560
Pasteur, William, 376, 468
Patterson, George Henry, 530
Paulley, J. N. Legge, 530
Peter, Luther Crouse, 346
Phillips, Fred, 765
Pijlcher, Cecil Westland, 249
Pitt-Payne, Fl. Lieut. W. S., 627
Porter, Major A. G., 697
Poynton, Frederick John, 623, 661
Price-Jones, Cecil, 345
Priestley, John Overend, 625
Pritchard, Edward Thomas, 89
— George Eric Campbell, 591, 766
Purves, Major W. H., 768
Ramsden, Ernest A., 184
Rennie, Col. W. B., 627
Rice, John Poyntz, 250
Rogers, George Frederick, 731
Rolland, William, 592
Rose, Frederick Gardiner, 25
Round, Capt. J. H. B., 627
Rowan-Robinson, F. E., 89
Rowntree, Cecil William, 528, 561
Ryan, Major C., 498
Scott, J. E. H., 530
Seddon, Capt. J. C., 798

Obituary (continued):

- Sergeant, Emile, 346
Sharpe, Capt. R. M., 627
Shirley, Lieut.-Col. H. J., 121
Silk, John Frederick William, 731
Simey, Athelstane Iliff, 344, 468, 561
Skæe, Frederick Macpherson Traill, 529
Smith, Capt. A. F., 187
— Edward Cyril, 284, 438
Soddy, James Rawdon, 436
Stark, John Nigel, 766
Steven, William, 592
Stibbe, Edward Philip, 183
Stiff, Harold Henry, 625
Stoker, Fred, 187
Strauss, Major J. N., 89
Tait, Lieut.-Col. H. C., 731
Thomas, Gordon Wilson, 766
Thompson, C. J. S., 153
Thomson, Charles Bertram, 184
— Capt. H. B., 498
— Hugh Wright, 153
— Humphrey Barron, 798
Thorp, Capt. A. L., 408
Ticehurst, Gerald A., 25
Tornade, André, 250
Wain, J. A., 696
Watson, Alexander Pirie, 592
Whale, George Harold Lawson, 183
Wheeler, Sir William Ireland de Courcy, 408
Whillis, Robert, 797
Whitehouse, Sir Harold Beckwith, 215, 284
Wilkes, Lieut.-Cmdr. D. J., 562
Will, H. Chisholm, 346
Williams, Capt. J. O. D., 562
Willock, Edward Hulce, 695
Wilson, Geoffrey Remington, 695
— Capt. R., 315
Wood, Wilfred Burton, 661, 766
Yorke, Warrington, 767
Zornig, Heinrich, 250
- Obstetrical forceps for fibroid (J. Stallworthy), 4
correspondence, 151
- OBSTETRICS:
- Anaesthesia, Gwathmey's, 700
Birth weights, manipulation of (annotation), 4
Caesarean section for contracted pelvis, intestinal obstruction after (W. Hilton Parry), 74
Caudal anaesthesia, continuous (annotation), 2
Cry of the child in utero (J. M. Jackson), 2
(O)
Difficult labour (book review), 456
Labour in cases of cardiac failure low spinal anaesthesia during (H. Burton), 389 (O); correspondence, 465
Lactation, suppression of, in puerperal fever, 5
Midwifery: Review of textbook on, 610—Anaesthesia in: a "mechanical midwife," 195
Obstetric shock, immediate blood transfusion (I. S. Fox), 781
Pelvis, manual dilatation of: four further cases (A. J. Macleod), 484; correspondence, 589
Puerperium: Shortened, 20, 62, 85, 151, 666
Exercises during, 378
Queen Charlotte's textbook of (review), 678
Tuberculosis, pulmonary, effect of pregnancy on parturition on (R. C. Cohen), 775
Uterus, involution of, ergot alkaloids and (annotation), 270
- Occupational diseases, review of book on, 363
- OCCUPATIONAL DISEASES, H. F. (and H. E. CARLSON): *Urology in General Practice*, 485
- Oedema of extremities at sea, 87, 148, 190
- Oesophagus, congenital atresia of (W. Calvert), 6
- Oestradiol and diethylstilboestrol, treatment of prostatic carcinoma by (G. Harvey Duncan), 137
- Oestrogens: For small breasts, 125, 318—At menopause, 190, 244—And vaginal glycogen (annotation), 753
- O'HANLON, R. A.: Resuscitation and oxygen-therapeutic apparatus for infants, 422
- Old lamps for new, 555
- OLDFIELD, Michael C.: Early treatment of wounds of upper part of face, 163 (O)
- OLDHAM, J. B.: Treatment of septic hands and fingers, 557
- Oliver, Archibald, obituary notice of, 695
— R. E.: The returning Service M.O., 589
- O'MULLANE, J. J.: Vitamin therapy in peptic ulcer, 222
- O'NEILL, Thomas: Congenital absence of vas deferens treated successfully by Baldwin technique, 767 (O)
- OPHTHALMOLOGY:
- Artificial vitreous body, 313
"Better sight without glasses," 87
Child's eyesight, care of, 433
Colour vision, tests for (book review), 456
Conjunctival and cutaneous diphtheria: a series of cases (H. C. M. Williams), 416 (O)
Cornea: Unusual burn of, from molten wax (Sydney Tibbles), 347—Vitamin A and, 598
— exposed, device for protection of (Frederick Ridley), 268
Corneal lesions, pediculosis capitis and (A. Hirtelstein), 75
Diphtheria in eye disease, 442, 502
Eyes injured by mustard gas, treatment of (annotation), 111

OPHTHALMOLOGY (continued):

- Iritis, 666
Lid and corneal burns, treatment of, 410
Light and vision (Illuminating Engineering Society), 210
Myopic schoolboys, 631
Night vision in the Army: report of 10,333 tests (A. Lister and J. W. Bishop), 225 (O)
Ocular criteria of riboflavin deficiency (M. K. Gregory), 134 (O)
—manifestations of neurones commonly found among soldiers (I. C. Michaelson), 538 (O)
Ophthalmic neovascular (R.S.M.), 723: correspondence, 828
Ophthalmic tetraethyl (anastomosis), 368
Research: Leadline article on 426—In Oxford, 530
Retinitis, diabetic, 212, 321
Scope of prevention in ophthalmology (Ida Mann), 482 (O), correspondence, 558
Strabismic, recurrent, 839
Teaching (Anastomosis), 144: correspondence, 210
Visual physiology of the cinema (G. H. Bell), 663 (O)

- vit. lesions and vitamin B deficiency, 504
chills of mumps, 838
W. O. Bruce: Psychology and the common cold, 622
KISSBY, O. S. (and H. MONTGOMERY): *Diseases of the Skin*, 6th ed., 392
KE, John (and others): Eight years' experience of a miniature State Medical Service, 616
rheumatoid, of "senary 60," 213—Advances in (British Orthopaedic Association), 75—Contribution of orthopaedic surgery to hospital development (R.S.M.), 791—Textbook of orthopaedic nursing (book review), 817
rheumatism, Register of, 97
Shorne, Major H. N., death of, 315
Swain, T. E.: Modern treatment of gonorrhoea 72 (O)
sacro-arthralgia after colitis, 564
stis externa desquamante (W. I. Daggett), 747
—and media: Casualties in general hospital in Middle East, 357
—media, diphtheritic, in, 658
WESLEY, M. (and others): Infectious mononucleosis, an account of an epidemic in an E.N.S. hospital, 443: correction, 534: correspondence, 658
typhoid cystitis, empty, audible warning of (Classey Dawkins), 548
Urography: Review of book on, 76—Apparatus for infants (R. H. O'Hanlon), 422

P

- badshah, Jal Pestonji, obituary notice of, 696
Beret's disease of bone, 601, 632
AL, R. K. (and A. CHAKRAVARTI): *A Handbook of Modern Physiology*, 107
ALMER, G. W.: Blast perforation of ear-drums, 253
—Lieut. R. A., missing at sea, 627
ALSER, J. E. J.: Morton's metatarsalgia, 442—Transverse dissections, 502
—and facial treatment of (anastomosis), 752: correspondence, 828
—increases: Factors damaging pancreatic islets (anastomosis), 7
—pancreatitis, chronic, 70
paper control and the war of ideas (anastomosis), 718: correspondence, 730
—paradichlorobenzene: toxic properties of, 62
—paradichlorobenzene, 534, 632, 726
paralysis: Of serratus anterior following glandular fever (H. C. Saksena), 267—Striching for, 534
702—Temporary tonic motor, 566—Trigeminal after unichlorobenzene anaesthesia 713, 528
Table-knife holder for use by partially paralysed (J. Carlton Heath), 782
parathyroid action, site of (anastomosis) 176
Paratyphoid B bacilli, typing of, by means of Vi bacteriophage: report to M.R.C. (A. Felix and Bessie R. Callow), 127 (O)
—B. ever: note on the value of phase typing in investigation of an outbreak (Ipswich, 1941), (J. R. Hutchinson), 130 (O)
PARK, R. G.: Cutaneous hypersensitivity to sulphonomides: report of 12 cases, 69 (O); correspondence, 148, 511, 539, 526
—W. D.: Subcutaneous ligature of varicose veins, 120
PARKES, Athol: Traumatic ischaemia in severe leg injuries, 115
Parkinsonism, unilateral, 221
Parkinson's syndrome, alkaloids in symptomatic treatment of (H. Volmer), 121
Parliament, Medical Notes in:
—Anaesthesia: Gas-and-oxygen, equipment for 595
—Gas-and-air apparatus, 698
—Antifreeze for doctors, 662
—A.R.M., Government, and Assumption B of Beveridge report, 530
—Army: Detention barracks, 91, 155: medical officer at 835—Specialists in Medical Services, 155—Reasons for discharge from, 155—Medical health of recruits, 187—Medical Services 563
—Association, British Hospitals: Contraband Schemes: Assumption B of Beveridge report
—Medical Policy, 733
Belgium: Food for, 733—Tuberculosis in 500
Birth Rate, Royal Commission on, 76

Parliament, Medical Notes in (continued):

- Casualties, civil defence, medical care of, 469
Catering Wages Bill: Hospital kitchen staffs, 155
Certification: Fees for, 27—Panel in Burnley, 91
China: British grant-in-aid for medical and surgical work, 187
Colonies, higher education and research in, 123
Committee, Parliamentary, chairman elected, 530
—Medical, 836
—Representative, 594
—Standing, on Nutrition 187
—University Grants, 800
Compensation, increased, for workmen, 219
Council, General Medical, representatives, 295
Deaf-aid appliances, batteries for, 155
Dentists, alien, 498
Diphtheria immunization, 27 698—Statistics for Northamptonshire, 187: for England and Wales, 628
—Incidence and deaths 1938-42, 219—In immunized and unimmunized 662
Disabled, resettlement of, 836
Doctors: Repatriation of, 27—Alien, in hospitals, 123: in the Colonies, 219: in the country, 498
—Recruitment and allocation of 440—Serving, views of, 799, 800—In civilian practice, help for, 800
Employment, physical fitness for, 562
Epidemics, precautions against, 698
Fluorescent lighting for daylight 662
Food: Value of oatmeal, 251—Food values and farming methods, 627—World problem of, 836
Food Conference at Hot Springs 123
Foodstuffs, packed, ingredients of, 697
Goldschmidt, Dr., case of, 638
Greece: Food relief for, 628, 733—Deaths from hunger in, 800
Health, Public, Diploma in, 90
—Services: Comprehensive, 123—White Paper on, 251
Home Guard: Medical examination of, 27, 90—M.O.s in Northern Ireland, 91
Hospital services in Tunisia, 59
Hospitals: Shortage of staffs in 469—Accommodation in African territories, 531—Domestic staffs, conditions of service of 662
—Scottish: Hetherington Committee's report, 562
Housing and health, 440
Income tax, "Pay-as-you-earn," 662, 698
India: Cholera and deaths from famine in, 595—Food and health in, 662
Influenza epidemic, 836
Insulation in the Services 495
Insemination, artificial, 219
Insulin, price of, 836
Leprosy, treatment of, in Central Africa, 531
Lorenzini increases in numbers of men and women over 65 and 60 respectively, 836
Malaria: Animalarial unit in Mauritius, 187
—Assessors, government, raised rate for, 91
Maternity beds in London, 181
Medical board rejections, 91
—Register, 90
—research, 186
—Services: Departmental, 27—In Tunisia, 59
—and staffs, Government Departments (statistics and estimated costs) 90—Emergency, 799—Reorganization, 835
—student, 251
Mediterranean, Central Surgical staff of Forces, 836
Midwives' salaries 219
Milk: Clearance, 123—Producers and producer-retailers (statistics), 187—And vitamins scheme, 18—Government policy House of Lords debate, 250—Raw, supplies of, 252—Milk-in-schools scheme 252—T.T. and accredited, 469—Local authorities' powers of inspection, 498
Mines: Accidents in 563—Consumption for work in, 836
Ministry of Health: Standing Committee on Medical and Nutritional Problems, 187
Newfoundland nutrition in, 469
Nurses' Salaries 252—Working hours of 252—Surplus of, 252
—mental: Pay of 155—Salaries Committee, 79
—(Scotland) Bill, 123, 252
Ophthalmology: research at Oxford, 530
Patent, 768
Penicillin: Clinical Trials Committee, 59
Persons: Appeal tribunals, 59—Constitution of, 219—Bill held over, 91—New provisions of Royal Warrant, 185—Diseases "normally unaffected" by war service 251—A grievance, 662
Preconception regulations 27 59
Population: Decrease in, 76—Declining birth rate, 154—White Paper on 252
Prisoners of war: Disabled repatriation of, 594
—British, in Germany, surgical care of, 662
Producer-ras, Manual of instruction: danger from carbon monoxide, 187
Programme for new session, 73
Radiography mass: Units 252, 498, 594, 836—For Soviet, 662
Radiology, medical, postgraduate course in, 59
Research: Government workers, 186
Scarlet fever incidence and deaths, 1938-42, 219
Scientific research, 186—Scotland: Health of school-children, 219—Infant and child mortality, 799
Slum conditions in industrial premises, 498
Smallpox: Antivaccination publicity, 27, 91—Vaccination, 799

Parliament, Medical Notes in (continued):

- Sun-ray lamps in factories, 493
Tonsillitis, deaths from, 662
Tuberculosis: Death-rate statistics (all forms in U.K.), 1938-42, 59—Infection in nurses, 90—Cases notified in Scotland, statistics, 1938-42, 91—Beds for patients in Wales, 187: in Liverpool, 836—Accommodation and nursing for, in Scotland, 251—Erechauer help for the tuberculous, 628—Debate on, 698—In nurses, 698—In Belgium, 800
—bovine: Experiments with B.C.G., 698—Distinction of, from other forms, 733
Typhus, inoculation against, 469—In North Africa, 594
Vaccination, 799
V.A.D., status of, in military hospitals 27
Venereal disease, notification of, 469: Resolution 33B, 562, 628
Water-supply survey, 835
White Paper on Health Services: Discussions before, 469, 530, 628, 767—Serving doctors and, 531
—Papers, other, 799
Women: In war, 252—Older, registration of, 469
X-ray, deep, tubes, 27
Yellow fever research in Africa, 628
PARNES, Joseph: Therapeutic fallacies, 796
PARRAN, Surgeon-General Thomas: Report on x-ray examinations for tuberculosis by U.S. Public Health Service, 92
PARRY, L. A.: Improving hospital administration, 76
—Peter: The common cold, 559—Agents provocateurs 832
—W. Hilton: Intestinal obstruction after Caesarean section for contracted pelvis, 74
PARSONS, Sir John: Light and vision, 210
PARSONS-SMITH, Basil: Note on the rehabilitation of heart patients, 293 (O)
PARTIDGE, A. J.: Third case of fatal air embolism reported after vaginal insufflation, 329 (O)
Pask, Edward Henry Allon, obituary notice of, 560
PASTEUR, William, obituary notices of, 376, 468
Patella, See Neck
Pathology: Essentials of (book review), 107—Synopsis of (book review), 300—Human (book review), 301—Textbook of (book review), 435—Clinical (European Association meeting), 826
PATRICK, James: Supination and pronation in forearm fractures, 115
Patterson, George: Henry, obituary notice of, 530
—Mary M.: Appreciation of Dr. Hannah Perry Anderson, 593
—R.: Fractures of upper end of ulna, 755
PATTON, A.: The future health services, 311
Pattison, A.: And the common cold (anastomosis), 682—Question in Parliament, 768
PAUL, J. R.: *The Epidemiology of Rheumatic Fever and Some of its Public Health Aspects*, 516
Pavulley, J. N. Legge, obituary notice of, 530
PAVULLEY, L. J.: Alopecia areata, 380
PAYNE, Reginald T.: *Agents provocateurs*, 725
PEACOCK, W. Baly, "The Classics," 467
—W. L.: Treatment of lid and corneal burns, 410
PEARCE, Evelyn C.: *A General Textbook of Nursing: An Comprehensive Guide*, 8th ed., 330—*Textbook of Orthopaedic Nursing*, 3rd ed., 517
Perry, F.: Treatment of gonococcal arthritis, 566
Pediculus capitis: Control of the head louse, 251—And corneal lesions (Arnold Hirstenstein), 75—pubis in the eyelashes 87
PEGGE, George: Wise planning, 18
Pellagra, gastric factor in (anastomosis), 18
Pelvimetry and cephalometry, a precision method of (Paul Cavel 196 (O); correspondence, 358, 374, 495, 558, 658
PEMBERTON, John: Possible developments in social medicine, 74 (O)
Penicillin: Clinical Trials Committee, 59—Leading article on, 269: correspondence, 424—Supply and distribution, statement by M.R.C., 252
—Production in Canada, 469—In the U.S.A. (leading article), 552—In Tunisia (anastomosis), 650—Discussion on, at R.S.M., 654—In battle wound (leading article), 750—War Office report on, 725
PENMAN, A. Clark: Epidemic infectious hepatitis, 595
Pensions, war, 249
—New provisions of Royal Warrant, 185—Diseases "normally unaffected" by war service, 251
Pentose nucleotides, action of, 433
Pepsin inactivation in ulcer therapy (A. Morton G. and C. A. Keele), 194 (O)
Pericardiothoracic retractor, 256
PERMAN, H. H. (and others): Extraction of nicotine in milk and urine of 55 cigarette-smoking mothers, 522
FERROVE, Hector (and Myron Wright): A fatal case of atypical pneumonia with encephalitis 63 (O)
Persia, medicine in (anastomosis), 820
Perthes's disease, fracture of (medico-legal), 83
Pertussis prophylaxis, combined diphtheria and, 34—vaccine, 317, 330
—See also Whooping-cough
Pervium psychosis (Dubois), 499
Peter, Luther Cross, death of, 346
PETERS, B. A. (and M. L. EASY): Pneumonia treated with sulphamethazine: report of 77 cases 230 (O)
—R. A. (and others): Are hospital diets adequate? 616
Pett mal, sulphacetol in, 222
Pharmacopoeia, British, alterations in, 721

- Pheniodol: a new contrast medium for cholecystography (F. H. Kemp), 674
- Phillips, Fred, obituary notice of, 765
- Phlebitis, 30
- Phosphorus burns, 666
- Photomicrography with ordinary cameras—a simple technique (W. N. Leak), 787 (O)
- Physics and the surgeon (H. S. Soutar), 737 (O)
- Physiological factor in haemoglobinometry (E. F. McCarthy), 362 (O)
- function and vitamins (G. N. Jenkins and J. Yudkin), 265 (O); correspondence, 338
- Physiology: Handbook of modern (book review), 107—Pavlovian, and war neurosis (leading article), 205—Annual review of (book review), 393—Visual physiology of the cinema (G. H. Bell), 669 (O)
- Physiotherapists, blind, 755
- PICKERING, G. W.: The circulation in arterial hypertension, 1 (O); 31 (O)
- PICKWORTH, F. A.: Psychology and the common cold, 622
- PICTON, L. J. (and others): Preventive medicine through breast-feeding, 374
- Pilcher, Cecil Westland, obituary notice of, 249
- Pillows, 254
- PINEY, A.: Action of pentose nucleotides, 433—Toxicity of methyl acetamide, 495—Transfusion into bone marrow, 598
- PINSON, K. B.: Sealing intratracheal catheters, and a listening-tube, 747
- Pitressin and arterial hypertension, 32
- Pitt-Payne, Fl. Lieut. W. S., death of, on active service, 627
- Pituitary hypothyroidism with impaired renal function (G. E. Beaumont and J. D. Robertson), 356 (O)
- Planning, wise, 18
- Plasters, short leg, a new walking iron for (T. T. Stamm), 13
- PLATT, G. (and M. DYSON): Study of the accuracy of serum protein estimations and of diurnal variations in their level, 6 (O)
- Pleuritic pericardial rub, 533, 804
- Pneumococcal, traumatic ventricular, case of (M. Gaines), 512
- Pneumococcal regulations (Parliament), 27—Schemes presented to Parliament, 59
- and working conditions in coal mines (leading article), 395
- Pneumonia: Treated with sulphamezathine: report of 77 cases (B. A. Peters and M. L. Easby), 230 (O)—Examination of sputum in, 440—Effect of chemotherapy on mortality from, in Glasgow (Thomas Anderson), 779
- atypical: With encephalitis, a fatal case of (H. Perrone and M. Wright), 63 (O)—Virus of psittacosis in certain cases of (J. E. Smadel), 393
- lobar: some therapeutic fallacies, 575
- primary atypical, or "pneumonitis"? 689, 792
- staphylococcal, complicating influenza (leading article), 783
- unresolved, treatment of, 61
- Pneumonias, control of, 159
- Pneumonitis, 689, 792
- Pneumoperitoneum, induced: a fatal case, 404
- Pneumothorax, artificial, symptomless "pneumonia" and, 463
- Poison, scheduled, prescribing, 502
- Poisoning: From hair dye (annotation), 490—Tricresyl phosphate (annotation), 682—Arsine (annotation), 785—Beryllium: x-ray picture of lungs in (Meyer), 824
- Polymyositis, fact and fancy in (leading article), 141; correspondence, 279; annotation on, 495—Epidemiology of (R. S.M.), 686
- POLLAK, H.: Hippuric acid test in peptic ulcer, 827
- Polyuria, 701—In old age, 566
- POOLE, William (and others): Eight years' experience of a miniature State Medical Service, 616
- , R. (and others): N.H.I. and Assumption B. A. S. (and H. D. CHADWICK): The Modern Tuberculosis, 75
- : Decrease in (Parliament), 26—White paper on, 252—Numbers of men over 65 and women over 60, 836
- , A. E. (and R. M. HANDFIELD-JONES): The Essentials of Modern Surgery, 2nd ed., 781
- PORTAS, F.: The doctor with cold, 343
- POSEL, M. M. (and H. L. HEIMANN): Case of congenital dilatation of pulmonary artery, 512 (O)
- Potassium: In allergy, 440, 565—Rise in concentration in blood stream following ischaemia of muscle masses (R. E. Rewell), 483 (O)
- Potato, nutritive value of, 335
- POWELL-EVANS, I. (and others): N.H.I. and Assumption B, 343
- POWER, R. Wood: Immobilization and transportation of fractured femur in war, 509 (O)
- Poynton, Frederick John, obituary notices of, 623, 661
- Practitioner Booklets (edited by Sir Humphry Rolleston and Alan Moncrieff): Fractures and Dislocations, 12
- PREGNANCY:
- Anaemia, pernicious, of pregnancy, 564
- and having children, 664
- Ante-natal care, 840
- Diet in, 441
- Ear, irritation of, 501
- High blood pressure in, 125
- Hyperemesis of pregnancy and Rh factor, 533
- PREGNANCY (continued):
- Pulmonary tuberculosis, effect of pregnancy and parturition on, 775
- Rupture of rectus abdominis muscle during (R. C. Thomas), 136 (O); correspondence, 245
- Toxaemia of, arterial hypertension in, 4
- PREPARATIONS AND APPLIANCES:
- Anaesthesia, continuous intravenous: a simple method (R. Shaw), 715
- Anaesthetist's third hand (P. S. A. Heyworth), 486
- Convulsive electrotherapy, head terminals for (E. Fretson Skinner), 393
- Cornea, exposed, device for protection of (Frederick Ridley), 268
- Diathermy and suction holder (Ralph Friedman), 301
- Elastic wound wrapping (W. Reginald Wilson), 456
- Endotracheal harness (M. W. P. Hudson), 647
- tubes, self-inflating cuff for (R. R. Macintosh), 234
- Glaxo products, recent (flavines, nicotinamide, T.A.B. vaccine), 486
- Mouth gag for edentulous patients (H. L. Thornton), 202
- Oxygen cylinders, empty, audible warning of, 548
- Respiration, artificial, rocking device for (J. R. Lahiff), 42
- Resuscitation and oxygen-therapy apparatus for infants (R. H. O'Hanlon), 422
- Splint, emergency, for fractured femur (P. L. W. Williams), 330
- padding, new form of (W. O. Spence), 817
- Splints, wrist, plaster-of-Paris: a simple technique for reinforcement (I. H. Baum), 139
- Stretcher, rocking device for (J. L. Barford), 581
- Sulphanilamide powder spray (Stanford Cade), 514
- Syringe for transfusions and infusions (L. Rosenthal), 749
- Table-knife holder for use by the partially paralysed (J. C. Heal), 782
- Walking iron, new, for short leg plasters (T. T. Stamm), 13—(C. Denley Clark), 364
- PRESCOTT, F. (and A. Grey CLARKE): Studies in vitamin B deficiency with special reference to mental and oral manifestations, 503 (O); correspondence, 619, 657, 689—(And H. Dodd): Methedrine in surgical operations, 524
- Press, war and the (annotation), 46
- Price-Jones, Cecil, obituary notice of, 345
- PRICHARD, D. S.: Dentistry and medicine, 797
- Priestley, John Overend, obituary notice of, 625
- PRINGLE, G. L. Kerr: British spas, 340
- Prisoners of war: Books for, 442, 493—Repatriation of disabled, 594
- enemy, journals for, 380
- Pritchard, Edward Thomas, obituary notice of, 89
- George Eric Campbell, obituary notices of, 591, 766
- Proctitis: Gonococcal, 222—Facitital (annotation), 459
- Proctology for the G.P. (book review), 455
- Progressive muscular atrophy, 286
- Prostate, carcinoma of: treatment by oestradiol and diethylstilboestrol (G. Harvie Duncan), 137
- Prostatic enlargement: Stilboestrol for, 403, 436, 558—Androgen therapy for, 834
- Protein, raw, boiled milk and, 309
- Pruritus ani, 410, 566
- Pseudo-cystitis simulated in a male (W. Blyth), 137
- Pseudo-scleroderma (R. B. McMillan), 229 (O)
- Psoriasis: Of face and scalp, 472—Of elbows and knees, 534—Nature of, 803
- Psychiatry: In general hospitals, 54, 118, 213, 341—Introduction to (book review), 300—At the cross-roads (leading article), 331; correspondence, 462, 620, 729, 764—Neurotic and psychiatric states as causes of inability to work in England, 1940—(H. E. Collier), 461—In relation to the criminal (R.S.M.), 554—And social medicine (leading article), 612—Education in, 617—Psychiatric implications of surgery (annotation), 819
- Psychology and the common cold, 494, 621
- Psychoneurology and endocrinology, review of book on, 169
- Psychoneurosis and dietary deficiency, 503
- Psychopathology: Review of book on, 364—Psychopathic personality and the electroencephalogram (annotation), 718
- Psychoses, non-epileptic, dilantin for (annotation), 518
- Puerperium. See Obstetrics
- Pugh's Practical Nursing (W. T. G. Pugh), 13th ed., 456
- Pus, sputum, and exudates, composite Ziehl-gram staining method of (S. Marshall), 232 (O)
- Pyelitis. See Kidney
- RADLEY, J. A.: Starch and its Derivatives
- RADNOR, Ivor: H 11 for cancer, 403
- Radon, issue of: list of approved hospitals (Stebbing), 432
- RAFF, Arnold: Adolescent spondylitis, 4
- RAMSAY, W. A.: The medical superintendent
- Ramsden, Ernest A., obituary notice of, 431
- RANKIN, A. L. K.: Clinical features of a thorough outbreak of enteric fever, 431
- RAO, B. (and C. V. NATARAJAN): Outbreak of typhoid in Kolar Gold Fields, 505
- Rat, brown, war on (annotation), 786
- supplies, 836
- Rectum and colon, functional diseases of, 51
- Red Cross: Bombing of hospital ships, 702
- RECE, L. N.: Mycotic nails, 702
- Norman: Precise cephalometry, 526
- REES, T. P. (and W. H. SHERLEY): For general hospitals, 119
- REESE H. (and others): editors of The Book of Neurology, Psychiatry, and Criminology, 169
- Registrar-General's quarterly returns: Fire 837; England and Wales, 124, 499; 347, 732; Northern Ireland, 499
- Rehabilitation: Some problems of (H. 47 (O); correspondence, 116—Use of a post-war rehabilitation of children in countries (book review), 170—Of hear (Basil Parsons-Smith), 295 (O)—Of the 699—Of the maimed (book review), 71
- distrial centre at Lgham, 723—Rocham (leading article), 819
- REICHENFELD, L.: Pre-Nazi medicine in Vienna
- REISS, Max: Determination of haematocrit in wound shock: a routine procedure, 3
- Corticotrophic hormone in secondary adrenocortical insufficiency, 519
- RENNIE, Col. W. B., death of, 627
- Reproduction and lactation, dietary factors (Marion B. Richards), 418 (O)
- Research: Statistical tables for biological, tural, and medical, 2nd ed., notes on, 76
- education and, in the Colonies, 123; at 820—Scientific, 186
- Respiration, artificial: Rocking apparatus 119; Adaptation for first aid, 119—Fold for rocking a stretcher, 494—Rocking of stretcher (J. L. Barford), 581—Firing for, 661—Laborde's method of, method, 179—Resuscitation by rocking Methods of (D. G. Cordier), 381 (O
- spondence, 493
- and circulation, acute effects of sm (R. G. Main), 210
- Respiratory conditions, acute, analysis of, 1
- soldiers (W. W. MacNaught and R. M. Lyon), 324 (O)
- function of digestive tract (annotation)
- Resuscitation: Ward in an E.M.S. hospital (Lamont) 145—And oxygen-therapy apparatus (R. H. O'Hanlon), 422—By rock 772. See also Respiration, artificial
- Reinitis. See Ophthalmology
- Reviews of Books:
- After-care and Rehabilitation (Various 268
- Air, Clean Plan for (National Smoke A Society), 301
- Anatomy, Cunningham's Textbook (ed. Brash and E. B. Jamieson), 8th ed., 78
- Guide to (E. D. Ewart), 5th ed., 6
- Pelvis, Female: Including a Description of the Placenta and its Formation and its Circulation (C. F. V. Smout and F. 514
- Regional Synopsis of (T. B. John ed., 202
- Surgical, Aids to (J. S. Baxter), 2n
- Synopsis of (A. Lee McGre ed., 234
- Topographical, of the Dog (O. Bradley; revised by Tom Grahame), 107
- Beveridge Plan: A Symposium (In Bookshop, Ltd.), 139
- Biochemistry for Medical Students (Thorpe), 3rd ed., 202
- Laboratory Directions in (V. C. M. Birth, Poverty, and Wealth: A Study Mortality (R. M. Titmuss), 781
- Body Constituents, Dynamic State of (Schoenheimer), 679
- Brain: After-effects of Brain Injuries Their Evaluation and Treatment. 1
- cation of Psychologic Methods in (Kurt Goldstein), 138
- Breast, Diseases of: Diagnosis, Pathology (C. F. Geschickter), 745
- Cancer: Reports of Royal Cancer Institute, 64
- Chester Heavy Research Institute, 64
- Cape Town: Official Report of Soc Conference, 1942, 201
- Cardiff Medical Society, Proceedings of
- Carlisle and the Surgeons (C. W. Broo
- Chemistry, Physical, for Students
- chemistry and Medicine (E. Staunton
- Chest Examination: Correlation of Pl
- x-ray Findings in Diseases of the L
- Trail), 646
- Child, Natural Development of the (Bowley), 2nd ed., 679
- RACE, R. R. (and others): Rh factor and erythroblastosis foetalis: an investigation of 50 families, 289 (O)—Significance of Rh factor, 690
- Radiography, mass: Scheme, 205, 252, 498, 594—And after, 463—Unit for U.S.S.R., 662—Facilities for in Yorkshire, 836
- Radiology: In 1942, review of Year Book, 611—Empiricism or science? 692—Evaluation of x-ray findings, 829
- Radiotherapy, local application of sulphanilamide powder in (A. A. Charteris), 577 (O)

Reviews of Books (continued):

- Children of Belgium, Save the (Emile Cammaerts), 393
- Chin's Health Problems (Seeming Sie), 550
- Cleane the Leper (P. B. Clayton), 364
- Clinics, Vol. 11, 749
- Colour Vision, Series of Plates designed for Tests for (Shinobu Ishihara), 456
- Contraception and Fertility in the Southern Appalachians (Dr. Beebe), 139
- Country House, Conscient and Nursing Sister's (Cecilia Hooper), 782
- Denture Base Readjustment (H. Hirsch), 611
- Dermatology and Syphilology, 1942 Year Book of (ed. by Fred Wise and Marion B. Sulzberger), 138
- Dietary in Wartime (University College Hospital pamphlet), 514
- Diagnosis, Physical (the late C. Cabot revised by F. D. Adams), 13th ed., 76
- Dictionary of Science (E. B. Uvarov), 268
- of Skin Diseases (Richard L. Sutton and Richard L. Sutton, jun.), 486
- Encyclopedia of Science and War (Surg. Rear Admiral M. B. Redwood), 421
- Pocket Medical (Louis Oakes), 456
- Disease, War on (Central Council for Health Education pamphlet), 301
- Diseases in the A.I.F., 1916-18, 782
- Dress, Right for Health (Central Council for Health Education), 37
- Dysentery, Disorders, Diagnosis and Treatment of (Sydney, Spivey, Collier, and other Diarrhoeas in General Practice (Sir Philip Manson-Bahr), 2nd ed., 392
- Ear, the Inner, including Otorrhoeology, Otorrhoeology, and Problems in Modern Warfare (J. Fisher and L. E. Wolfson), 421
- Education, The New Authoritarianism in (L. P. Jacks and others), 301
- Eating, War in Wartime (Charles Hill), 170
- Electrocardiogram, the, and X-ray Configuration of the Heart (A. M. Master), 2nd ed., 363
- Electroencephalogram, An Elementary Atlas for Students and Practitioners (H. Walter Jones and E. Noble Chamberlain), 2nd ed., 363
- Epilepsy (Journal of International League against Epilepsy), 715
- Exercise, Use of, in Post-war Rehabilitation of Children in Occupied Countries (Olive Rendell and others), 301
- Famine Relief Committee Report, 679
- Fair Protection and A.R.P. Year Book, 1943-4, 817
- First Aid, Essential, 456
- of the Incident, 234
- Principles of (Beryl Harding), 76
- You and Your Comrade (Home Guard M.O.), 170
- Food Investigation, Index to the Literature of, Vol. 14 No. 2, 364
- Possession, Its Nature, History, and Causation—Measures for its Prevention and Control (E. B. Dewdney), 456
- War-time, for Mother and Child (Geoffrey H. Bourne), 233
- Foods, Canned, An Introduction to their Microbiology (J. G. Baumgartner), 170
- Fracture Treatment, Pictorial Handbook of (E. L. Compere and S. W. Barker), 547
- Fractures (P. B. Magnusson), 4th ed., 547
- and Dislocations (various authors), 12
- for Practitioners (E. O. Geckeler), 782
- and Sprains, Management of (J. A. Key and H. E. Conwell), 3rd ed., 169
- and Fracture Treatment in Practice (Kurt Colson), 169
- and Joint Injuries (R. Watson-Jones), Vol. 1, 3rd ed., 714
- Future and the Fighting Generation (David Bruce), 139
- Genetics of the Mouse (Hans Grünberg), 816
- Genetic Periodic Table and Bibliography (J. H. Kenneth), 679
- Granulomatosis: Der Morbus Besnier-Boeck-Schaumann. Chronische epitheloidzellige Retikulit-ertheliose sine granulomatose (St. J. Leitner), 300
- Gynecology, Transactions of the American Gynecological Society, 1942, 265
- Health Hints, Simple (Anna Bromann), 715
- Mental in College (C. C. Fry and Edna G. Reston), 748
- Hemorrhoidosis, the Human Interest (A. P. Cawad), 393
- Hospital, British Voluntary, Eight Hundred Years of Service, 647
- Human Inheritance, The Treasury of (edited by R. A. Fisher)—Vol. IV: Nervous Diseases and Muscular Dysmorphisms. Part IV: On Pseudo-hypertrophic and Allied Types of Progressive Muscular Dystrophy, by Julia Bell, 421
- Indian Medical Service, A Handbook for Emergency Commissioned Officers (J. R. Doran), 202
- Infancy and Childhood, Diseases of (World Sheldon), 4th ed., 514
- Insects, Biological Control of (Hugh Nicholson), 330
- Knee-joint, Changes in, at Various Ages, With Muscular References to the Nature and Development of Degenerative Joint Disease (G. A. Bennett and others), 201
- Labour, Difficult, A Handbook on (M. L. Preston), 456
- Larynx, Diseases and Injuries of, A Textbook for Students and Practitioners (Chevalier Jackson and Chevalier L. Jackson), 2nd ed., 267

Reviews of Books (continued):

- Lymphatic System: Its Part in Regulating Composition and Volume of Tissue Fluid (C. K. K. K. K.), 330
- Materia Medica, Pharmacology and Therapeutics, Essentials of (R. H. Miles), 3rd ed., 76
- for Nurses (W. Gordon Sears), 393
- Measles (Health Hints No. 14), 301
- Medical Annual 1943 (ed. by Sir Henry Tidy and A. Rendle Short), 679
- Bibliography, Checklist of Tests Illustrating the History of the Medical Sciences (revised by T. T. Morton), 548
- Ethics (R. M. Downes) based on Lectures by A. V. M. Anderson, 233
- Register, 1943, 13
- Medicine, Authority in: Old and New (M. Greenwood), 611
- Future of (D. Stark Murray), 413
- Industrial, Principles and Practice of (32 authors), 748
- Legislation, and Hygiene, Outlines of (James Barst), 363
- March of (New York Academy of Medicine), 678
- Physiological Basis of (C. H. Best and N. B. Taylor), 3rd ed., 646
- Recent, Advances in (G. E. Beaumont and E. C. Dodds), 11th ed., 749
- Symptoms and Signs in Clinics (E. Noble Chamberlain), 3rd ed., 170
- Textbook of (J. J. Conybeare), 7th ed., 76
- Membranes, Natural, the Permeability of (H. Davson and J. F. Danielli), 485
- Mental Illness, A Guide for the Family (Edith M. Stern), 167
- Microscope Beyond the (K. M. Smith), 550
- Midwifery, Textbook of (Wilfrid Shaw), 610
- Midwifery, Textbook of (G. S. Wilson), 301
- Modern Treatment Year Book (C. P. G. Wakeley), 202
- Mother Expectant, Advice to on the Care of her Health and that of her Child (F. J. Browne), 6th ed., 393
- Municipal Year Book and Encyclopedia of Local Government Administration, 267
- Myology, Medical, An Introduction to (G. M. Lewis and Mary E. Hepper), 2nd ed., 816
- Nerves (Central Council for Health Education), 170
- Neurology, Psychiatry, and Endocrinology, 1942 Year Book of (ed. by H. H. Reese and others), 169
- Neuromuscular Maturation of the Human Infant (Myrtle B. McGraw), 679
- Nose, Throat and Ear, Diseases of Medical and Surgical (Ballenger), 6th ed., 611
- Notes for the R.M.O. of an Infirmary Unit (C. P. Blacker), 76
- Nursing, General Textbook of, A Comprehensive Guide (Evelyn C. Pearce), 8th ed., 330
- Nursing, Practical (J. Gordon Pugh and Alice M. Pugh), 13th ed., 456
- Teaching in Schools of (Alice M. Jackson and Katharine Armstrong), 330
- Obstetrics, Queen Charlotte's Textbook of, 6th ed., 678
- Ophthalmological Society of the United Kingdom, Transactions of, 1942, 402
- Orthopaedic Nursing, Textbook of (Evelyn C. Pearce), 3rd ed., 817
- Otolaryngology and Laryngology, Manual of (H. C. Ballenger), 2nd ed., 548
- Oxygen Therapy, Techniques, Manual of, including Carbon Dioxide, Helium and Water Vapor (H. H. Andrews, jun.), 76
- Papers of a Pioneer—Sir Pendril Varner-Jones (collected by Peter Fraser), 12
- Pathology, Essentials of (L. W. Smith and E. S. Gaul), 2nd ed., 107
- Human (H. T. Karsner), 6th ed., 301
- Synopsis of (W. A. D. Anderson), 300
- Textbook of (W. Boyd), 4th ed., 456
- Physiology Annual Review of, Vol. V (ed. by J. M. Luck and V. E. Hall), 393
- Clinical, Researches in (Sir Almoth Wright), 234
- Modern, Handbook of (R. K. Pal and A. Chakravarti), 107
- Proctology for the General Practitioner (F. C. Smith), 2nd revised ed., 455
- Psycho-analytical Vocabulary, a New German-English (Alvin Schreier), 364
- Psychological Medicine, A Short Introduction to Psychiatry (Desmond Curran and Eric Guttmann), 300
- Psychopathology: A Survey of Modern Approaches (J. E. Nicolson), 364
- O Camp (Marjorie Franklin), 581
- Radiology, The Year Book of, 611
- Reed, Walter, Memoir of The Yellow Fever Episode (A. E. Truby), 714
- Renal Lithiasis (C. C. Higgins), 234
- Science, Advancement of (British Association), 393, 455
- Planning of, 364
- Sea Exercise, The Story of a Great Natural Experiment in Preventive Medicine in the Royal Navy (R. S. Allison), 135
- Sex Education, for Children and Young People (H.M.S.O.), 749
- Skin Diseases (Olive S. Ormsby and H. Montgomery), 6th ed., 392
- Mental Therapy, An Introductory Study (M. B. and S. M. Hale), 581

Reviews of Books (continued):

- Soviet Science (J. G. Crowther), abridged edition, 330
- Springs of Virginia, 1745-1950 (Perceval Reardon), 13
- Starch and its Derivatives (J. A. Radley), 268
- Statistical Tables for Biological, Agricultural, and Medical Research (R. A. Fisher and F. Yates), 2nd ed., 76
- Structure of Mucosa (J. T. MacCurdy), 41
- Surgery, Industrial and Orthopaedic, 1942 Year Book of, 41
- Minor (Practitioner Handbook), 422
- Modern, Essentials of (ed. by R. M. Handfield-Jones and A. E. Porritt), 2nd ed., 781
- Orthopaedic Practice of (T. P. McMurray), 2nd ed., 455
- Pocket (P. H. Mitchiner and A. Hedley Whyte), 514
- Rose and Carless Manual, for Students and Practitioners (C. P. G. Wakeley and J. B. Hunter), 2 vols., 17th ed., 421
- Short, Practice of (Hamilton Bailey and R. R. McNeill), 6th ed., 224
- Surgical Operations, Student's Handbook of (Trevor) (revised by C. P. G. Wakeley), 7th ed., 13
- Therapeutics General, 1942 Year Book of (ed. by O. W. Beattie), 12
- Tuberculosis, A Modern Attack on (H. D. Chadwick and A. E. Porritt), 2nd ed., 781
- Schemes Handbook of, 548
- Urology in General Practice (N. F. Ockerlind and H. E. Carlson), 485
- Veneral Disease in Britain (S. M. Laird), 42
- Social Service in the Clinic for (Dorothy Marshall), 2nd ed., 456
- Ventilation and Heating, Lighting and Sealing (Industrial Health Research Board), 817
- Virus Diseases (T. M. Rivers and others), 550
- Vulva Diseases affecting the (Elizabeth Hunt), 2nd ed., 107
- War Injured, Rehabilitation of: A Symposium (ed. by W. B. Dehette and D. B. Rumes), 715
- Wounds and Injuries (ed. by R. Maingold and others), 2nd ed., 393
- Waters and Water Supplies, Examination of, (E. V. Suckling), 5th ed., 12
- When Hostilities Cease (Papers on Post-war Problems), 647
- Wholeness of Man: A Study in the History of Healing (Phyllis L. Garlick), 300
- Wilson Hospital in the Front Line, 42
- Young Citizen (A. E. Morgan), 611
- REWELL, R. E.: Rise in potassium concentration in blood stream following ischaemia of muscle masses, 483 (O).
- Rh antigen, occurrence of, in the population; notes on five cases of erythroblastosis foetalis (E. D. Hoare), 297 (O).
- Rh blood group, haemolytic transfusion reactions (Blood Transfusion Committee M.R.C.), 50
- Risks of, 157—And erythroblastosis foetalis (R. R. Race and others), 289 (O)—Haemolytic disease of newborn (erythroblastosis foetalis), treatment with Rh-negative blood (Janet D. Gunn), 293—In pregnancy and treatment of haemolytic disease of newborn (leading article), 303—Tests on 88 mothers of infants with haemolytic disease (P. L. Mollison), 521—And hyperemesis of pregnancy, 533—Significance of, 557—Effect of parturition, 630
- Rheumatic fever (Annotation on The Epidemiology of Rheumatic fever, 1942, 107)
- Health Aspects by John R. Paul (2nd ed.), 516
- Rheumatism, Rheumatism streptococci, and cows, 125—Chronic non-rheumatoid, local chemotherapy in (G. Laughton Scott, 510 (O); correspondence, 622—Sandy fever and the rheumatic series (R. L. Ferguson), 545 (O)—Sulphenamides for, 701
- Rhodesia, Southern: Vaccination campaign and complete absence of smallpox, 135—Report of Chief Native Commissioner, 765
- Riboflavin: Cultural criteria of deficiency (M. K. Gregory), 134 (O)
- Rice, John Poyntz, obituary notice of, 250
- RICHARDS, Marion B.: Dietary factor in reproduction and lactation, 418 (O)
- Rickets, massive vitamin D therapy in (annotation), 517
- Rickettsiae, the (leading article), 550
- RIDDELL, W. J. B.: Scope of prevention in ophthalmology, 558
- RIDLEY, F.: Device for protection of exposed cornea, 268—Treatment of burns of eyelids and conjunctiva, 522—Ophthalmic neomycin, 723
- RILEY, J. F.: Direct inguinal hernia, 23
- Rivers of England: Treatment article, third report of Central Advisory Water Committee, 457
- RIVERS, T. M. (and others): Virus Diseases, 550
- ROSE, H. E.: Research in senile disease, 318
- ROBERTS, F. W. (and B. A. SELLECK): Continuous administration of anaesthetic anaesthesia: a simple method, 813 (O)
- R. E. (and J. Duncan Warr): Radiological practice in a comprehensive health service, 182
- ROBERTSON, A. Niven: Childhood infection and adolescent adult phthisis, 373
- J. D. (and G. E. BRUMFITT): Pulmonary hydatidosis with impaired liver, 356 (O)
- The renal function in myxoedema, 578 (O)
- Kenneth M.: Infective hepatitis, 338
- ROBINSON, Henry: Treatment of schizophrenia, 410

ROBINSON, J. N.: Penicillin: American Army experience, 655
 Rock phosphate, excretion of, in sewage (E. F. Armstrong), 34
 ROGER, N. O. (and others): Infectious mononucleosis, with an account of an epidemic in an E.M.S. hospital, 443; correction, 534; correspondence, 658
 ROE, G. C. F.: Institutional provision for mental defectives, 658
 Southampton and rehabilitation (leading article), 819
 Rogers, George Frederick, obituary notice of, 731
 Roland, William, obituary notice of, 592
 ROME, Charles: Treatment of septic hands and fingers, 556
 ROOK, G. D. (and others): Herpes zoster in the newborn, 811
 ROOKE, A. Basil: Clinical diagnosis of breast tumours, 86
 Rose and Carless, review of new edition, 421
 ROSE, Alex.: Health and tonsillectomy, 433
 — Frederick Gardiner, obituary notice of, 25
 ROSENBAUM, M. (and G. L. MALBY): Electroencephalograms of 20 patients with eclampsia, 264
 ROSENTHAL, L.: Syringe for transfusions and infusions, 749
 OSHER, A. B.: Neutropenia in "catarrhal" jaundice, 826
 Ross Institute of Tropical Hygiene (annotation), 17
 Rothamsted Experimental Station, centenary commemoration of, 124
 Round, Capt. J. H. B., obituary notice of, 627
 ROUS, P. (and others): *Virus Diseases*, 580
 Rowan-Robinson, F. E., obituary notice of, 89
 ROWE, I. B.: Wartime diet for peptic ulcer patients, 464, 619
 Rowntree, Cecil, obituary notice of, 528, 561
 RUDOLF, G. de M.: Temporary tonic motor paralysis, 566
 RUGG-GUNN, A.: "Opponents of the medical profession," 623
 RYAN, D. D. (and W. B. DOHERTY) (editors): *Rehabilitation of the War Injured: A Symposium*, 715
 RYAN, M. A.: Dentistry and medicine, 797
 RUSSELL, Sir Alexander: Scottish diphtheria immunization campaign, 52
 — Audrey: Nutritional relief after the war, 759
 — H. S.: Ante-natal care, 840
 — Sir T. W. Pasha: Report on work of Egyptian Narcotics Bureau, 718
 — Victor: Service doctors and State medicine, 311
 Ryan, Major C., missing, believed killed at sea, 498
 — J. P.: Resuscitation by rocking, 598
 RYLE, John A.: Social medicine: its meaning and scope, 633

S

Safe period," 286
 Salerno: its medical school and its medical legend (Nova et Vetera), 402
 Salutes, dicummarol and (annotation), 615
 Salvo in the Thames, 566
 SALT, transmission of kala-azar by (annotation), 148
 SALFORD, B. R.: Desert sores, 590
 SANDS, D. E.: Psychiatric treatment in general hospitals, 213
 SANDSTER, J. R. M.: Health centres, 152
 SANDY, William: Psychiatry at the cross-roads, 463
 Santos, 667, 761, 791—And impetigo, 830
 Sarcoptid larvae, destruction of, 840
 Sarsaparilla (dementia praecox): Treatment of, 189, 410, 534—Familial mortality and (annotation), 490—A note on, 565
 Sarsaparilla-Holstein, paratyphoid in, 347
 SAUNDY, L.: Treatment of chronic rheumatism, 622
 SAUNDY, R.: *The Dynamic State of Body Constituents*, 679
 SAWICHER, Herta (and others): Human infection with *Bac. cholerae-suis*: report of two cases, 358
 Sauter: Treatment of an essay in debunking (Sir Arthur Hurst), 773 (O)—Differential diagnosis of chronic sciatica pain, with analysis of 100 cases (W. P. U. Jackson), 776 (O)
 Sauter, Planning of, 364

SELAND:
 Children, health of, 219
 Diphtheria immunization campaign, 52
 Encephalomyelitis after vaccination in Fife (G. Matthews Fyfe and J. B. Fleming), 671 (O)
 Health of: report of Department of Health, 394
 Hospital partnership for (leading article), 583
 "Influenza" effect of chemotherapy on mortality in Glasgow (Thomas Anderson), 779 (O)
 Registrar-General's quarterly returns, 347, 732
 Social medicine in, 789
 Tuberculosis: Cases notified, 1938-42, 91—Accommodation for nursing, 251

SELT, G. L.: Local chemotherapy in chronic (non-haematoid) rheumatism, 510 (O)
 — Sir Harold: The tobacco habit, 632
 — J. A.: H11 for cancer, 150
 — (and others): N.H.I. and Assumption B, 343
 — J. E. H., obituary notice of, 530
 SELTER, L. G.: Ophthalmia neonatorum, 723
 Selsby, review of book on, 138
 SELWY, W. G.: *Materia Medica for Nurses*, 393
 Serboho state, the, 379
 Serbity, whole-time, 152

SEDDON, H. J.: Poliomyelitis in Malta, 687
 — J. C., killed on active service, 798
 SELICK, B. A. (and F. W. ROBERTS): Continuous administration of intravenous anaesthesia: a simple method, 813 (O)
 SELLORS, T. B.: Strychnine for paralysis, 702
 SELVE, Hans: Effects of administration of desoxy-corticosterone, 559
 Senile diseases, possibilities of research in (S. Cleman), 239 (O); correspondence, 314, 318, 840
 Septic hands and fingers, treatment of, 432
 Septicaemia, fulminating meningococcal, 30
 Sergeant, Emile, death of, 346
 Serratus anterior, paralysis of, following glandular fever (H. C. Saksena), 267
 Serum, antitreticular cytotoxic (A. Bogomoletz), 203
 — chemotherapy or, for scarlet fever? (leading article), 613
 — injection, jaundice and, 125
 — protein estimations, a study of the accuracy of, and of diurnal variations in their level (M. Dyson and G. Plant), 6 (O)
 — sickness from A.T.S., 838

SERVICES:

Appointments, 89, 121, 218, 254, 408, 439, 468, 562, 594, 697, 731, 768; correction, 469
 Army Medical Services, specialists in, 155
 Awards, 26, 58, 121, 154, 187, 285, 315, 376, 439, 468, 562, 594, 627, 697, 768, 798
 Casualties, 26, 58, 89, 122, 154, 187, 218, 285, 315, 346, 367, 408, 468, 498, 530, 562, 594, 627, 697, 731, 768, 798, 834
 Commendations, 594, 798
 Commissioned rank for masseuses, 91
 Committee of Inquiry into detention barracks, 764
 Corrigenda, 122, 469, 697
 Deaths in, 154, 315, 346, 530, 562, 627, 697, 731, 798
 Efficiency decoration of Territorial Army conferred, 285, 594
 Indian Army Medical Corps, 376
 — Medical Service, handbook for (J. R. Dogra), 202
 Inoculation in, 498
 Masseurs in R.A.F. Medical Service, 406
 Medical officers in, refresher and specialist courses for, 19, 88
 Mentioned in dispatches, 26, 58, 89, 121, 254, 408, 439, 468, 562, 627, 697, 768, 798
 Missing, 26, 218, 498, 627, 697, 731, 768
 Order of Orange Nassau, 468, 798
 — Polonia Restituta, 468, 834
 Prisoners of war, 26, 58, 89, 254, 285, 315, 346, 376, 408, 469, 498, 594, 627, 697, 768, 798, 834
 R.A.M.C., Auxiliary, Funds, 26
 R.N.V.R. Officers' Decoration, 376, 468

SEVRINGHAUS, E. L. (and others): editors of: *The 1942 Year Book of Neurology, Psychiatry, and Endocrinology*, 169
Sex Education for Children and Young People (Board of Education), 749
 SHACKLE, J. W.: Aleukaemic myeloid leukaemia, 527
 SHACKLETON-BAILEY, J.: Health services in the future social order, 181
 SHARMAN, Albert: Sterility and the State, 282—(And others): Sterility and impaired fertility, 493
 SHARPE, J. S.: X-ray diagnosis in pulmonary tuberculosis, 579
 — Capt. R. M., missing at sea, 627
 SHAW, R.: Simple method for continuous intravenous anaesthesia, 715
 — Wilfred: *Textbook of Midwifery*, 610
 SHELTON, Wilfrid: *Diseases of Infancy and Childhood*, 4th ed., 514
 SHELLEY, W. H. (and T. P. REES): Psychiatry in general hospitals, 119, 341
 SHERWOOD, G. P.: Appreciation of William Pasteur, 468
 Shigella, the genus (annotation), 237
 Shingles, chicken-pox following contact with, 736, 840. See also Herpes zoster
 Shock: From venous occlusion (annotation), 143—Some therapeutic fallacies, 574—Heat in the treatment of, 700
 — nervous (annotation), 110
 — treatment of mental disorders, 829
 — wound, determination of haematocrit values in: a routine procedure (Max Reiss), 328 (O)
 SHOPE, R. E. (and others): *Virus Diseases*, 580
 SHURT, A. Rendle: Recovery of bladder function after 21 years, 464—(And Sir Henry Tidy) (editors): *Medical Annual*, 1943, 679
 SHUTE, E. V.: Vitamin E and menopausal flushes, 526
 Silk, John Frederick William, obituary notice of, 731
 Simey, Athelstane Iliff, obituary notices of, 344, 468, 561
 Simmonds's cachexia, 343
 SIMON, Emily L.: Mastoiditis and D. and V. in infants, 281
 SIMPSON, R. E. Hope: Shortened puerperium, 20
 — S. L.: Simmonds's cachexia, 343
 — Walter: Proof of negligence, 502
 SINGER, Charles: "Opponents of the medical profession," 693
 SINGH, J.: Case of diphtheria of glans penis, 275
 Sinusitis: Casualties in general hospital in Middle East, 388—Chronic infective, 630
 Skag, Frederick Macpherson Traill, obituary notice of, 529

*SKIN:

Circulation in, in essential hypertension, 2
 Cutaneous hypersensitivity to sulphonamide, report of 12 cases (R. G. Park), 69 (O); correspondence, 148, 313, 339
 Difficult case, 317, 410
 Diphtheria, cutaneous and conjunctival: series cases (H. C. M. Williams), 416 (O)
 Diseases: Synopsis of (book review), 486—T (scabies, impetigo, eczema) in wartime (H. MacCormac), 667 (O)
 Pyogenic infections, sulphanilamide and caloric, 380
 SKINNER, E. Fretson: Head terminals of convuls electrotherapy, 393
 — T. C.: Unusual form of ectopia testis, 54
 SKOTTOW, J. S. I.: War conditions and mental health in Buckinghamshire, 618
 Skull, burr holes in, 736
 SLESINGER, E. G. (and others): *War Wounds, Injuries*, 2nd ed., 393—Menorrhagia and the toxicosis, 598
 SMADEL, J. E.: Virus of psittacosis in cases atypical pneumonia, 393
 Smallpox: Subcutaneous emphysema in, 56—C and bad propaganda, 91—Vaccination camp in Southern Rhodesia, 135—Outbreak in Gold Fields (B. Rao and C. V. Natarajan), 135
 SMILLIE, I. S.: Regeneration of menisci of knee joint, 115
 SMITH, C. N.: Fatal case of induced peritonitis, 404
 — Edward Cyril, obituary notices of, 284, 4
 — Felix: Appreciation of E. C. Smith, 438
 — F. Elliott: Plugging tooth sockets, 158
 — Frederick C.: *Proctology for the General Practitioner*, 2nd ed., 455
 — Kenneth M.: *Beyond the Microscope*, 580
 — Lawrence W. (and S. GAULT): *Essential Pathology*, 107
 — S. (and others): N.H.I. and Assumption, 343
 — Wilson (and Andrew Wilson): Effect of uterus of extracts of horse (*Ulex gallii*), 332
 Smoking, acute effects of, on respiration and circulation (R. J. Main), 210
 SMOUR, C. F. V.: Planning of medical education—*The Anatomy of the Female Pelvis: Including a Description of the Placenta and Its Fetal and the Foetal Circulation*, 514
 SOBEL, N. (and others): An epidemic of erythema infectiosum, 745
 Social Survey Conference, Cape Town, 1942, 2
 Society, American Gynecological: *Transactions*, 1942, 268
 — for Research in Psychosomatic Problems: first annual meeting, 356
 — American-Soviet Medical: *Officers and Journalists*, 768
 — of Apothecaries of London: Past lists, 315, 697—Elections, 154, 315—Diplomas granted, 697
 — British Red Cross: Blood Transfusion Service, 188
 — Clinical, of London: now the Clinical Society of R.S.M. (annotation), 651—X rays and, 79
 — Food Education: Hospital meals, Navy Army ratings, 172
 — Illuminating Engineering: Light and vision, 721
 — Industrial Welfare: annual general meeting, 721
 — London and Counties Medical Protection for the practitioner, 242
 — of Medical Officers of Health—Fever and Diphtheria problems, 177—Laboratory control of enteric fevers, 430—Blood changes in infectious diseases, 826
 — Nutrition: Milk and its problems, 113—National relief after the war, 758
 — Ophthalmological, of the United Kingdom: *Transactions*, 1942, 202
 — of Egypt: Gold medal of, 837
 — Pharmaceutical, of Great Britain: Books, China, 837
 — Research Defence (annotation), 305
 — Royal: Copley medal awarded to Sir John Barcroft, 651—Davy medal awarded to Sir I. M. Heilbron, 651

SOCIETY, ROYAL OF MEDICINE:

Section of Clinical Medicine: Presidential address (annotation on), 651; correspondence, 795
 — Epidemiology and State Medicine: See diphtheria immunization campaign, 52—Individual address: The doctor in the ancient and modern (Sir Weldon Dalrymple Champneys), 586—Epidemic hepatitis, 751
 — Experimental Medicine and Therapeutics: Penicillin, 654
 — Neurology: Epidemiology of poliomyelitis, 686
 — Obstetrics and Gynaecology: Cancer of the young gynaecologist (Malcolm Donald), 686
 — Ophthalmology: Burns of eyelids and conjunctiva, 522—Ophthalmia neonatorum, 723
 — Orthopaedics: Contribution of orthopaedic surgery to hospital development, 791
 — Proctology: Functional diseases of rectum and rectum, 51; correspondence, 117, 3
 — Surgical pathology of rectal cancer, 790
 — Psychiatry: The criminal, the psychiatrist and the State, 554
 The Society in wartime (annotation), 238

Synopsis. Symp., of Psychology, 506.
— Uter Medical; "A Problem of Race," 759
dj., J. Rawdon; Missing at sea, 254.—Life lost by enemy action, 346.
ALLOFF, N. (and others); Excretion of nicotine in milk and urine of 55 cigarette-smoking mothers, 820.
AMMONS, Bethel; Ophthalmia neonatorum, 828.
ARMSTRONG, F. L. (and D. B. WILSON); *Anopheles embryae* in Brazil, 1939-1949, 820.
ARL, Arnold; Ophthalmia neonatorum, 723.
BELL-HALL, R.; Lesions of articular cartilage of patella, 758.
on Africa—South African Conference, Cape Town, 1949 (book review), 201.—Bovine tuberculosis in, 214.—Influenza, 377.—Institute for Medical Research, 447.—Survival tuberculosis in, 796.
UTTAR, H. S.: "Allied Military Services." 82.—Physician and the surgeon, 737 (O).
uckman decision; appeal of G.M.C., 182, 217.
therapy, 249.
as, British, 340.
eech therapy, 275.
IGHT, C.G.: Place of narcotics in treatment of war neuroses, 335.
ENCE, D. Leish; Folding trestle for rocking a stretcher, 494.
ENNER, A. M.: Psychiatry in general hospitals, 541.
inal cord; Injuries of (British Orthopaedic Association), 114.—Prognosis of subacute combined degeneration, 459.
ere, arthritis of. See Arthritis.
— fracture-dislocation of, 246, 339.
— fractured first aid for, 155.
list for fractured femur, emergency (P. L. Williams), 330.
— pedaling, new form of (W. O. Spence) 81.
in Japan—An American Civil War (Nova et Vetera), 825.
— wrist, plaster-of-Paris; simple technique for reinforcement (H. H. Baum), 139.
ordylus, 70?
— adolescent, 173, 558.
ORTER, E. C.: Infective hepatitis in North America, 87.
OOTY, I. de Cleren, §39.
TOTT, Norman A.: A "Charter of Health," 525.
URGIN P. B.: Appeal for back numbers, 338.
atum pus, and exudates, composite Ziehl-Gram staining method for (Stanley Marshall), 232 (O).
AYFORD-CLARK, D.: Specialist courses for Service dentists, 450.
M.S., 405.
nfection, British Hospital for, 348.
ILLWORTHIE, John; Obstetrical forces for fibroid, 411.
worthiness, 151.—Transfusion and overloading—the circulation, 431.
MM T. T.: New walking gun for short leg patients, 13.
OLEY, D. W.: Atmospheric pollution with cement dust, 622.
INLEY, W. V.: Influenza, Virus Diseases, 505.
ANNESS H. S.: Vomiting sickness in Jamaica, 464.
Epidermol as bullica, 666.
arch and its Derivatives (J. A. Radley), 268.
ard, John Noel, obituary notice of, 766.
RATON, A. Layton, 1st, for cancer, 211.
EPHERS G.: Extension of earwax, 158.
GARTHE: Treatment of whooping-cough, 256.
— W. Mitchell, iodine deficiency, 620.
EPPHENSON, C. V. (and K. CAMEROX): Anxieties in the Navy: a clinical survey and impression, 603 (O)—correspondence, 68? —
Enuresis and contraception, 56, 350, 434, 442, 524, 555, 691, 796.—And impaired fertility, 493, 619, 660.—And the State, 282.—And artificial insemination, 588.
ertilization Stems, for dairy equipment, 41.—Sterile solutions and vaccines, 246.—Of blades and needles, 18.
— voluntary and the law, 701.
TERNS, Edith M.: Mental Illness: A Guide for the Family, 10.
TEVEN, William, obituary notice of, 592.
TOFT, L. Barr: Subungual haematoma, 804.
TONES, Russell: Vaccine treatment of perussos, 350.—Seropreparative fallacies, 693.
FEWERD D. Steinhoeft: Economy of advertising space, 57.—Artificial respiration, 119.
— F. H. Treatment of cyclic vomiting, 56.
tutte, Edward Philip, obituary notice of, 183.
ttor, Harold Henry, obituary notice of, 625.
NAGEL, S.: Loss of rumour—for petal malformation, 9.
nter for gonadal enlargement, 409, 436, 501, 558.—Disappearance of breast cancer with 659.
762.—For cancer, 702.
oker, Fred Whitby, obituary notice of, 184.
tomach: A work annotation—"Min.", and, 556, 556, p. 65.—Acute dilatation of, 625.
Monetary, 9.—Intestinal secretion of HC, 640.
ment, recurrent ulcerative, §39.
TOPLES, Mari: C.: Sterility and contraceptive, 256.
TOTI, W. B. (and H. L. DUKE): Duration of life active immunity against diphtheria, 183.
TOWELL, T. A.: Appreciation of Dr. A. C.
TRUHEY, A. X.: A New German-English Professional Analytical Vocabulary, 364.
typhlococci and nephritis, 125.
— rheumatism and cows, 125.
trechers: Wheeled improvised 256.—Loading by two bearers, §32.
Trotter, Rebecca: hundredth birthday of, 258.
trychnin shock paralysis, 534, 702.
TROUSSE, Ellis (and E. P. H. CHARLOTTE): Examining the negroes, §30.

Swine, recurrent, 839
STOKING, E. V.: *The Examination of Waters and Water Supplies*, 5th ed., 12
Suction apparatus, non-electric, 88
Suzar, see Curve, 221
STODOL, F.: *Prunus* ant., 566

SYPHONAMIDE GROUP:
Sulphonamide: Successful treatment of a chronic paratyphoid carrier with (H. Lowenthal and W. F. Coefield), 105 (O)—Hyaline sclerosis and calcification of blood vessels during therapy containing 1% of drug (F. S. Daft and co-workers), 274—Two cases of mucous colitis and incontinent cecale disease improved by 555
Sulphonamide: Pneumonia treated with: report of 77 cases (B. A. Peters and M. L. Eashy), 210 (O)—Name changed to sulphemazine, 310
Sulphonamide: And mumps: 62—And calicivirus for prostatic skin infection: 350—And its derivatives, 414—In lozenge form for local oral medication (P. Garson), 452 (O)—In smallpox, 505—Sensitivity to 533—Local application of powder in radiotherapy (A. A. Charters), 510 (O)
Sulphonamide, effects of, 30
—aspirin successfully treated by ureteric catheterization (J. P. Cunliffe), 11
Sulphathiazole. In impetigo, 761—Infiltrations as treatment of porroecoccal vaginitis 816
Sulphonamide compounds, chemotherapy of intestinal infections treated with (A. C. Clay), 285
Sulphonamides: cutaneous hypersensitivity to: report of 12 cases (R. G. Park), 69 (O)—correspondence 148 313 339, 526—Successful treatment of actinomycosis of tongue by (A. McCloy), 106—Comparative value of phase and sulphonamides in acute bacillary dysentery 178
—in virus infections, 189—Medical use of (abstract article), 204—In tuberculous erysipela, 214—Chemotherapy (in Switzerland) (report), 333—In asthma 339—New links between chemotherapy and biochemistry 415—Generalized sensitivity to (R. R. Wilcox), 513 (O)—A powder spray (Stanford Case) 514—In otitis media, 685—For dysentery and colitis 665—For "blepharitis", 706—The they act 724—For bronchiectasis, 711—Blood in sulphonamide therapy 826—Proposed test for therapeutic value of, 826

STUZZERGER, Marion B. (and Fred Wise): *The 1942 Year Book of Dermatologists and Syphilologists*, 135
STULL, C. E.: Medical boarding for the Merchant Navy, 314—Actiology of the fibrosic nodules 373
Sun-ray lamps in factories 498

SURGERS:
Chest: British Council's film (annotation) 397
For the Service M.O. (book review) 514
Larynx (book review) 420
Minor (Practitioner handbook) 422
Note on in the Eighth Army 274
Orthopaedic and Irregular, 1942 Year Book 41
—principles of (book review) 455
Safety in numbers? (Sir W. I. de C. Wheeler), 553
Short practice of (book review) 234
Student's textbook of (book review) 781
The Student's Handbook of Surgical Operations (Sir Charles Treves revised by C. P. G. Wakeley), 7th ed. 13
War in Middle East (R. K. Debenham), 233 (O)

SURGICAL ANATOMY: Synopsis of (book review) 234
STUTHELAND Halliday: Pasteurization of milk 435
SUTTON R. L. and R. L. Jun: *Synopsis of Diseases of the Skin* 486

SOCIETY, NIGHTS, AND ANXIETY 61
Sweden, tuberculosis in, 188
SWEETMAN, K. F. D.: Medicine 100 years ago, 534
Switzerland: Chemotherapy in, 333—Society of Psychology 500

SYM J. C. B. (and A. M. HAN): Control of menopausal flushes by vitamin E, 8 (O); correspondence, 526
SYMMONS, C. P.: Human response to flying stress. Lecture I: Neurosis in flying personnel 703 (O)—Lecture II: Foundations of confidence 740 (O)
Sympathomimetic in treatment of the erythroplasias (E. D. Telford), 360 (O)
Syphilis. See Venereal diseases
Syringe for transfusions and infusions (L. Rosenthal) 749

SEE STREAMING: Chira's Health Problems, 550

T

TANNER, Cline: Intrapertoneal rupture of a Wilms' tumor 14
—Norman Diet in peptic ulcer, 704
Tapeworm infection, treatment of 157, 350, 840
—segments wanted, 288
TITCHFIELD, Percy: *Medical Notes*, 350
TOLSON, G. C.: Shortened spermiogram, 62
—G. L. (and others): The Rh factor and erythroblastosis foetalis: an investigation of 50 families 289 (O)—Significance of the Rh factor, 690
—Ian: Blood count in children, 826

TAYLOR, Joan (and others): Human infection with *B. coli* cholerae-suis: a report of two cases. 358 (O)

— N. B. (and C. H. BEST): *The Physiological Basis of Medical Practice*, 3rd ed., 646

TELFORD, E. D.: Sympathectomy in treatment of the craniopharyngioma. 340 (O)

TEMPERATURE, body: Of cadaver, 257—Low, 472

TENNY: Unusual form of eczema (T. C. Skinner). 546—Undescended, a 565—Undescended with infantile genitalia. 701

TETANUS immunization (obituary article). 818

— serum, anaphylactic shock after first injection of (K. Brandt). 11

THALPINE for ascaris, 30, 62

THERAPEUTICS: General review of 1942 Year Book of, 12—A prospect in (Sir Henry Dale). 41 (O)—Some therapeutic fallacies (J. W. Linnell and W. A. R. Thomson). 572 (O); correspondence, 656, 693 (O) 727—61, 69, 831

THERMOESTRUM: refurbishing, 2, 94

THIOCHROME test: revised procedure for estimation of anaemia in urine, assessment of value of nutriments (L. Wane and L. J. Harris). 451 (O)

THIOUREA in hyperthyroidism (leading article). 753

THISTLETHWAITE H. Bleeding after tooth extraction. 380

THOMAS, E. W. Hospital posts under local authorities. 405

— Gordon Wilson: obituary notice of, 766

— Ruffin C. Rupture of rectus abdominis muscle during pregnancy. 136 (O)

— R. Vaughan: Appreciation of George Cowen. 76

THOMPSON, B. C. (and others): N.H.I. and Assumption B. 343

— Brian C.: Survival rates in pulmonary tuberculosis, 57 (O)

— C. J.: obituary notice of, 153

— J. H. (and others): H.I. for cancer, 149

Thomson, Charles Bertram: obituary notice of, 184

— Edward (and others): Eight years' experience of a miniature State Medical Service, 616

— G. M.: Treatment of fuscipillary balanitis. 455—correspondence, 79

— Irish Union: obituary notice of, 153

— Capt. Humphrey: Barton, previously reported missing now presumed killed in action. 495; obituary notice of 793

— M. L.: Hypochromic anaemia in adolescent males. 454 (O)

— Sir Sclater: requests by, 60

— W. A. R. (and J. W. LINNELL): Some therapeutic fallacies (O); correspondence, 656, 693, 700 727—61, 76, 831

THURLEY, A. S.: Functional dyspepsia, 655

THURSTON H. L.: A mouth gag for edentulous patients. 202

Thorp Capt. A. L.: Death of, from wounds, 405

THURSTON W. M.: Biochemistry for medical students, 201

THROAT: German violet for, 30—Bismuth for, 409—Ubiquity of (annotation), 649

Throat sore, recurrent. 94

Thrombophlebitis: migrans (V. J. Birnberg and A. E. Hansen). 653

Thrombotic microangioma, 458

Thrombotic thrombocytopenia gravis (Maurice Nelson). 101

TIESLER, Sydney: Unusual turn of cornea from molten wax. 547—Research in senile diseases, 840

Titchmarsh Gerald A.: obituary notice of, 25

Tivy, Sir Henry: Peric ulcer and dyspepsia in the Army 473 (O) correspondence, 556, 556, 655, 652

— (and A. Rendle Short), editors: *The Medical Annual* 1943. 679

TIVICE: Circulation in essential hypertension 3—Substances inducing permeability of, 335

TIVISS, Richard M.: *Birth Poverty and Wealth: A Study of Infant Mortality* 781

— (and others): Sterility and impaired fertility. 619

Tobacco and Fehling's test. 534

— habit, 502, 632

TOMPAK A. M. B.: Anaesthesia for laryngoscopy, 312

TONGUE, Sore, 93—Actinomycosis of, successfully treated by sulphuramide (A. McCloy). 106; correspondence, 187

TONGUE, B. L.: B. L. B. hary 317

Tonsillectomy: health and (annotation), 334; correspondence, 404, 433 444

Tonsillitis: Casualties in general hospital in the Middle East, 358—Deaths from, 662

Tonsils and teeth sepsis. 565

Tooth extraction: Bleeding after, 30 380—Plazuline socket, 585—Bacteria after, 373

Tortuosis, spasmodic, 665

Tournade, André, death of, 250

Tourniquet, application of, to injured limbs (Blackall and Duncan). 359

Toxemia of pregnancy, *See* Pregnancy

Toxoplasma: in brain (annotation), 753

TRAUB, R. P.: *Chloroform: Its Correlation of Physical and X-ray Findings in Diseases of the Liver* 645

TRANSFUSION: Reactions and fatalities consequent on circulatory overloading (R. Drummond), 319 (O); correspondence, 431—Into bone marrow, 477—585—Immediate, in obstetric shock (I. S. Fawcett). 581

— haemolytic reactions: the Rh factor (Wood Transfusion Committee M.R.C.). 40

- Transfusion, intravenous drip, technique of, in infants (D. MacCarthy), 36 (O); correspondence, 117
- Treatment, Modern, Year Book*, 1943, 202
- Tremors: diagnosis before treatment, 409
- TRESTON, M. L.: *A Handbook on Difficult Labour*, 456
- TREVAN, J.: Globin insulin, 212
- Trichlorethylene, inflammability of, 472
- Tricresyl phosphate poisoning, (annotation), 682
- Tropics, control of disease in (annotation), 651
- TRUBY, A. E.: *Memoir of Walter Reed: the Yellow Fever Episode*, 714
- Tuberculin. See Tuberculosis
- TUBERCULOSIS:**
- Belgium: incidence, 800
- Bovine: In South Africa, 214—Field experiments with B.C.G. vaccine, 698—Question in Parliament, 733
- Campaign against (book review), 75
- Childhood, in (leading article), 270; correspondence, 374—Question and answer, 500
- infection and its relation to adolescent and adult pulmonary tuberculosis; records of Brompton Hospital for last 14 years (A. Margaret C. Macpherson), 98 (O); correspondence, 210, 373, 436, 463, 621, 764
- Control of, 160
- Cough medicine in phthisis, 378
- Death-rate statistics, 59
- "Defeat tuberculosis" film, 470
- Exchequer help for the tuberculous, 628, 657, 724
- Handbook of Schemes*, 548
- Immunity, B.C.G. (Tuberculosis Association), 722
- Immunization against (leading article), 716
- Liverpool, additional beds for cases, 836
- London, 1938-42 (W. Allen Daley and B. Benjamin), 712 (O)
- Norway: examination, compulsory, by screen photography, 261
- Nurses, 698—In nurses, 90, 792
- Papworth Village Settlement: Annual meeting, 520
- Parliamentary debate on, 698
- Pulmonary: X-ray diagnosis in (J. S. Sharpe), 579; correspondence, 621, 692—Comprehensive attack on (Sir Arthur MacNalty), 599 (O); correspondence, 724—Survival rates in (Brian C. Thompson), 721 (O)—Effect of pregnancy and parturition on (Raymond C. Cohen), 775 (O)
- symptomless, treatment of, 764
- Respiratory: effect of the war on the length of interval between notification and death (E. Lewis-Fanning), 684 (O)
- Scotland: Cases notified, 1938-42, 91—Accommodation for nursing, 251
- Sulphonamide treatment in tuberculous empyema, 214
- Surgical, in South Africa, 795
- Sweden, increase in, 188
- Treatment with tuberculin, 19, 120
- U.S.S.R.: employment of tuberculous in industry in, 652; correction, 702
- Wales: Beds in, 187—Treatment in, 371
- WRIGHT, L. G.: Skin sensitivity to sulphonamides, 21
- Nurses, breast, clinical diagnosis of, 86
- Lung, single and multiple, 21
- See also Cancer
- Ureter: Hospital and medical services, 59—Penicillin in (annotation), 650
- URNER, E. A.: Statistics of neurotic states, 556
- G. Grey: Perforated gastric ulcer in youth, 403—Transplantation of the ureters into the large bowel, 535 (O), 725—Appreciation of H. E. Gamlen, 695—Gastric ulcer in youth, 794
- H. M. Stanley: Are hospital diets adequate? 690, 796
- J. R. T. (and others): Preventive medicine through breast-feeding, 374
- YLECOTE, F. E.: Element of fatigue in disease to-day, 793
- Yphus: Types OX 19, XK, and undetermined, 521
- See also Fever
- U**
- JECKO, H.: Infectious mononucleosis, 658
- ULCERS:**
- Clean, dressing for, 190
- Gastric, perforated: In adolescent, 256—In youth, 403, 523
- Lip, 93
- Peptic: Vitamin therapy in, 222—Pain in, 378—Vitamin C deficiency in, 464, 523, 619, 725—And dyspepsia in Army (Sir Henry Tidy), 473 (O); correspondence, 556, 668, 828—In youth, 794—Diet in, 794
- Therapy, pepsin inactivation in (A. M. Gill and C. A. Keele), 194 (O)
- UNDERWOOD, E. A.: Bicemenary of birth of Lavoisier, 275
- Union, Medical Defence: Annual meeting, 520
- United States of America: Hospital units for civil defence, 214—New regulations on treatment of

- Universities: Proxies at elections, 698
- University of Aberdeen: Degrees conferred, 498
- Birmingham: Degrees conferred, 89
- Bristol: Appointments, 25—Pass lists, 122
- UNIVERSITY OF CAMBRIDGE:
- Congregation held, 532, 561
- Degrees approved, 218, 664, 798
- conferred, 58, 438, 468, 561, 664, 768
- Elections to professorial chairs, 438
- fellows, 532
- Marmaduke Shield Scholarship, 218
- Pass lists, 24, 58, 218
- University of Dublin: Degrees conferred, 89—Pass lists, 835
- Durham: Honorary degree conferred, 122
- Edinburgh: Degrees and diplomas conferred, 153—Prizes presented, 153—Lawrence McLaren Bequest: award made, 593
- Glasgow: Degrees conferred, 58, 122, 593—Prizes and medals awarded, 593
- Grants Committee, 890
- Leeds: Honorary degree conferred, 185—Awards and prizes, 438—Pass lists, 438—Waddington Prize, 626
- Liverpool: Pass lists, 122—Appointment, 286
- UNIVERSITY OF LONDON:
- Appointments, 25
- Clinical course, 1943-4, 346
- Elections, 58, 626
- Honorary degree conferred, 315
- Medical schools to return to London, 24
- Pass lists, 250, 593, 697
- Professor Emeritus of History of Medicine, 58
- Readership conferred, 346
- Resignations, 25
- Scholarships, exhibitions, and prizes, 122, 250
- University, McGill, of Montreal: Department of Psychiatry, 834
- Manchester: Pass lists, 89, 834
- National, of Ireland: Degrees approved, 89
- UNIVERSITY OF OXFORD:
- Degrees conferred, 89, 122, 286, 593, 768
- on Czechoslovak students, 153
- Ophthalmology: Appeal for foundation of Ophthalmic Research Department, 470, 530
- Plastic Surgery Unit, 768, 798
- University, Queen's, Belfast: Pass lists, 89
- St. Andrews: Degrees conferred, 89
- Sheffield: Pass lists, 498—Appointments, 561—Resignations, 561
- Wales: Pass lists, 122, 185
- Urea: For migraine (I. A. Brown), 201—And water metabolism, 431
- Ureters, transplantation of, into large bowel (G. Grey Turner), 535 (O); addendum, 725
- Urine: Revised procedure for estimation of aneurin in, by thiochrome test: assessment of level of nutrition (C. L. Wang and L. J. Harris), 451 (O)—Retention of, and pyelitis in girls, 657
- Urology in general practice (book review), 485
- Urticaria, 189
- U.S.S.R.: British surgeons' visit, 208, 253—Russian surgeons and Russian surgery (R. Watson-Jones), 276—Soviet, Science, 336—Employment of the tuberculous in industry, 652; correction, 702—Mass radiography unit for, 662
- Uterus, effect on, of extracts of gorse (*Ulex gallii*) (Wilson Smith and Andrew Wilson), 332 (O)
- UVAROV, E. B.: *Dictionary of Science*, 268
- V**
- Vaccination: Anti-vaccination publicity (Parliament), 27, 91—Post-vaccinal encephalomyelitis, 30; article on (Samuel Dunn), 199 (O)—In Fife (G. Matthew Fyfe and J. B. Fleming), 671 (O)—Parliamentary questions, 799
- primary, of adolescents, 125
- public, 158
- Vaccines: For common cold, 221—Sterile solutions and, 246—Suspended T.A.B. (synthetic culture medium) Glaxo, 486
- V.A.D., status of, in military hospitals, 27
- Vaginitis, gonococcal, sulphathiazole insufflations as treatment of (O'Donnell Browne), 816
- Variolus uterinus (I. M. Jackson), 266 (O)
- VANN, R. D. G.: Appreciation of Sir Beckwith Whitehouse, 284
- Varicose veins, subcutaneous ligature of, 22, 120, 147
- Varrier-Jones, Sir Pendrill: Papers of, review of book on, 12—Memorial Lecture, 520
- VARTAN, C. K. (and E. MONTUSCHLO): National health policy, 279
- VAUGHAN, Kathleen: Pelvic flexibility, 589
- VENEREAL DISEASES:
- Clinic, social service in (book review), 486
- Gonorrhoea: Modern treatment of (Brig. T. E. Osmond), 72 (O)—Gonococcal proctitis, 222
- Neurosyphilis, treatment of, 410

- VENEREAL DISEASES (continued)
- Review of booklet on, 42
- Syphilis: Cerebral re-education therapy, 20—Treatment among juvenile delinquents, Doctor, parents, fiancée, new approach to treatment (T. R. Lloyd J. Land), 448 (O)
- Treatment of, 152
- Venous occlusion, "shock"
- VERT-HODGE, N.: Metallic structures in air-crew cases, 41
- Vienna: The Vienna School 240—Central bureau for, 470
- Vincent's infection, misuse of for (E. C. O. Jewsbury) dence, 433, 464, 622, 729,
- VINTER, N. S. B.: Doctors a Virus infections: Immunity amides in, 189—Review of Viscera, abdominal, in throat 702
- Vishniavsky's ointment, 23
- Vision. See Ophthalmology
- Vitamin A and the cornea, 51
- A and C: levels of nutrition children and effect of deficit condition (preliminary com and others), 477 (O)
- B: And yeast, 93—Deficient special reference to mental conditions (A. Grey Clarke and correspondence, 619, 657, 6
- B1: Induced deficiency
- C: Selective action of, Saturation test, 255—Cook 271—Deficiency in peptic 1
- D therapy, massive, in ri
- E: Control of menopause Hain and J. C. H. Sym), standard for, 126—Menopau
- H. See Biotin
- requirements, table of, 6
- schemes, National milk a
- therapy in peptic ulcer,
- VITAMINS:
- Avitaminosis, alcohol and correspondence, 735
- D vitamins, 379, 736
- Physiological function and (John Yudkin), 265 (O); c
- Supplements of, and minerals of girls (Hilda Fowke), 516
- VOISSE, H.: Alkaloids in sy of Parkinson's syndrome, 121
- Vomiting, cyclic, treatment of, sickness in Jamaica, 392,
- Vulva, diseases affecting the (b
- W**
- WADSWORTH, S. H.: Medical board Navy, 248—Dentistry and m
- WAIN, J. A., obituary notice o
- WAIN, H. (and others): Chan at Various Ages: with Paralle Nature and Development o Disease, 201
- WAKE, S. C.: Paper control 730
- WAKLEY, C. P. G.: Editor o Year Book, 1943, 202—Burn junctura: Naval experience, (and J. B. HUNTER): Ro on Surgery for Students and Wales: Beds for tuberculous Treatment of tuberculosis in WALKER, C. W.: Adder bite, —Kenneth: Sterility and (And E. C. DONOFS): Stil enlargement, 436—(And o impaired fertility, 493
- R. M.: War pensions, 1
- R. W. T.: Bequests unc Walking iron: For short leg 13—For leg plasters (C. D. MULLER, Cuthbert and Jam deaths to coroners, 694
- WALLP, Leticia W. (and o of the calcium of milk, 39
- WALTER, Joseph: Early reco 493
- WALTERS, F. R.: Mass radi
- WAMPIER, F. J. (editor): Practice of Industrial Medi
- WANG, Y. L. (and L. J. F level of nutrition: Revised tion of aneurin in urine 1 451 (O)
- WAR:
- Acute respiratory conditi
- African soldiers (W. W.

- Warren, Mary W.: A case for treating chronic
Wicks in blocks in a general hospital, 822 (O)
Warty, vulval, treatment of, 631
Wassermann test: Doubtful, 222—Taking blood for,
in children, 287
Water: Wholesale, review of book on, 12—For
rabbits and guinea-pigs, 24, 87—Metabolism, urea
and, 431—Supply, survey, 835
Watkins, C. A. (editor): *The 1942 Year Book of
Radiology*, 611
Watkins, M. H.: Arteriovenous aneurysm of neck, 106
Watkins, A. G.: The Government's milk policy,
247
Watson, A. Price, obituary notice of, 592
—Donald, J.: Univ. in the profession, 405, 591
—Sir Malcolm: Misleading malaria, 394
Watson-Jones, R.: Russian surgeons and Russian
surgery, 256—Fractures and Joint Injuries, Vol.
1, 3rd ed., 714
Weatherhead, E.: X-ray diagnosis of phthisis in
symptomless adolescents or young adults, 621
Weaver, Ralph: Diphtheria immunization in Bris-
bane, 19
Weir-Johnson, Sir Alfred: Re-elected President of
R.C.S., 12—Hospital meetings, 172
Wells, F. Parker: Parosmia, proctalgia and
abdominal spasm, 52—Brain in the diet, 87—Con-
genital jaundice in man aged 77, 690, 763
Werner, J. H. Douglas: Long-period recurrences
in cancer, 720 (O)
Week's Good Cause, 824
Well's disease, epidemiology of, 659
Welfare centre, infection and, 350
Wellcome Foundation, Junior Fellowship in Vener-
ology Research, 285
—Museum (annotation), 46
Werner, J. H. Douglas: Neurological signs in early diagnosis of
diphtheria, 546
West, E. S.: *Physical Chemistry for Students of
Biochemistry and Medicine*, 301
—Raymond: A case of conversion hysteria,
676 (O)
Westman, Dr.: Functional diseases of rectum, 52
Wheeler, J. N.: Appreciation of A. J. Smev, 468
—Surgeon, R. E. Roberts: Radiological prac-
tice in comprehensive medical service, 182
—Matthew: Phosphorus in bone disease, 114
—M. H. G. (and others): Human infection with
Bact. cholerae-sus: report of 2 cases, 358 (O)
—Margaret Moore (and others): Sterility and impaired
fertility 493—Sterility and artificial
insemination, 588
Whitaker, Sir Beckwith: Death of, 175—Obituary
notice of, 215, 284
Whitaker, S. R. F. (and E. R. COLLINGS): Out-
break of sandfly fever in two general hospitals in
the Middle East, 543 (O)
Whooping-cough: Hemiplegia complicating (L. J.
Grant and C. E. Williams), 90 (O): correspond-
ence, 250—Control of, 161—Treatment of, 256—
Pertussis vaccine, 317, 350
Whyte, A. Hedley (and P. H. MITCHELL): *A
Pocket Surgeon*, 514
Wiesner, B. P. (and others): Sterility and impaired
fertility, 493
Wigley, J. E. M.: Myxomatosis, 350
Wild plants, gathering (leading article), 14
Wilkes, Surg. Lieut.-Cmdr. D. L.: Killed in action,
562
Wilkinson, J. F. (and others): Levels of vitamin
A and C nutrition in Glossop school-children and
effect of deficiencies on their physical condition
(preliminary communication), 477 (O)
—Paul: Subcutaneous emphysema in smallpox,
56
Will, H. Chisholm: obituary notice of, 346
Willcox, R. R.: Generalized sensitivity to sul-
phonamides, 513
Williams, C. E. (and L. J. GRANT): Hemiplegia
complicating whooping-cough, 9 (O): corre-
spondence, 346
—H. C. M.: Appointed honorary secretary,
Association of Port Health Authorities of British
Isles, 28—Cutaneous and conjunctival diphtheria:
series of cases, 416 (O)
—J. O. D.: Killed on active service, 562
—J. Price: Symptomless "phthisis" and arti-
ficial pneumothorax, 653
—Pearce: Artificial insemination, 496
—P. L. W.: Emergency splint for fractured
femur, 330
Williamson, Bruce: Mastoiditis and D. and V. in
infants, 281
Wilcock, Edward Hulke: obituary notice of, 695
Wilms tumour, intraperitoneal rupture of (C. H.
Tanner), 714
Wilson, Andrew (and Wilson Smith): Effect on
uterus of extracts of gorse (*Ulex gallii*), 322 (O)
—D. B. (and F. L. SOPER): *Anopheles gambiae*
in Brazil, 1930 to 1940, 820
—Geoffrey Remington, obituary notice of, 695
—G. S.: Compulsory pasteurization, 113
—Henry: Functional diseases of colon and
rectum, 51
—Capt. R.: death of, 315
—W. F.: Obituary notice of Robert Whitliss,
797
—W. R.: Resuscitation by rocking, 247—Elastic
wound wrapping, 456
Wilson Hospital in the Front Line, 42
Wilson's disease, 804
Wilmshurst, Alice: Medical boarding for the Mer-
chant Navy, 340
Winicott, D. W.: Responsibility and freedom,
243—Shock treatment of mental disorder, 829
Winteritz, Max: Therapeutic fallacies, 761
Wise, Fred (and Marion B. SULZBERGER): *The
1942 Year Book of Dermatology and Syphi-*
lology, 138
Wisheart, J. W.: Disclaimer, 534
Wolfenden, R. C.: Vincent's infection during
arsenical treatment, 622
Wolfson, L. E. (and J. FISCHER): *The Inner Ear,
including Otoneurology, Otorrhoea, and Problems
in Modern Warfare*, 421, 514
Wolman, B.: Peripheral arterial embolism, 374
Worms, Masturbation in, 349—Registration of
older, 469
Wood, Wilfrid Burton, obituary notice of, 661, 767
Woodhouse, D. L.: Effect of injections of H 11 on
growth of mouse tumours, 231 (O)
Wojles, L. S.: "Opponents of the medical pro-
fession", 693
Workers, increased compensation for, 219
Worms, diet of (annotation), 332
Worrall, R. L.: Mastoiditis and D. and V. in
infants, 280
Wound wrapping, elastic (W. Reginald Wilson),
456
Wounds: Open, unpadding plaster in, 692—Gun-
shot, of, immediate artery, 793
Wray, S.: Practice and precept, 152
Wright, A. A.: Vomiting sickness in Jamaica,
392
—Sir Almoth: *Researches in Clinical Physiology*,
234
—Helen Payling (and J. L. HOSKINS): Nutri-
tional state of staff in a London sector hospital,
171
—Myron (and H. PERROWE): Fatal case of
atypical pneumonia with encephalitis, 63 (O)
Wroth, Charles: "Duodenitis", 658
- X**
- X-ray diagnosis: Of colon diseases, 117: corre-
spondence, 247, 310, 403, 462—In pulmonary
tuberculosis (J. S. Sharpe), 579: correspondence,
692—Of phthisis in symptomless adolescents and
young adults, 621
—examinations for tuberculosis: report of U.S.
Public Health Service, 92
—tubes, deep (Parliament), 27—Committee for
distribution of supplies of, 316
—workers tests for radiation received by, 440
X rays and the Clinical Society of London, 795
- Y**
- Yates, Frank (and R. A. FISHER): *Statistical Tables
for Biological, Agricultural, and Medical Research*
2nd ed., 76
—H. Blacow: Peptic ulcer in youth, 523
Yawn, definition of, 664
Yorke, Warrington, appreciation of, 767
Yorkshire: Orthopaedic hospitals, 285
Young, Helen: Shortened puerperium, 151
—James (and others): Sterility and impaired
fertility, 619
YOUNG, H. R.: Special clinics, 55
Yudin, Sergei S.: Treatment of gunshot fractures of
limbs, 567 (O): appreciation of (Gordon Gordon-
Taylor), 687
Yudin, John (and G. NEIL JENKINS): Vitamins and
physiological function, 265 (O): correspondence,
338
- Z**
- Ziehl-Gram staining methods, composite, for
sputum, pus, and exudates (S. Marshall), 232 (O)
Zorniz, Heinrich, death of, 250

LIST OF ILLUSTRATIONS

	PAGE
SPECIAL PLATES	
Congenital Dilatation of Pulmonary Artery (H. L. Heinmann and M. M. Posel) ..	inset between 502 and 503
Studies in Vitamin B Deficiency (A. Grey Clarke and F. Prescott) ..	inset between 502 and 503
Traumatic Ventricular Pneumocephalus (M. Gaines) ..	inset between 502 and 503
ILLUSTRATIONS IN TEXT	
Amputation, Two-stage (E. A. Jack and J. Charnley) ..	131
Anaemia, Nutritional Iron Deficiency, in Wartime (L. S. P. Davidson and others) ..	95
Anaesthesia, Continuous Intravenous, Simple Method for (R. Shaw) ..	715
(F. W. Roberts and R. A. Sellick) ..	813
Anaesthetist's Third Hand (P. S. A. Heyworth) ..	486
(J. Noel-Jackson) ..	763
Byrne, A. W. ..	376
Cephalometry, and Pelvimetry, Precision Method of (Paul Cave) ..	197
(E. Millington) ..	338
Cholesterol, Effect of Diet on Concentration of, in Blood and Bile (N. Gough) ..	390
Cinema, Visual Physiology of (George H. Bell) ..	669
Cornea, Exposed, Device for Protection of (F. Ridley) ..	268
Diatheirmy and Suction Holder (R. Friedman) ..	301
Diphtheria, Faucial and Labial (Manuel Anderson) ..	104
Toxoid, Alum-precipitated (Guy Bousfield) ..	706
Elastic Wound Wrapping (W. Reginald Wilson) ..	456
Endotracheal Harness (M. W. P. Hudson) ..	647
Tubes, Self-inflating Cuff for (R. R. Macintosh) ..	234
Eye: Unusual Burn of Cornea from Molten Wax (Sydney Tibbles) ..	547
Femur, Fractured, Immobilization and Transportation of, in War (R. Wood Power) ..	509
Emergency Treatment of (G. D. Laing) ..	557
Flying Stress, Human Response to (C. P. Symonds) ..	740
Fractures, Metallic Internal Fixation of, in Air-crew Cases (N. Vere-Hodge) ..	419
Fremantle, Sir Francis ..	344
Gas Training, a New Method of (Pollok Donald) ..	81
Haemocrit Values, Determination of, in Wound Shock (Max Reiss) ..	328
Haemoglobin, Observations on the Acid Haematin Method for Estimation of (C. A. Ashford) ..	575
Haemolytic Disease of the Newborn (Janet D. Gimson) ..	293
Hypertension, Arterial, Circulation in (G. W. Pickering) ..	1
Iron, Walking, for Short Leg Plasters (T. T. Stamm) ..	13
(C. D. Clark) ..	364
Milk, Pasteurization of, and Infant Mortality Rates in Canadian (Alan Brown) ..	
Mouth Gag for Edentulous Patients (H. L. Thornton) ..	
Myasthenia Gravis, Thymectomy for (Maurice Nellen) ..	
Neuroses, Ocular Manifestation of, Commonly Found among Se (I. C. Michalcson) ..	
Obstetrical Forceps for Fibroid (J. Stallworthy) ..	
Oesophagus, Congenital Atresia of (Walter Calvert) ..	
Oxygen Cylinders, Empty, Audible Warning of (Massey Dawkins) ..	
Paralysed, Partially, Table-knife Holder for Use by (J. Cargen He) ..	
Pepsin Inactivation in Ulcer Therapy (A. M. Gill and C. A. Keele) ..	
Photomicrography with Ordinary Cameras—a Simple Tech (W. N. Leak) ..	
Pleural Empyema, Management of (P. R. Allison) ..	
Pneumonia, Atypical, with Encephalitis, a Fatal Case of (H. Pe and M. Wright) ..	23, 4
Respiration, Artificial, Rocking Apparatus for ..	
Fixing Stretcher for ..	
Resuscitation and Oxygen-therapy Apparatus for Infants (Rod H. O'Hanlon) ..	
Sandfly Fever, Outbreak of, in Two General Hospitals in the Middle (E. R. Cullinan and S. R. F. Whitaker) ..	
and the Rheumatic Series (R. L. Ferguson) ..	
Split, Emergency, for Fractured Spine (P. L. Williams) ..	
Padding, New Form of (W. O. Spence) ..	
Splints, Wrist, Plaster-of-Paris (I. H. Baum) ..	
Stretcher, Rocking Device for (J. L. Barford) ..	
Loading by Two Bearers (Bowman Edgar) ..	
Sulphonamide Powder Spray (Stanford Cade) ..	
Syphilis, New Approach to Treatment of, by Intensive The (T. R. Lloyd Jones and F. Gordon Maitland) ..	
Syringe for Transfusions, and Infusions (Leonard Rosenthal) ..	
Transfusion Reaction and Fatalities Due to Circulatory Overloa (R. Drummond) ..	
Transfusions, Intravenous Drip, in Infants (D. MacCarthy) ..	
Trestle, Folding, for Rocking a Stretcher (D. Leish Spence) ..	
Tuberculosis: Childhood Infection in Relation to Adolescent and A Phthisis (A. M. C. Macpherson) ..	
X-ray Diagnosis in Pulmonary (J. S. Sharpe) ..	
Tumours, Failure of H II to Inhibit Growth of (W. F. Gye and ot Uterus, Effect on, of Extracts of Gorse (W. Smith and A. Wilson) ..	
Vaccines, Sterile Solutions and ..	
Vision, Night, in the Army (A. Lister and J. W. Bishop) ..	
Wheeler, Sir William Ireland de Courcy ..	
Whitehouse, Sir Beckwith ..	

THE CIRCULATION IN ARTERIAL HYPERTENSION*

BY

G. W. PICKERING, M.A., M.B., F.R.C.P.

Professor of Medicine in the University of London; Director of the Medical Clinic, St. Mary's Hospital Medical School

LECTURE II

In Lecture I it was seen that the circulatory changes which give rise to raised arterial pressure are not quite the same in the various diseases of which hypertension is a symptom.

In one type, of which essential hypertension is the chief example, the hypertension is due to arteriolar constriction; evidence of vasoconstriction has been found in the skin and in the efferent glomerular arteries of the kidney, and in both places it has been shown to be of non-nervous origin. In the skin the vasoconstriction is of an order such that when nervous vasoconstrictor tone is removed the skin blood-flow is, for that circumstance, normal or but slightly reduced. A balance-sheet of the circulation suggests that the vessels to most other tissues except muscle are also constricted; and, although there is no evidence as to the nature of the vasoconstrictor agent in these tissues, it is not likely to be different. So far as we know, constriction of the aorta and chronic nephritis present a picture similar in its broad features to that of essential hypertension. In particular in nephritis, our information is less complete.

The second type is that of acute nephritis in which no vasoconstriction has been demonstrated in the skin of the hand and which the renal blood-flow may not be reduced. The circulation in pregnancy toxæmia presents certain features which resemble that in acute nephritis, but there is still too little information to judge of its identity.

We may now proceed to consider to what extent these features of the circulation in hypertension can be reproduced by the activity of known pressor mechanisms.

The Vasomotor Nerves

Like most other unexplained disturbances of the circulation, hypertension, and particularly essential hypertension, has been ascribed to abnormal activity, in this case overaction, of the sympathetic nerves. This overactivity, when it has been accounted for, has in its turn been attributed either to a disturbance in the higher functions of the brain acting on the vasomotor centre or to a diminution in the sensitivity of the carotid sinus and depressor reflexes. The first of these hypotheses has never received any substantial proof: the alleged hereditary element in the aetiology of essential hypertension is compatible with it, but also with other hypotheses. The second hypothesis seemed to receive support when it was demonstrated that in the experimental animal a persistent hypertension could be produced by section of both carotid sinus and depressor nerves (Koch, Mies, and Nordmann, 1927). But Pickering, Rothschild, and Kissin were able to show in 1936 that the carotid sinus mechanism is active in essential hypertension, and the tachycardia which is a cardinal feature of the experimental lesion is absent in the supposed human example.

Most of the evidence with which the vasomotor nervous hypothesis of essential hypertension has been supported proves on critical inquiry no more than that the vasomotor nerves are active in patients suffering from the disease, as they are in normal subjects; and although there is a good deal of normal

variation in the responses to vasomotor reflexes there is no true evidence of their overactivity in hypertension.

From the evidence presented in the first lecture it is improbable that the vasoconstriction which underlies essential hypertension is of nervous origin; for we saw that the vasoconstriction present in hand and kidney is not of nervous origin. In fact, a review of the circulation in the several diseases revealed only one—acute nephritis—in which overaction of the vasomotor nerves seemed likely; and although Arnott and Kellar (1936) have found that in experimental acute nephritis hypertension is prevented by renal denervation no relevant reflex mechanism has yet been demonstrated.

Adrenaline

Adrenaline, first demonstrated by Oliver and Schäfer in 1894, proved a relatively simple substance, and a good deal is known of its action on the circulation of animals though much less of its action on man. Rein (1931) was, so far as I know, the first to point out that the most important action of adrenaline was that of a redistributor of blood, diverting it from gut and skin to muscle, brain, and heart. This is probably also its chief action in man (see, for example, Grant and Pearson, 1937-8). Thus in an unpublished experiment on myself on Dec. 12, 1936, adrenaline infused into the internal saphenous vein, at the rate of 1.6 c.c.m. of a 1:100,000 solution per min., reduced heat elimination of one hand from an average of 224 cal. per min. to 35 cal. per min. while increasing the flow through the other forearm from 4.6 to 7.2 c.c.m. per min. This dose of adrenaline therefore very considerably decreased blood-flow through skin while increasing it through the whole forearm and therefore through muscle; on another occasion in the same subject the arterial pressure was 120/75 before and 145/65 during infusion at a similar rate. We can, I think, be reasonably sure that adrenaline is not concerned in the genesis of the forms of hypertension considered in the previous lecture; for, although it seems to produce constriction of the efferent arterioles of the kidney, as Smith and his colleagues have shown, its constriction of the skin vessels is much too intense for the active agent in any essential hypertension. The simplest demonstration that it is not concerned in essential or chronic nephritic hypertension is one which Kissin and I described in 1936. It is common knowledge that the skin of the face is pink or red in many patients with essential hypertension and in some with chronic nephritis. The absence of constriction in these skin vessels indicates either that there is no excess of adrenaline circulating or that the vessels are insusceptible to it. We were able to exclude the second alternative, for we found that in both these kinds of hypertension the facial skin paled to a normal extent on intravenous injection of small amounts of adrenaline (2 to 2.5 γ).

There is, however, one form of hypertension not yet mentioned in which the presence of abnormal amounts of adrenaline in the circulating blood is the cause of the raised arterial pressure. This is the rare paroxysmal hypertension produced by a pheochromocytoma, a tumour of the adrenal medulla. In this condition occur paroxysms characterized by pallor and coldness of the skin, by hypertension, and in some cases by acute oedema of the lungs; between the attacks the patient is

* An abridged version of the Oliver-Sharpey Lectures delivered before the Royal College of Physicians of London on March 23 and 25, 1943.

In man the action of renin on the circulating fully investigated because animal renin fails to convert angiotensinogen and is therefore inactive in man. The kidneys are a poor source of renin. But hypertension is prepared by Helmer and Page in a form suitable for man, and its effects have been investigated by Kohlstaedt, and Page (1941), Bradley and Page (1941), and Wilkins and Duncan (1941). Hypertension by infusion produces a rise in systolic blood pressure, and a slowing of the pulse which is observed in the infusions. The cardiac output is increased, and the venous pressure is increased. The cardiac output is increased, and the venous pressure is increased, and the venous pressure is increased. Kohlstaedt, and Page state that, unlike adrenaline, it produces no paling of the skin, but Wilkins and Duncan observe this. No measurements of blood flow have been made with the influence of the vasoconstrictor, but Wilkins and Duncan tabulate the flow through the hand of the warm subject in which hypertensin was injected intravenously.

blood-flow after hypertensin varied between limits above & below the resting; in 8 it was increased and in 6 decreased. Although a final conclusion should await a more deliberately planned experiment, these results suggest that the hypertension induced by hypertensin is not accompanied by any pronounced change in skin blood-flow. The effect of hypertensin on the renal circulation has been investigated by Corcoran, Kohlstaedt, & Page by the methods mentioned in the previous lecture. Hypertensin in doses sufficient to raise the arterial pressure about 40 mm. Hg reduces the effective renal blood-flow by about 50%, but lowers the glomerular filtration rate to a much less extent—changes which are attributed to efferent glomerular vasoconstriction.

Wilkins and Duncan concluded from their investigations that the changes produced in man by intravenous injection of hypertensin resembled most closely the hypertension of severe acute nephritis in that both may show the manifestations of cardiac failure—i.e., dilatation of the heart and raised venous pressure, features not observed in essential hypertension except in the terminal stages. These changes are, however, precisely the changes induced in a normal heart by a sudden rise of arterial pressure, as Starling showed decisively on the heart-lung preparation 30 years ago. That the heart may behave similarly in acute nephritis and after the injection of hypertensin would thus seem to be due to their both representing the behaviour of a normal heart to an acute hypertension; and the difference in the behaviour of the heart in the chronic hypertensions is readily linked with its pronounced hypertrophy in such conditions. So far as we know them, the changes in the peripheral vessels in acute nephritis are not the same as those after injection of hypertensin. Thus as yet there is no evidence of any humoral vasoconstriction in the skin vessels in acute nephritis nor of efferent glomerular constriction, both of which are produced by hypertensin. The absence of efferent glomerular constriction in pregnancy toxæmia again excludes this agent in that condition.

But in essential hypertension, and probably in the other related forms of persistent hypertension mentioned in the first lecture, the chief changes noted in the behaviour of the vessels are similar to those induced by hypertensin, which alone of the known pressor substances is a conceivable causative agent. For although, as Goldring, Chasis, Ranges, and Smith have pointed out, a variety of agents such as adrenaline and tyramine, as well as renin and hypertensin, produce constriction of the efferent glomerular arteries of the kidney, only renin and its product hypertensin produce hypertension without so constricting the vessels of the skin that much blood is diverted from it. So far as our knowledge goes—and it is clearly incomplete—they are the only agents known which reproduce the circulatory conditions of essential hypertension. Since there is thus a prima facie case for the view that the renin-hypertensin system may be concerned in the genesis of essential and related forms of human hypertension, we may proceed to examine it in greater detail.

Renin, as Tigerstedt and Bergman showed, is found in the cortex and not in the medulla of kidney; it has not been obtained from any tissue other than renal cortex. It is present in all mammals and birds examined, but not in cold-blooded vertebrates. Prinzmetal and I found that it is destroyed at 60° C., by strong acids and alkalis, and by alcohol above freezing-point but not at -10° C.; it is non-dialysable, salts out in the globulin protein fraction, and is probably a protein. It is an extremely unstable substance, and Butler and I found it became so progressively when purified. It has not been isolated.

Hypertensinogen, the name given to the substrate on which renin acts, is also a protein, and is found only in plasma. It is also a globulin (Muñoz *et al.*, 1940). Evidence from animal experiments suggests that the liver (Page *et al.*, 1941) and adrenals (Houssay and Dexter, 1942) may be concerned in its production, but the part, if any, played by other organs is obscure.

Hypertensin, the product of the reaction of the foregoing, is a simpler substance than either. It is stable to heat, dialysable, and soluble in alcohol (Page and Helmer, 1940a; Braun-Menendez *et al.*, 1940). It is destroyed by peptic or tryptic

digestion, and is therefore thought to be a proteose or polypeptide (Muñoz *et al.*, 1940; Edman *et al.*, 1942).

In a simple mixture of the two renin acts as an enzyme and hypertensinogen as the substrate (Muñoz *et al.*, 1940). That is to say, the amount of hypertensin produced in unlimited time is determined only by the amount of hypertensinogen, and during the reaction hypertensinogen disappears while renin remains. The amount of renin determines only the rate of the reaction. It is obvious, therefore, that the amount of hypertensinogen available is an important factor in determining the intensity of the response to renin, and *in vivo* no response to renin is obtained if the hypertensinogen has been used up (Page, 1939). In the intact animal the amount of renin entering the circulation is also an important factor, for Prinzmetal and I (1938) found the response to renin injected intravenously was proportional to the logarithm of the dose. The intact animal may also be affected by agencies which destroy renin and hypertensin. In 1942 Prinzmetal, Kelsall, and I showed that renin injected intravenously into rabbits could be recovered from the arterial blood after ten minutes but not after an hour, and that the lost renin could not be recovered from the tissues, nor was it destroyed in that time by blood *in vitro*. It is probably slowly destroyed by the tissues, but in a manner at present unknown. Hypertensin is destroyed by an enzyme, hypertensinase, which is most abundant in extracts of kidney and gut, and least in plasma (Houssay and Braun-Menendez, 1942).

Role of the Renin-Hypertensin System

It is probable that the renin-hypertensin system is the effector mechanism in experimental hypertension resulting from renal-artery constriction, for the cumulative efforts of many workers (see Blalock, 1940) have excluded a cause other than chemical, and renin has been demonstrated in the renal-vein blood after renal-artery constriction (see Houssay and Braun-Menendez, 1942). Nevertheless some facts are not easy to reconcile with the hypothesis (Taggart and Drury, 1940; Dock, Shidler, and Moy, 1942), and the chapter is by no means closed. In man there is little direct evidence for the participation of the renin-hypertensin system in hypertension, but the absence of positive evidence does not invalidate the hypothesis. Thus in man it was shown that transfusion of blood from patients with essential or malignant hypertension does not raise the pressure of the recipients (Pickering, 1935-6; Prinzmetal and Friedman, 1936): the same is true in the dog with experimental hypertension (Collins and Hoffbauer, 1937), unless massive cross-transfusions are used (Solandt *et al.*, 1940). The kidneys of patients with benign essential and chronic nephritic hypertension seem to have a renin content no higher than normal (Landis, 1941), but the kidneys of rabbits with chronic hypertension due to renal-artery constriction also have a normal renin content (Pickering, Prinzmetal, and Kelsall, 1942). The crucial test for the presence of renin in the renal-vein blood in man has yet to be performed with the methods successful in the dog.

We may now consider very briefly a further aspect of the hypothesis and inquire whether there is any condition present in essential hypertension which might lead to the liberation of renin from the kidney. Here again the facts are few, and what follows is to be regarded purely as a contribution to a working hypothesis.

The constant presence of renin in the kidney of most mammals examined, and its enzyme-like action on blood, suggest that it performs a definite function in the animal economy. Accepting the interpretation of inulin and diodrast clearances, the chief action of renin or hypertensin on the kidney is to constrict the efferent glomerular arterioles,* and on the circulation to raise arterial pressure without greatly influencing the distribution of blood to organs other than the kidney. Thus we see that the renin-hypertensin system raises intraglomerular pressure by its action both on the renal vessels and on the circulation generally. I would suggest, therefore, that the func-

* Prinzmetal and I (Pickering and Prinzmetal, 1940) found that small doses of renin in the unanesthetized rabbit reduce urine-flow and the creatinine-clearance rate. With larger doses, well above the threshold for the pressor effect, renin produces a pronounced diuresis, in which the sodium and chloride contents of the urine approximate to those of plasma. The significance of this finding is not yet apparent.

REFERENCES

Abell, R. G., and Page, I. H. (1942). *J. exp. Med.*, **7**, 305.
Abramson, D. L., and Fierst, S. M. (1942). *Amer. Heart J.*, **23**, 84.
Arnott, W. M., and Kellar, R. J. (1936). *J. Path. Bact.*, **42**, 141.
— and Matthew, G. D. (1939). *Quart. J. Med.*, n. s., **8**, 353.
— and Walpole, G. S. (1909). *J. Physiol.*, **28**, 343.
Barger, G., and King, F. H., and Pringmettal, M. (1937). *Ann. Surg.*, **106**, 85.
Beer, E., King, F. H., and Claus, R. (1910). *Dtsch. Arch. klin. Med.*, **100**, 412.
Bingel, A., and Strauss, E. (1909). *Ibid.*, **96**, 476.
— and Strauss, E. (1909). *Physiol. Rev.*, **20**, 159.
Blalock, A. (1940). *Physiol. Rev.*, **20**, 175.
Bradley, S. E., and Parker, B. (1941). *J. clin. Invest.*, **20**, 715.
Braun-Menendez, E., Fasciolo, J. C., Leloir, L. F., and Muñoz, J. M. (1941). *Rev. Soc. argent. Biol.*, **5**, 420.
— (1940). *J. Physiol.*, **98**, 283.
— (1940). *J. clin. Invest.*, **20**, 655.
Chasis, H., and Redish, J. (1941). *J. clin. Invest.*, **20**, 655.
Chesley, L. C., Connel, E. J., Chesley, E. R., Katz, J. D., and Glissen, C. (1940). *Ibid.*, **19**, 219.
Collins, D. A., and Hoffbauer, F. W. (1937). *Proc. Soc. exp. Biol.*, **1**, 35, 539.
Corcoran, A. C., Kohlstaedt, K. G., and Page, I. H. (1941). *Ibid.*, **46**, 144.
— and Page, I. H. (1941). *Amer. J. med. Sci.*, **201**, 385.
— and Page, I. H., and Dixon, W. E. (1909). *J. Physiol.*, **39**, 25.
Dale, H. H., and Dixon, W. E., and Moy, B. (1942). *Amer. Heart J.*, **23**, 513.
Dock, W., Shidler, F., and Moy, B. (1942). *Amer. Heart J.*, **23**, 513.
Edman, P., Euler, U. S. von, Jorpes, E., and Sjöstrand, O. T. (1942). *J. Physiol.*, **101**, 284.
— (1939). *Hypertension and Nephritis*, 4th ed., Philadelphia: W. B. Saunders Co.
— (1941). *Hypertension*, 5th ed., Philadelphia: W. B. Saunders Co.

Fishberg, A. M., Selzer, A., and Rosen, S. (1938). *Proc. Soc. exp. Biol.*, N.Y., 37, 155.
Friedman, M., Lynch, J., Hanzal, R. F., and Sumner, J. (1938). *Proc. Soc. exp. Biol.*, N.Y., 37, 155.
Goldblatt, H., Lynch, J., Hanzal, R. F., and Sumner, J. (1938). *Proc. Soc. exp. Biol.*, N.Y., 37, 155.
Med., 59, 347.
— (1938a). *Ibid.*, 67, 809.
— (1938b). *Harvey Lectures*, 33, 237.
— (1938c). *Harvey Lectures*, 33, 237.
Goldring, W., and Smith, H. W. (1937). *Proc. Soc. exp. Biol.*, N.Y., 37, 155.
— Chasis, H., Ranges, H. A., and Smith, H. W. (1941). *J. clin. Med.*, 52, 1541.
Goormaghtigh, N. (1939). *Brux. méd.*, 52, 1541.
Govaerts, P. (1939). *Bull. Acad. roy. Méd. Belg.*, 4, 357.
Grant, R. T., and Bland, E. F. (1935-36). *Heart*, 15, 385.
— and Holling, H. E. (1937-8). *Clin. Sci.*, 3, 273.
— and Pearson, R. S. B. (1937-8). *Ibid.*, 3, 119.
— and Pearson, R. S. B., and Mason, M. F. (1936). *Proc. Soc. exp. Biol.*, N.Y., 35, 38.
Harrison, T. R., Blalock, A., and Mason, M. F. (1936). *Proc. Soc. exp. Biol.*, N.Y., 35, 38.
Hartwich, A., and Hessel, G. (1932). *Zbl. Inn. Med.*, 53, 612, 626.
— and Dexter, L. (1942). *Ann. intern. Med.*, 17, 451.
Housay, B. A., and Braun-Menendez, E. (1942). *British Medical Journal*, 1, 119.
Kellar, R. J., and Sutherland, J. K. (1941). *J. Obstet. Gynaec. Brit. Comm.*, 48, 1.
Koch, E., Mies, H., and Nordmann, M. (1927). *Z. Kristallforsch.*, 1, 1.
Kohlstaed, K. G., Helmer, O. M., and Page, I. H. (1938). *Proc. Soc. exp. Biol.*, N.Y., 37, 155.
— (1938). *Harvey Lectures*, 33, 237.
Landis, E. M. (1941). *Amer. J. med. Sci.*, 202, 14.
— Montgomery, H., and Sparkman, D. (1938). *J. clin. Invest.*, 17, 1.
— Prinzmetal, A., and Lewis, H. A. (1940). *Amer. J. Physiol.*, 133, 1.
— (1941). *Heart*, 16, 33.

Leo, S. D. (1931-3) *Hearst*.
 Lewis, T. (1931-3) *Hearst*.
 — and Pickering, G. W. (1931-3). *Amer. J. Path.*,
 Moritz, A. R., and Oldt, M. R. (1937). *Amer. J. C.*, and Leloir, I.
 Muñoz, J. M., Braun-Menendez, E., Fasciolo, J. C., and Leloir, I.
 — *J. med. Sci.*, 200, 608.
 — *Amer. J. med. Sci.*, 200, A. (1894). *J. Physiol.*, 18, Proc. 1.
 — *Amer. J. med. Sci.*, 200, 608.
 Oliver, G., and Schäfer, E. A. (1894). *J. Physiol.*, 18, Proc. 1.
 Oppenheimer, E. T., and Prinzmetal, M. (1937). *Arch. Intern. Med.*
 Page, I. H. (1939). *J. exp. Med.*, 70, 521.
 — (1941). *J. Urol.*, 48, 807.
 — and Helmer, O. M. (1940a). *J. exp. Med.*, 71, 29.
 — (1940b). *Ibid.*, 71, 495.
 — (1940c). *Ibid.*, 71, 495.
 — (1940d). *Ibid.*, 71, 495.
 — (1940e). *Ibid.*, 71, 495.
 — (1940f). *Ibid.*, 71, 495.
 — (1940g). *Ibid.*, 71, 495.
 — (1940h). *Ibid.*, 71, 495.
 — (1940i). *Ibid.*, 71, 495.
 — (1940j). *Ibid.*, 71, 495.
 — (1940k). *Ibid.*, 71, 495.
 — (1940l). *Ibid.*, 71, 495.
 — (1940m). *Ibid.*, 71, 495.
 — (1940n). *Ibid.*, 71, 495.
 — (1940o). *Ibid.*, 71, 495.
 — (1940p). *Ibid.*, 71, 495.
 — (1940q). *Ibid.*, 71, 495.
 — (1940r). *Ibid.*, 71, 495.
 — (1940s). *Ibid.*, 71, 495.
 — (1940t). *Ibid.*, 71, 495.
 — (1940u). *Ibid.*, 71, 495.
 — (1940v). *Ibid.*, 71, 495.
 — (1940w). *Ibid.*, 71, 495.
 — (1940x). *Ibid.*, 71, 495.
 — (1940y). *Ibid.*, 71, 495.
 — (1940z). *Ibid.*, 71, 495.
 — (1941a). *Ibid.*, 71, 495.
 — (1941b). *Ibid.*, 71, 495.
 — (1941c). *Ibid.*, 71, 495.
 — (1941d). *Ibid.*, 71, 495.
 — (1941e). *Ibid.*, 71, 495.
 — (1941f). *Ibid.*, 71, 495.
 — (1941g). *Ibid.*, 71, 495.
 — (1941h). *Ibid.*, 71, 495.
 — (1941i). *Ibid.*, 71, 495.
 — (1941j). *Ibid.*, 71, 495.
 — (1941k). *Ibid.*, 71, 495.
 — (1941l). *Ibid.*, 71, 495.
 — (1941m). *Ibid.*, 71, 495.
 — (1941n). *Ibid.*, 71, 495.
 — (1941o). *Ibid.*, 71, 495.
 — (1941p). *Ibid.*, 71, 495.
 — (1941q). *Ibid.*, 71, 495.
 — (1941r). *Ibid.*, 71, 495.
 — (1941s). *Ibid.*, 71, 495.
 — (1941t). *Ibid.*, 71, 495.
 — (1941u). *Ibid.*, 71, 495.
 — (1941v). *Ibid.*, 71, 495.
 — (1941w). *Ibid.*, 71, 495.
 — (1941x). *Ibid.*, 71, 495.
 — (1941y). *Ibid.*, 71, 495.
 — (1941z). *Ibid.*, 71, 495.
 — (1942a). *Ibid.*, 71, 495.
 — (1942b). *Ibid.*, 71, 495.
 — (1942c). *Ibid.*, 71, 495.
 — (1942d). *Ibid.*, 71, 495.
 — (1942e). *Ibid.*, 71, 495.
 — (1942f). *Ibid.*, 71, 495.
 — (1942g). *Ibid.*, 71, 495.
 — (1942h). *Ibid.*, 71, 495.
 — (1942i). *Ibid.*, 71, 495.
 — (1942j). *Ibid.*, 71, 495.
 — (1942k). *Ibid.*, 71, 495.
 — (1942l). *Ibid.*, 71, 495.
 — (1942m). *Ibid.*, 71, 495.
 — (1942n). *Ibid.*, 71, 495.
 — (1942o). *Ibid.*, 71, 495.
 — (1942p). *Ibid.*, 71, 495.
 — (1942q). *Ibid.*, 71, 495.
 — (1942r). *Ibid.*, 71, 495.
 — (1942s). *Ibid.*, 71, 495.
 — (1942t). *Ibid.*, 71, 495.
 — (1942u). *Ibid.*, 71, 495.
 — (1942v). *Ibid.*, 71, 495.
 — (1942w). *Ibid.*, 71, 495.
 — (1942x). *Ibid.*, 71, 495.
 — (1942y). *Ibid.*, 71, 495.
 — (1942z). *Ibid.*, 71, 495.
 — (1943a). *Ibid.*, 71, 495.
 — (1943b). *Ibid.*, 71, 495.
 — (1943c). *Ibid.*, 71, 495.
 — (1943d). *Ibid.*, 71, 495.
 — (1943e). *Ibid.*, 71, 495.
 — (1943f). *Ibid.*, 71, 495.
 — (1943g). *Ibid.*, 71, 495.
 — (1943h). *Ibid.*, 71, 495.
 — (1943i). *Ibid.*, 71, 495.
 — (1943j). *Ibid.*, 71, 495.
 — (1943k). *Ibid.*, 71, 495.
 — (1943l). *Ibid.*, 71, 495.
 — (1943m). *Ibid.*, 71, 495.
 — (1943n). *Ibid.*, 71, 495.
 — (1943o). *Ibid.*, 71, 495.
 — (1943p). *Ibid.*, 71, 495.
 — (1943q). *Ibid.*, 71, 495.
 — (1943r). *Ibid.*, 71, 495.
 — (1943s). *Ibid.*, 71, 495.
 — (1943t). *Ibid.*, 71, 495.
 — (1943u). *Ibid.*, 71, 495.
 — (1943v). *Ibid.*, 71, 495.
 — (1943w). *Ibid.*, 71, 495.
 — (1943x). *Ibid.*, 71, 495.
 — (1943y). *Ibid.*, 71, 495.
 — (1943z). *Ibid.*, 71, 495.
 — (1944a). *Ibid.*, 71, 495.
 — (1944b). *Ibid.*, 71, 495.
 — (1944c). *Ibid.*, 71, 495.
 — (1944d). *Ibid.*, 71, 495.
 — (1944e). *Ibid.*, 71, 495.
 — (1944f). *Ibid.*, 71, 495.
 — (1944g). *Ibid.*, 71, 495.
 — (1944h). *Ibid.*, 71, 495.
 — (1944i). *Ibid.*, 71, 495.
 — (1944j). *Ibid.*, 71, 495.
 — (1944k). *Ibid.*, 71, 495.
 — (1944l). *Ibid.*, 71, 495.
 — (1944m). *Ibid.*, 71, 495.
 — (1944n). *Ibid.*, 71, 495.
 — (1944o). *Ibid.*, 71, 495.
 — (1944p). *Ibid.*, 71, 495.
 — (1944q). *Ibid.*, 71, 495.
 — (1944r). *Ibid.*, 71, 495.
 — (1944s). *Ibid.*, 71, 495.
 — (1944t). *Ibid.*, 71, 495.
 — (1944u). *Ibid.*, 71, 495.
 — (1944v). *Ibid.*, 71, 495.
 — (1944w). *Ibid.*, 71, 495.
 — (1944x). *Ibid.*, 71, 495.
 — (1944y). *Ibid.*, 71, 495.
 — (1944z). *Ibid.*, 71, 495.
 — (1945a). *Ibid.*, 71, 495.
 — (1945b). *Ibid.*

——— (1935-6b). *Ibid.*, 2, 363.
 ——— (1935-6c). *Ibid.*, 2, 363.
 ——— (1939). *British Medical Journal*, 1, 1.
 ——— (1939). *Br. J. Clin. Sci.*, 2, 201.
 ——— and Kassin, M. (1935-6). *Ibid.*, 2, 193.
 ——— and Rothschild, P. (1935-6). *Ibid.*, 3, 211.
 ——— and Rothschild, M. (1938). *Ibid.*, 3, 211.
 ——— and Prinzmetal, M. (1938). *Physiol.*, 98, 314.
 ——— and Prinzmetal, M. (1938). *Clin. Sci.*, 4, 401.

and Kissel, H. and Rothschild, M. (1938). *Ibid.*, 3, 271.
 and Prinzmetal, M. (1938). *Ibid.*, 89, 314.
 (1940). *J. Physiol.*, 8, R. (1942). *Clin. Sci.*, 4, 401.
 and Kelsall, A. R. (1936). *Proc. Soc. exp. Biol.*,
 45, 63.
 Prinzmetal, M., and Friedman, B. (1936). *J. clin. Invest.*,
 5, 28.
 and Wilson, C. (1936). *Physiol.*, 32, 28.
 Rein, H. (1931). *Ergänz. Physiol.*, 32, 28. *Brit. J. exp. Pathol.*
 2, 1295.
 Scarff, R. W., and Martin, N. H. (1931). *Lancet*, 1, 1295.
 Shaw, H. B. (1906). *The Physiology of the Kidney*, Oxf. Univ.
 Press.
 Smith, E. W. (1937). *The Physiology of the Kidney*, Porter Lectures,
 1937.
 (1939). *J. clin. Invest.*, 20, 631.
 Solandt, D. Y., Nassim, R., and Cowan, C. R. (1940). *J. clin. Invest.*, 19, 25.
 Stead, E. A., and Kunkel, P. (1940). *J. exp. Med.*, 71, 857.
 Stead, E. A. (1941). *Ibid.*, 20, 473.
 Taggart, J. M., and Dury, D. R. (1940). *J. exp. Med.*, 71, 857.
 Theobald, G. W. (1933-4). *Clin. Sci.*, 1, 225. *Skand. Arch. B.*
 Tigerstedt, R., and Bergman, P. G. (1898). *Quart. J. exp. Physiol.*
 1, 1. *Clin. Sci.*, 1, 225.
 Weller, E. B., and Vogt, M. (1938). *Quart. J. exp. Physiol.*,
 3, 1. *Clin. Sci.*, 1, 225.
 Wilkins, R. W., and Lennox, C. N. (1934). *Ibid.*, 20, 72.
 Williams, D., and Pickering, G. W. (1937-8). *Clin. Sci.*, 3,
 136.
 Wilson, C., and Byrom, F. B. (1939). *Lancet*, 1, 136.

The interesting calculation has been made that 5 million people is equivalent to 17,000 tons of meat a year. This, as Dr. E. F. Armstrong points out (1943), happens to be the quantity present in the meat from New Zealand. According to him, Great Britain gets rid in the form of sewage of 150,000 tons of rock phosphate, most of which is population of the United States rejects in equivalent of 60 million tons of rock phosphate. The supplies of phosphate are limited in amount and many of the agricultural soils of the world are with a consequent impairment to their crop

CHEMOTHERAPY OF INTESTINAL INFECTIONS TREATED WITH SULPHONAMIDE COMPOUNDS

BY

AUSTIN C. CLAY, M.D. *Aberd.**Senior Resident Physician, City (Infectious Diseases) Hospital,
Aberdeen*

Sulphaguanidine was originally discovered by Buttle in 1938, but little attention was paid to it until the further researches of Marshall *et al.* in 1940 emphasized its solubility yet poor absorption from the gastro-intestinal tract, and thus presented a new principle in the treatment of intestinal infections somewhat analogous to the use of sulphanilamide derivatives as urinary antiseptics. This was confirmed by Roblin and Winnek (1940). It was used with success by Marshall and his colleagues (1941) in the treatment of acute bacillary dysentery in children in the Harriet Lane Home, New York; and Lyon (1941) described his findings in a group of 23 cases, which were compared with a similar number of controls. Subsequently Anderson and Cruickshank (1941) reported the successful treatment of 41 adult cases of Flexner dysentery, which were compared with a series of 55 control cases in the same epidemic. Fairley and Boyd (1942, 1943) published their observations on some 500 cases treated in the Middle East, the bulk of which were Shiga infections, although a number of cases of Flexner, Schmitz, and Sonne infections were also successfully treated. Bulmer and Priest (1942) and Brewer (1943) have also reported their findings. 76 and 77 cases respectively in the same sphere of military operations. Hall (1941) recorded the successful treatment of 20 cases of typhoid fever with sulphaguanidine, while Levi and Willen (1941) reported the successful treatment with sulphaguanidine of a typhoid carrier who had remained positive after cholecystectomy. Canizares and Morris (1941) made a study of 6 patients with proctitis due to lymphogranuloma venereum in whose condition some improvement was effected by means of sulphaguanidine prior to surgical intervention; while Firor and Jonas (1941) suggested that it might be successfully used in chronic ulcerative conditions of the bowel. Firor and Poth (1941) used it pre-operatively to reduce coliform organisms in the large intestine of patients submitted to colonic surgery. Henderson (1943) has recently recorded the excellent results achieved with sulphaguanidine in epidemic gastro-enteritis of the newborn.

Clinical Findings

During 1941 and the first six months of 1942 there were treated in the City Hospital, Aberdeen, 273 cases of bacillary dysentery, all of which were proved bacteriologically. Of these, 140 were given no chemotherapy but saline treatment only, 83 were treated with sulphaguanidine, and 50 were treated with sulphanilamide. Unfortunately, it was not possible to run the three series concurrently. Specimens of stool were examined twice weekly for organisms, and the blood sedimentation rate was taken on admittance to hospital and at the completion of the course in those receiving drug therapy. The cases under review comprise Flexner and Sonne infections, and were, on the whole, of a mild character, with seldom more than 5 or 6 stools a day, some of which contained blood and mucus and others merely mucus, while some were simply loose. All cases showing blood and mucus in the stools were classified as "acute," while those with loose stools were classified as "convalescent carrier cases." Low-grade pyrexia with minor signs of dehydration and occasional vomiting was observed in the 140 cases receiving no chemotherapy. Of 24 who on admission could be described as acutely ill 6 died, two of the deaths being attributable to intercurrent disease. Where necessary, parenteral fluid was given intravenously in the form

of 5% glucose-saline, but, so far as was possible, patients were encouraged to take fluid by mouth, the quantity aimed at being 8 to 10 pints in 24 hours for adults and proportionately less for children. Throughout, the customary general nursing measures were employed.

Dosage

Sulphaguanidine.—The dosage used was an initial loading dose of 0.5 g. per kilo of body weight for the first 24 hours, followed by a maintenance dose of 0.1 g. for the next 4 days. The tablets were powdered, and were administered in milk 4-hourly for the first 24 hours and thereafter 3 times daily for 4 days.

Sulphanilamide.—The following doses were given 4-hourly for the first 4 days and 3 times daily for a further 4 days, each tablet containing 0.5 g.:

0-3 months	..	..	..	..	1 tablet
3 months-2 years	..	..	..	..	1½ "
2-5 years	..	..	..	..	2 "
5-10 "	..	..	..	..	4 "
10-15 "	..	..	..	..	1½ tablets
Over 15 years	..	..	..	..	2 "

No Chemotherapy.—Adult patients were given 2 drachms of sodium sulphate night and morning, and child patients 1 drachm night and morning.

At the end of the first 24 hours the drug content in faeces and blood was estimated and the blood sedimentation rate was also determined. Similarly, when a patient became bacteriologically negative the blood sedimentation rate was again taken. Specimens of stool were examined twice weekly until three consecutive negative results were obtained. In no case were rectal swabs taken; nor were the faeces mixed before obtaining specimens, these being taken purely at random.

Analysis of Flexner Cases

Flexner Cases treated with Sulphaguanidine.—Forty-seven cases were treated; the average duration of stay in hospital was 13.4 days and the average number of days before becoming bacteriologically negative was 6.6. These were subdivided into 13 acute cases and 34 convalescent carriers.

Flexner Cases treated with Sulphanilamide.—Twenty-one cases were treated; the average duration of stay in hospital was 30.4 days and the average number of days before becoming bacteriologically negative was 20.9. Eleven cases were regarded as acute and 10 as convalescent carriers.

Flexner Cases—No Chemotherapy.—Eighty-three cases were treated without chemotherapy; the average duration of stay in hospital was 22.7 days, while the average number of days before becoming bacteriologically negative was 13.3. These were subdivided into 63 acute cases and 20 convalescent carriers.

Analysis of Sonne Cases

Sonne Cases treated with Sulphaguanidine.—Thirty-six cases were treated; the average duration of stay in hospital was 17.1 days and the average number of days before becoming bacteriologically negative was 10.3. These were divided into 16 acute cases and 20 convalescent carriers.

Comparative Results of Chemotherapy

Treatment		Flexner			Sonne		
		Acute	Conv. Carr.	All Cases	Acute	Conv. Carr.	All Cases
Sulphaguanidine	No. of cases	13	34	47	16	20	36
	Average days in hospital	12	13.9	13.4	12.1	21	17.1
	Average days bacteriologically positive	4.6	7.4	6.6	5.9	14.3	10.3
Sulphanilamide	No. of cases	11	10	21	9	20	29
	Average days in hospital	28.8	32.2	30.4	26.1	22.8	23.8
	Average days bacteriologically positive	19	23.1	20.9	16.3	13.4	13.9
No chemotherapy	No. of cases	63	20	83	18	39	57
	Average days in hospital	23.4	20.5	22.7	19.4	18.8	19
	Average days bacteriologically positive	14	10.5	13.3	9.9	9.4	9.5

Sonne Cases treated with Sulphanilamide.—Twenty-nine cases were treated; the average duration of stay in hospital was 23.8 days, while the average number of days before becoming bacteriologically negative was 13.9. These cases were divided into 9 acute cases and 20 convalescent carriers.

Sonne Cases—No Chemotherapy.—Fifty-seven cases were treated; the average duration of stay in hospital was 19 days, while the average number of days before becoming bacteriologically negative was 9.5. These were divided into 18 acute cases and 39 convalescent carriers.

Biochemical Findings

Sulphaguanidine.—Blood concentrations usually varied from 3 mg. per 100 c.cm. to a trace, but in one case 9 mg. was found, in 2 cases 8 mg., in 1 case 7 mg., and in one other case 6 mg. per 100 c.cm. The concentration in faeces varied from a trace to as high as 10,000 mg. per 100 c.cm. At the beginning of the series leucocyte counts were done as a routine in each case, but as these were invariably normal this examination was discontinued.

Sulphanilamide.—Blood concentrations were lower than in the case of sulphaguanidine-treated cases, the highest concentration in the blood being 3.3 mg. and the lowest 0.1 mg. per 100 c.cm. In the main they varied between 1 and 2 mg. Concentrations in the faeces varied between a trace and 840 mg. per 100 c.cm., the average being between 300 and 400 mg.

Toxicity of Drugs

In no case treated with either sulphaguanidine or sulphanilamide was any evidence of toxicity observed, judged by the standards of nausea, cyanosis, vomiting, pyrexia, rash, or haematuria. The urine was examined every second day for blood and albumin, but this practice was later reduced to twice weekly on account of lack of toxic symptoms. Older patients were also questioned with regard to any disagreeable effects, but these were remarkable by their absence.

Gastro-enteritis in Infants

Four cases were treated with sulphaguanidine; 3 of these patients died without any improvement in the stools or in the general condition. All were male babies, varying in age from 1 to 2 months and presenting varying degrees of dehydration, with frequent loose, green, and offensive stools from which no specific organism was obtained. The dosage used was 3 g. during the first 24 hours as a loading dose, followed by 2 g. daily for 4 days, but in none of the cases did the concentration in the blood exceed 0.8 mg. per 100 c.cm., although the concentration in the faeces went as high as 25,000 mg. We can only conclude that the dehydration and the frequency of the stools were so pronounced that the drug had no time to be absorbed and was passed rapidly through the intestines.

Paratyphoid B Fever

Eight cases treated with sulphaguanidine were taken, varying in age from 3 months to 53 years. Sulphaguanidine had no effect on the stools, which remained positive throughout the course and for a considerable time afterwards, although in two cases a distinct improvement in clinical condition was noted. These patients were exceedingly listless, with marked loss of appetite, but within 48 hours of starting treatment with sulphaguanidine their general condition had greatly improved. The dosage varied from 5.25 g. daily for 6 days to a maximum of 10.5 g. daily for 14 days.

Summary

273 cases of bacillary dysentery treated in the City (Infectious Diseases) Hospital, Aberdeen, during 1941-2 are described, together with 4 cases of gastro-enteritis of infants and 8 cases of paratyphoid B fever. Of the cases of bacillary dysentery 140 received no drug, 83 were treated with sulphaguanidine, and 50 had sulphanilamide.

The series receiving no chemotherapy were given 2 drachms of sodium sulphate night and morning for an adult and 1 drachm night and morning for a child. Those receiving sulphaguanidine were given a 5-day course based on body weight, the initial loading dose during the first 24 hours being 0.5 g. per kilo of body weight, followed by a maintenance dose of 0.1 g. per kilo for the next 4 days. Those receiving sulphanilamide were given a dosage amounting to half the quantity of sulphaguanidine.

The tablets were powdered and administered in milk 4-hourly for the first 24 hours and 3 times daily for the next 4 days. Parenteral

fluids were given intravenously in the form of 5% solution where necessary, and particular stress was laid on fluid intake—mouth—8 to 10 pints for adults and proportionately less for children.

The stay in hospital and the number of days during which stools remained positive were reduced by half in the sulphaguanidine-treated cases as compared with those receiving no chemotherapy, except in the case of Sonne convalescent carriers, in which the stay in hospital and the number of days bacteriologically positive were slightly increased. In the sulphanilamide-treated cases the stay in hospital and the length of time during which stools remained positive were increased, but this may be accounted for by the dosage of drug and by the small number of cases treated.

Neither sulphaguanidine nor sulphanilamide produced any symptoms or disagreeable effects.

4 cases of gastro-enteritis and 8 cases of paratyphoid B fever were treated with sulphaguanidine without any improvement.

I am indebted to Dr. Prescott of the Wellcome Foundation for very kindly made available the necessary supplies of sulphaguanidine and wish to thank Dr. John Smith, Director of the City Laboratory, for his interest and co-operation in this investigation.

REFERENCES

- Anderson, D. E. W., and Cruickshank, R. (1941). *British Medical Journal*, **1**, 36.
 Brewer, A. E. (1943). *Ibid.*, **1**, 36.
 Bulmer, E., and Priest, W. M. (1942). *J. R.A.M.C.*, **73**, 277.
 Buttle, G. A. H., et al. (1938). *Biochem. J.*, **32**, 1101.
 Canizares, O., and Morris, G. E. (1941). *Arch. Derm. Syph.*, **43**, 101.
 Fairley, N. H., and Boyd, J. S. K. (1942). *Lancet*, **1**, 20.
 ——— (1943). *Trans. roy. Soc. trop. Med. Hyg.*, **36**, 253.
 Firor, W. M., and Jonas, A. F. (1941). *Ann. Surg.*, **114**, 19.
 ——— and Poth, E. J. (1941). *Ibid.*, **114**, 663.
 Hall, W. A. (1941). *New Orleans med. Surg. J.*, **94**, 233.
 Henderson, J. L. (1943). *British Medical Journal*, **1**, 410.
 Levi, J. E., and Willen, A. (1941). *J. Amer. med. Ass.*, **116**, 2235.
 Lyon, G. M. (1941). *Ibid.*, **116**, 2440.
 Marshall, E. K., jun., Bratton, A. C., White, H. J., and Litchfield, J. (1940). *Johns Hopk. Hosp. Bull.*, **67**, 163.
 ——— et al. (1941). *Ibid.*, **68**, 94.
 Roblin, R. O., jun., and Winck, P. S. (1940). *J. Amer. chem. Soc.*, **62**, 11.

TECHNIQUE OF INTRAVENOUS DRIP TRANSFUSION IN INFANTS

BY

D. MacCARTHY, M.D., M.R.C.P., D.C.H.

Late Registrar, Hospital for Sick Children, Great Ormond Street

The technique of intravenous drip transfusion, or clysis, was first applied to the treatment of infants ten years ago, since when it has established itself as the most effective method of combating severe dehydration due to infantile diarrhoea and vomiting or for the operative administration of fluids in babies and children. But it is much more difficult to carry out in adults, has more risks, and provides an arduous task for the nursing staff, on whose energies and competence the success of the method chiefly depends. Unfortunately owing to the frequency with which things can go wrong it is apt to be regarded as a method that demands a team of experts to run it. It is true there is a real danger of overloading the system with fluid, and judgment in the matter requires experience; but it is as often as not the accumulation of small faults and mishaps, rather than serious ones, that determines the success or failure of an undertaking. The object of this paper is to discuss causes of failure and their remedy and to put forward general principles for running continuous intravenous transfusions in infants with efficiency and safety.

The Technique Normally Adopted

The anterior saphenous vein at the ankle is chosen as it is very constant in position and has definite surface markings. It lies on the anterior surface of the tibia, running downwards and slightly backwards midway between the tendon of the anterior tibial and the internal malleolus of the tibia, both of which can be felt. It is often visible in thin babies or may be made visible by standing out, and it is plainly visible in most adults in its position and course may be easily examined.

The diameter of this vein in a 3-months-old baby is about 1 and 2 mm., and although it will stretch to slightly more than this it is difficult to insert a cannula into it of greater than 2 mm. Various types of cannula are used to this case, such as a large-sized hypodermic needle with the

off, a ureteric catheter (Wilmers, 1938), a hypodermic needle covered by a closely fitting length of ureteric catheter, a small-sized Hamilton Bailey needle, or the needle specially designed for the purpose by Bateman, with an inner cannula which can be removed and cleaned should it become blocked.

The foot and leg are firmly fixed by strapping to a padded lint applied to the outer side of the leg. The foot is fixed in a position of slight plantar flexion (Fig. 1). The skin between the internal malleolus and the tendon of tibialis anticus is anesthetized with local anaesthetic: 0.5 c.cm. of 1% novocain usually enough for this, but another 0.5 c.cm. may be injected more deeply. A transverse incision about half an inch long then made at right angles to the axis of the vein at the level of the internal malleolus. The vein, which may be difficult to see if there is much oozing, is identified by its bluish or pinkish colour, and is dissected free from its fascia so that no ligatures, about a quarter of an inch apart, can be passed over it. The distal ligature is tied immediately.

The vein is opened by an oblique or transverse scissor-cut, in the technique for adults, and the cannula inserted and fixed in with the proximal ligature. Obviously in such a tenuous vessel some care is required to cut a hole big enough to admit the cannula and yet not snip the vein clean in half. It is this, in finding the vein, that constitute the chief difficulty of the operation.

One c.cm. of normal saline should now be injected through the cannula. If the latter is in the vein the saline will go in with the lightest pressure on the plunger; but if it is in the sheath of the vein, or in the soft tissues or some fascial tissue it was mistaken for a vein, pressure will be required and a bump will appear under the skin. All being well, the incision closed by one stitch, and the tubing carrying the transfusing fluid from the vacoliter is connected to the cannula by a well-fitting adapter nozzle and secured in position by strapping; the flow of fluid is then started, the rate being controlled by screw clamp and drip connexion.

Some Dangers, Difficulties, and Mistakes

1. Severe or Fatal Collapse at the Start.—An intravenous drip could never be regarded as an emergency. It may be very gentle and a life-saving measure in an acutely dehydrated infant, but often in such cases a condition analogous to shock is present, due to anhydreaemia and toxæmia, and the process of setting up the drip, however skilfully done, may be more than the infant can stand. There is no case that will not be better off in these circumstances by being given a hot bath, or taken into a warmed bed, and left severely alone for one or two hours. At the end of this time it will probably be able to stand such intervention as is necessary to start the transfusion.

2. Excessive Time Spent in Setting up the Drip, with Consequent Exhaustion of the Infant and Deterioration of its General Condition.—The baby may be relieved of much strain by dividing the whole process into three stages. When it is decided to give an intravenous drip (i.e., on admission or when amining the infant in the ward) a time should be chosen which suits the ward and the doctor (within a few hours, of course; there is never more urgency than this); but the preliminaries of splinting, cleaning, and tying the limb should be carried out forthwith. The baby is then left in peace for an hour or more, and may get to sleep in the ensuing interval until the time of the operation. When that time comes it is rested, and part of the procedure is already completed.

In the second stage the instruments, vacoliter, etc., which have been prepared are brought to the very last degree of readiness at the bedside, the infant as yet being completely undisturbed. The vacoliter must be suspended, tubing filled and saline dripping from the cannula, aneurysm needle threaded, stitch ready, and small strips of strapping available for fixing the cannula and tubing in position. The tightness of the adapter fittings must be tested, also the points of the scissors. To insert the cannula it is necessary to cut half-way through a vein which may be only 1 mm. thick, so it is important to make sure that the tips of the scissors will do their job.

In the third stage the bedclothes are gently lifted back, the limb all ready, and the dissection of the vein is begun. When quickly and neatly done the baby suffers very little fatigue, and may even sleep through it. But if the three

stages described are made one procedure and there are any minor mishaps or delays, as there often are, the total time spent on the job is much longer for the baby, and in the end an hour or more may elapse before it is once again left in peace. By this time it may be very exhausted.

As to the actual dissection of the vein, only practice can bring speed, but it is worth while for the inexperienced to note that the vein is more easily seen when a local anaesthetic is injected into and deep to the subcutaneous tissue, as its blueness then contrasts with the pale injected tissues and oozing is diminished. About 1 c.cm. of 1% novocain in all may be used. If the subcutaneous tissue is widely split at right angles to the incision by opening the points of the scissors, it can be identified at once, but it is less and less easily discerned when the tissues become blood-stained from frequent swabbing and tentative probing. In plump babies there need be no fear of severing the vein in cutting through subcutaneous tissue, as it lies well down on the deep fascia. It is easier to insert the cannula into very small veins if the stylet is in, as this projects beyond the end of the cannula and, being smaller, can be got into the vein first; the cannula can then be slid along the stylet till it also lies in the vein.

3. Venous Spasm.—It is not uncommon for the drip to stop immediately after it is set up or to run excessively slowly at the start. Attempts to correct it there and then only lengthen the time of the whole operation and add to the exhaustion of the child. The temptation to continue manipulations with or syringing through the cannula must be resisted. If the limb is warmed up by hot-water bottles and the whole thing left alone, the drip will nearly always start spontaneously and speed up by itself. Relaxation of venous spasm may be the reason.

4. Clotting.—A double cannula, of which Bateman's needle (Field *et al.*, 1943) is an example, is the only safeguard against this fault. If the inner cannula becomes blocked it can be thoroughly cleaned and replaced without trouble. It is therefore essential to get an outer cannula into the vein first: it may be a tight fit, but it can be done in all but the very smallest veins. One of the causes of clotting has its origin at the time of setting up the drip. Thus, when the outer cannula is inserted into the vein blood may flow back along it. If there is any delay in starting the flow of saline this blood will begin to clot; then when the inner cannula is inserted through this clot a small plug will block the end of it. Although this plug may be driven out at once, any particle remaining will form the starting-point of a firmer clot later on. Therefore a stylet should always be placed in either cannula when saline is not flowing through it even for a few minutes, and the stylet should be in the outer cannula at the time it is introduced.

5. Splinting the Limb.—Nearly all other troubles—for example, irregular dripping, leaking, damage to vein, etc., mentioned below—are due to the limb not being properly immobilized or the fixation of the cannula and tubing being insecure. Splints of several sizes must be available. When an ankle vein is used the splint should project well beyond the



Fig. 1.—Right way. Long splint; tubing supported and approaching the cannula at the right angle, without flexion.



Fig. 2.—Wrong way. Short splint; flexion on tubing, with spring-like strain transmitted to vein.

foot and should have little padding. The foot must be fastened to it most firmly with strapping next the skin. Elastoplast will not do, and a heavily upholstered splint or the limb swathed in cotton-wool and bandages is worse than useless. When properly set up, the splint, leg, cannula, tubing, and dressing, held together by as many strips of strapping as required, form one firm structure. The baby can wave its leg about or be taken out of bed for nursing or lie on either

side—a great advantage, for it sleeps much better on its side. The most important thing is that the splints should be long enough to project 8 to 12 in. beyond the foot, so that the tubing leading to the cannula in the vein may be fastened at the far end of the splint and then have a straight run up towards the vein (Fig. 1). If it is fastened close to the foot the tubing will have flexion on it, the spring-like action of which will be transmitted to the cannula in the vein, and the strain on the wall of the vein may be considerable (Fig. 2). A pad of cotton-wool should support the weight of the tubing and give it the natural curve required to bring it nicely to the vein (Fig. 1). Sometimes the tubing is left unfastened in the most haphazard way, in which case it waggles to and fro and may tear the vein, so that the transfusion becomes a continuous subcutaneous, not an intravenous, drip. The rate of flow varies considerably if the cannula is loosely held in position, as any movement of the foot or tubing may cause it to kink the vein. Also, the endothelium may be damaged and thrombosis occur. A small stitch, through skin only, just distal to the incision, may be used to tie the cannula in position, and is very effective in preventing any lateral or pulling and pushing movement of the cannula in the vein. When the foot is really securely held the baby feels no pain and does not want to move it. But when things are loose its wriggling causes pain and it tries to work the foot looser still. Leaking may then occur between the adapter nozzle and the cannula. This is another cause of irregularity in the rate of the drip, and the discrepancy between the recorded amount run in and the amount the child has really received may be serious. The arm is much easier to control, and for this reason drips in the antecubital veins generally run smoother and longer than others. But these veins may be difficult to find in fat babies unless they can be seen.

The cephalic vein at the wrist, which corresponds anatomically to the anterior saphenous at the ankle, is serviceable in all but the tiniest babies. It runs midway between the styloid process of the radius and the tendon of extensor carpi radialis. The hand should be splinted palm downwards.

Complications

Sepsis should never occur; but it does. The frequency of its occurrence is directly proportional to the amount of interference there has been in the course of the continuous drip. The case that runs smoothly, for several days even, hardly ever gets infected. But when the dressing is frequently lifted and many readjustments are made infection is apt to creep in. Thrombophlebitis is common but very rarely proceeds to suppuration. An abscess sometimes forms, a week or more later, half-way up the calf. A low-grade infection of the incision is quite common. These complications respond well to appropriate measures, but, occurring in infants who are already much debilitated, should always be regarded seriously. Prevention is embodied in the measures described for getting smoother running of the drip.

Oedema.—Local oedema may be due to the strapping being too tight above the site of transfusion, to the drip being too fast, to tearing or thrombosis of the vein; or it may be the first sign of a developing general oedema. General oedema may be due to too much fluid, too much sodium, hypoproteinaemia, nephritis, sclerema, anaemia, vitamin B deficiency, or circulatory failure. Eucortone may also cause it (Ferrebée *et al.*, 1939). With the exception of too much fluid, it is extremely difficult to distinguish clinically between these various causes of general oedema. In any case of general oedema or pulmonary oedema the drip must of course be discontinued at once.

Bronchopneumonia.—This is still regarded as the most serious and most frequent complication of gastro-enteritis, and the blame is often laid on the continuous intravenous drip. But it must be borne in mind that the majority of cases of infantile diarrhoea and vomiting are due to upper respiratory tract infection, and the infecting organisms may show various propensities for invading the lungs and bronchi in different epidemics and different seasons, regardless of whether continuous drips are given or not. However, there is no doubt that nursing a baby for long periods on its back or maintaining a high salt content in the transfusing fluid does favour pulmonary stasis and oedema, leading to infection, whereas

nursing it on its side and with moderate salt content in the fluid does not.

Petechial Rashes.—These occasionally occur in the later stages in cases of gastro-enteritis that have been given several intravenous drips. They begin as very fine speckled petechiae, chiefly on the trunk, and may develop into ecchymoses or large haemorrhagic taches. They are presumably due to capillary damage. The nature of this is uncertain, but it is not scorbutic, as vitamin C does not prevent it or cure it; nor is it likely to be "toxic," as these rashes do not occur at the most toxic stage of the illness, which is usually the beginning. The probable explanation is the strain imposed on the capillary endothelium by the frequent disturbances of blood volume and alterations in blood chemistry occurring during repeated transfusions. The prognostic significance is not as grave as that of haemorrhagic rashes in general infections, but the outlook is usually very bad for other reasons.

Control over Fluid Input

It has already been mentioned that giving too much fluid constitutes a major risk in the application of the technique of intravenous transfusions to infants.—The following general rules provide a reliable safeguard against this danger and will be found to make for good results.

1. The approximate quantity of fluid required in 24 hours must be calculated in advance and put down in writing together with the child's weight as a check for all to see.*

2. The rate at which this fluid is to be given must be expressed not as drops per minute but as ounces (or cubic centimetres) per hour. This needs special emphasis, for the size of a drop varies with the speed at which it falls and the shape of the dropper; also, the rate of dripping is apt to vary while the observer's back is turned, and a period of slow or rapid dripping may go unrecorded. Therefore even if specially calibrated droppers are used it is impossible but this means to foretell how much fluid will be delivered over a given period of time; the rate of the drip is much too variable. The nurse who is controlling the drip must find by trial and error the approximate rate which will deliver a given amount per hour, and periodically adjust it according to her own judgment to keep the input per hour within such limits.

3. There must be reasonably accurate and reasonably punctual hourly recording of the amount run in. An exceptionally large or small input in one hour can then be corrected in the next.

4. The amounts per hour should be added up as the day goes on; it is then easy to see how far the total for the 24 hours is going to exceed or fall short of the required amount, and adjustment of the hourly quantity can be made accordingly. Fluids by mouth must of course be included in the reckoning.† It is more practical to express intravenous fluid in ounces than in cubic centimetres, as this is the unit by which a baby's fluid intake is normally measured and a unit with which all nurses are familiar. The reading of these hourly quantities on the scale is easier and more accurate if the vacoliter or flask is tall and of small diameter. The Baxter type is not very suitable. In practice it will be found that measurement to within a quarter of an ounce is quite easy on the E.M.S. transfusion bottle, and it is not necessary to try to be more accurate than this.

5. *Strength of Saline to be Used.*—It is now widely accepted that the continuous transfusion of normal saline carries with it the danger of producing hydraemia and oedema, as the infant's powers of excreting surplus sodium chloride are limited. Solutions of approximately half-normal saline, on the other hand, are adequate for replacing lost base in any case of diarrhoea and vomiting, and have not this danger of overloading the body fluids with salt.

6. *Occasions for Extra Caution.*—(i) When any degree of circulatory failure is present much greater caution must be used if overloading the heart is to be avoided. (ii) Babies with "toxæmia," whether it be from "alimentary intoxication," pneumonia, otitis media, or any other infection, have difficulty in retaining fluid given parenterally and in adjusting the balance between intracellular and interstitial fluid. They are liable to remain in a state of chronic dehydration even when given full quantities to cover fluid loss. By contrast the non-toxic dehydrated baby—for example, a case requiring fluid after operation or a pyloric stenosis—when given correct amounts will adjust its fluid balance with ease. If the infection can be overcome the same may be expected of the "toxic" baby; but pushing fluids or attempting to adjust blood chloride levels, etc., by varying strengths of saline is unlikely to achieve anything so long as this persists.

* The actual quantities and rates of transfusion, according to weight of baby, are discussed by Field *et al.* (1943).

† All these points are embodied in the daily fluid chart advocated by Field *et al.* (1943).

Conclusion

Nothing perhaps requires greater emphasis in this paper than that all these points concerning technique should be thoroughly understood by the nursing staff. Some of them may seem trivial, but it is only by constant attention to these details that this method of continuous intravenous drip transfusion will consistently give the good results which are justly claimed or it.

REFERENCES

- Terrebee, J. W., et al. (1939). *J. Amer. med. Ass.*, **113**, 1725.
 Field, C. E., MacCarthy, D., and Wylie, W. G. (1943). *British Medical Journal*, **1**, 371.
 Vilms, M. J. (1938). *Proc. roy. Soc. Med.*, **31**, 755.

TRIGEMINAL NEURALGIA AT AN EXCEPTIONALLY EARLY AGE: CURED BY GASSERIAN ALCOHOL INJECTION

BY

WILFRED HARRIS, M.D., F.R.C.P.

Physician to Maida Vale Hospital for Nervous Diseases; Consulting
 Physician to St. Mary's Hospital

Paroxysmal trigeminal neuralgia—or, better, trigeminal tic—is usually a disease of the latter half of life, four-fifths of all cases starting within the three decades 41–70 and more than one-third in the decade 51–60. Yet occasionally young people are attacked, for I have had more than twenty patients who began to suffer before the age of 21—two of them at the age of 12. The earliest hitherto recorded case in my knowledge is that of a boy aged 10 operated on by Mr. Barclay (1922) of Newcastle.

Case History

I have now to record the case of a girl who had been suffering since the age of 16 months from frequently repeated daily spasms of pain, lasting a few seconds only, and referred to the left lower jaw up to the ear. She was a Caesarean baby, weighing 9 lb. at delivery, and between the ages of 4 and 5 months had won no fewer than four prizes at baby shows. Yet her dentition did not start until she was 12 months old, and from the age of 16 months she began to have obvious pains with her teeth, paroxysms of a few seconds' duration occurring frequently during the day, and often waking her, screaming, at night. At first the neuralgic attacks seemed to affect both sides, until she completed her milk dentition at the age of 3 years—a year later than the average. Since then the attacks have been definitely limited to the left side, being referred along the lower jaw to the ear, and lasting a few seconds only.

She was first brought to me on July 3, 1942, when less than 4½ years old, and on several occasions I witnessed the sudden attacks of pain, lasting only from a few seconds to a quarter of a minute; the child immediately afterwards becoming quite normal in behaviour. Radiographs of the mandible showed no bone or dental abnormality. She had previously been treated at Great Ormond Street Hospital, and drugs seemed to have no influence on the neuralgic spasms, so I decided on alcohol injection of the foramen ovale. This I attempted on Aug. 21 under preliminary rectal paraldehyde and then ethyl chloride inhalation. No co-operation with the little patient was possible by such a method, and the result was not good: anaesthesia of the third division was slight, if any, and freedom from pain lasted only a couple of days. Three other attempts were made under general anaesthesia in September and November, using the lateral route, without obtaining lasting trigeminal anaesthesia, though after the injection on Nov. 18 she had very few attacks of pain for ten days, then relapsing as before. On Dec. 9 I again injected under a general anaesthetic, using the anterior route in front of the coronoid process, and this time produced complete left trigeminal anaesthesia, after injecting 8 minims of 90% alcohol into the Gasserian ganglion. The neuralgic spasms died away within two days, and she has had no further signs of neuralgia up to the present time—seven months after the injection—though some keratitis developed during the last week of December, with some temporary loss of the superficial corneal epithelium. She was taken into Maida Vale Hospital at once, and the keratitis cleared up completely under treatment, and the cornea now shows no sign of opacity or scar. With the exception of a mild attack of German measles while being treated for the keratitis she has remained perfectly well, and, though the trigeminal anaesthesia persists unaltered, the child does not appear to take notice of it, and is quite merry and bright.

Comment

As regards the prognosis, it is quite probable that the cure will be permanent, as I have found in numerous other similar cases in adults. There is a possibility of recurrence of neuralgia on the other side, for I have met with bilateral trigeminal tic in at least 100 cases, and its incidence, in my experience, seems to be between 4 and 5% of the total cases seen. Sometimes the neuralgia appears on both sides within the period of a week, but more often there is an interval of several years. One of my patients, a lady of 64 when I first saw her eighteen years ago, had suffered since the age of 12 with typical neuralgic tic on the right side of the face—that is, for 52 years. Gasserian injection cured that pain completely; but fifteen years later, when she was 79, similar neuralgia attacked the left side, and I had to inject the left Gasserian ganglion also, thus numbing both sides of her face completely. Sixty-seven years therefore separated the onset of the neuralgia on the two sides. The left motor root had recovered after the first Gasserian injection, as is usually the case, and therefore she had no jaw-drop after the second Gasserian injection.

The probability of bilateral pain probably increases with the length of duration of the disease, so that in the case of the child described above, whose pain was at first bilateral, there is a distinct possibility that the pain may recur at some future date on the right side.

As regards the aetiology of trigeminal tic, it is usually stated in medical and neurological textbooks that the cause is unknown. I have for many years been convinced that the cause is an infective neuritis of the trigeminal-nerve endings in the maxilla or mandible, in the large majority of dental origin, though occasionally secondary to antral infection. This view I have consistently taught, and have published on various occasions, with my reasons for this belief (Harris, 1926, 1937, 1940).

In the case of this little child, otherwise very healthy and not in the least degree of neurotic type, the acute onset of the neuralgia with commencement of her teething is most suggestive evidence of the close connexion between dental disturbances and the origin of trigeminal tic.

REFERENCES

- Barclay, J. H. (1922). *Brit. J. Surg.*, **9**, 305.
 Harris, Wilfred (1926). *Neuralgia and Neuritis*, p. 162. Oxf. Med. Pub., London.
 — (1937). *The Facial Neuralgias*, p. 25. Oxf. Med. Pub., London.
 — (1940). *Brain*, **63**, 215.

THE AVAILABILITY OF THE CALCIUM OF MILK

BY

KATHARINE H. COWARD, D.Sc.Lond.

ELSIE W. KASSNER, F.I.C.

AND

LETTITIA W. WALLER

(From the College of the Pharmaceutical Society, London)

The experiment reported here was carried out in response to criticism of our experiments published in this *Journal* (Coward, Kassner, and Waller, 1938). In the early experiments we had shown that rats fed on a diet resembling that of a poorer-class population and supplemented by liberal doses of cod-liver oil failed to produce normal calcification of the bones, but that the calcification was improved in proportion to the supplementary doses of a mixture of calcium and phosphate salts given. In fact, the highest dose of salt mixture produced as high a percentage of ash as did a supply of milk *ad lib.* each day. It was not, however, from a comparison of results of these apparently excessive doses that we drew our conclusion of the relative availability of calcium from milk and from salts, but from the result of giving only 5 ml. of milk to one of the groups of rats. Unfortunately we had not determined the calcium content of the milk given, for this comparison was not the purpose of the experiment. Judging by the percentage of ash found in the bones, however, the milk apparently contained only 0.76 g. of calcium per litre. Since the average calcium content of cow's milk is 1.12 g. per litre, we thought it very unlikely that the sample we used could

Table summarizing Effects of giving Extra Calcium (a) as Milk. (b) as Inorganic Salts, on Increase in Weight, Weight of Dry Fat-free Bone, Weight of Ash in Bone, and Percentage Ash of Bone in Rats fed on a Diet similar to that of the Poorer Classes

Group	Supplement	Total Calcium Intake per Day (mg.)	Average Increase in Weight in 5 Weeks (g.)		Average Weight in Dry Fat-free Bone (g.)		Average Weight of Ash (g.)		Average % Ash in Dry Fat-free Bone	
			♂	♀	H.	F.	H.	F.	H.	F.
1	0.02 g. salt mixture	7.95	54.75	46.75	0.05520	0.10329	0.02458	0.04590	44.48	44.44
2	0.04 " "	9.90	57.00	57.25	0.06046	0.11599	0.02913	0.05255	48.15	47.60
3	0.08 " "	13.80	54.75	60.75	0.06466	0.12139	0.03291	0.06195	50.94	51.04
4	3 ml. milk	9.60	66.75	66.75	0.06023	0.11555	0.02833	0.05430	46.98	46.98
5	6 " "	13.20	79.75	75.00	0.06890	0.13819	0.03350	0.06546	48.72	47.49
6	9 " "	16.80	91.00	75.00	0.07916	0.15684	0.04116	0.07980	52.02	50.96

* Including an average of 5 mg. from diet plus 1 mg. from drinking-water.

have contained as little as 0.76 g. This led us to wonder whether the calcium of cow's milk was less available to the rat than that of inorganic salts. However, Kon (1938), who summarized the evidence on this point to date, pointed out that we had not taken into account the fact that the rats which had received milk had grown more than those which had received the salt mixture. Gaunt *et al.* (1938), also contended that without figures for the total calcium and phosphorus content of the animals the relative availability of these elements from different sources can only be decided by balance experiments.

We admit that the criterion of calcification should be total ash content of the bones and not the percentage of ash, but we maintain that if equal amounts of calcium from different sources are equally effective in promoting calcification in any bone (or preferably bones), then the calcium in those sources must be equally available to the animal which demonstrated the effectiveness.

We therefore carried out another experiment in which we determined the calcium content of the milk and of representative whole-day rations of the other foods given, and in which we grouped the animals in a manner better suited to this particular comparison. We used as the criterion of calcification the total ash content of the dry fat-free (a) humerus and (b) femur. We found that the total ash content of both bones was very slightly higher, but not significantly so, in the rats given extra calcium in milk than in the rats given equal amounts of calcium as inorganic salts. The calcium in each of these sources supplied from a quarter to two-thirds of the rats' total intake of calcium.

Experimental

Eight litters of six rats each were distributed, litter by litter, into eight groups, the numbers of males and females in each group being equal. Each rat was housed in a separate cage and fed on a diet similar to that of the "poorer class," being given weighed portions of each food daily and slightly more than enough white bread to satisfy appetite. In addition, each rat was given a daily dose of 0.12 g. of cod-liver oil. Supplements given were:

Group 1:	0.02 g. of a calcium and phosphate salt mixture
" 2:	0.04 " " " " " "
" 3:	0.08 " " " " " "
" 4:	3 ml. of pasteurized milk
" 5:	6 ml. " " " " " "
" 6:	9 ml. " " " " " "

London tap-water (Bloomsbury district) was supplied *ad lib.* and the amount taken daily estimated. Each rat was weighed once a week. The calcium contents of a bulked sample of a typical 5-weeks ration for one rat and of the milk given were determined. The experiment was carried on for five weeks. The salt mixture given consisted of:

Disodium hydrogen phosphate, $\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$	35.8
Dipotassium hydrogen phosphate, K_2HPO_4	69.6
Calcium phosphate, $\text{Ca}_3(\text{PO}_4)_2 \cdot 4\text{H}_2\text{O}$	68.8
Calcium lactate, $\text{C}_6\text{H}_{10}\text{O}_7\text{Ca}_2$	15.4
	189.6

Results (Summarized in Table)

Increase in Weight of Whole Animal.—The rats given the various doses of the salt mixture increased in weight at almost the same rate—the males at about 11.1 g., the females at the same rate. The response of the rats given graded doses of milk was that of those given the salt mixture, the increase in

weight of the three groups of male rats was 13.4, 15.95, and 16.2 g., and of the three groups of female rats 12.25, 13.4, and 15.0 g. respectively.

Weight of Fat-free Bones (Humeri and Femora).—The dry fat-free bones of the rats given supplements of milk were slightly heavier than those given equal amounts of calcium as inorganic salts, humeri being 5.64% and femora 9.55% heavier.

Weight of Total Ash of Fat-free Bones (Humeri and Femora).—The total ash of the dry fat-free bones of the rats given milk was very slightly heavier than that of the rats given equal amounts of calcium as inorganic salts, the ash of the humeri being 3.68% and that of the femora being 6.58% heavier. Considering that the calcium supplied in the supplements constituted from 25% (lowest dose of salt mixture) to 67% (highest dose of milk) of the total calcium intake, these figures cannot be considered as indicating that the calcium of milk is more easily available than that of inorganic salts.

From these figures it follows that the percentage ash of the bones of the rats receiving milk supplements was less than that of the rats receiving inorganic supplements, the humeri of the "milk" rats containing only 98.15% and the femora only 97.29% of the percentage ash of the "salt mixture" rats. These figures also cannot be considered significant.

Method of Calculating the Results

In order to obtain the ratio between the weight of bones given equal amounts of calcium as (a) milk or (b) inorganic salts, the average of the logarithms of the weight of the bones was plotted against the total calcium intake. (If plotted against the amounts of calcium taken as supplements these lines would be shifted equal distances to the left; the slopes and intercepts apart would not be affected.) The best straight line through each set of three points was determined, the slope of the two lines calculated, lines with this slope drawn through the points with average y and x values, and the distances between them determined. This was the logarithm of the ratio between the weights of the bones of the rats over their intake of calcium.

A similar calculation was made to obtain the ratio between the total ash contents of the bones of the rats.

Summary and Conclusions

Graded doses of (a) milk and (b) a calcium and phosphate salt mixture were given daily to groups of rats, 8 in each group, weeks fed on a "poorer-class" diet liberally supplemented with cod-liver oil for vitamins A and D. Determinations of calcium intake of each group were made. It was found that the dry fat-free humeri and femora of the rats receiving milk were slightly heavier than those of rats receiving inorganic salts.

The ash content of these bones of the "milk" rats was slightly greater than that of the "salt mixture" rats. It follows that the percentage ash in the bones of the rats was slightly less than that of the "salt" mixture rats. None of these differences can be considered significant.

It is realized that the supplements supplied from 25 to 67% of the total calcium intake.

It is concluded that the calcium of milk is not as easily available for calcification to the growing rat as inorganic salt mixture which contains also an adequate amount of phosphorus.

REFERENCES

- Coward, K. H., Kassner, E. W., and Waller, L. W. (1938) *Journal*, 1, 59.
Gaunt, W. E., Irving, J. T., and Thomson, W. (1938). *British Journal of Nutrition*, 9, 242.
Kon, S. K. (1938). *J. Dairy Res.*, 9, 242.

Medical Memoranda

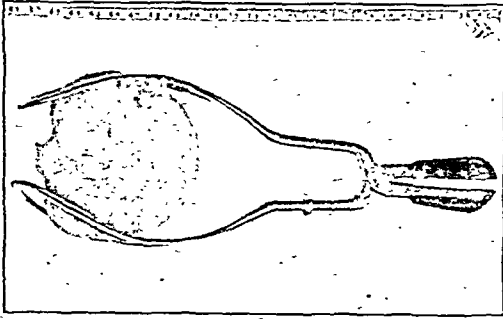
Obstetrical Forceps for Fibroid

Many stories have been told of doctors who in times past have applied forceps to fibroids in the belief that they were foetal heads. I am unaware of any record of a vaginal forceps application to a fibroid being deliberately performed, and as the anaesthesia has on two separate occasions in a relatively short time been of considerable assistance, I believe it may be useful to draw attention to the fact. There is also scope for the use of these instruments during myomectomy by the abdominal route.

CASE RECORD

A woman aged 52, with two children aged 23 and 8, was admitted to an emergency to the Radcliffe Infirmary on March 13, 1943. She was bleeding badly at the time of admission, was very anaemic, and gave a history of recurrent severe losses of progressive amount for the past year. Prior to this, menstruation had been regular, of the 28-day type, and the losses were moderate. For some months there had been progressive difficulty in micturition, with frequency and straining.

On admission the patient had a temperature of 99°, pulse 116, and respiration rate of 22. She was well nourished but very blanched. A firm mass could be felt in the midline, rising from the pelvis and apparently the size of a 14-weeks pregnancy. Vaginal examination



showed that this mass was a fibroid filling the pelvic cavity and projecting into the abdomen. The examining finger could not be passed above the tumour to identify the cervix, through which it was apparent the fibroid had been extruded. Transfusion was started and three pints of blood were given slowly. While the third pint was running, the patient, whose condition was now much improved, was taken to the theatre. The previous findings were confirmed, and after catheterization light obstetrical forceps (Wrigley pattern) were applied to the tumour. It was found that gentle traction did not reduce any appreciable descent; the pedicle could not be reached, and it was therefore necessary to remove the tumour by torsion or forcible removal. An episiotomy was performed and the forceps were only rotated. The tumour twisted so easily that it was obvious prision of the uterus could not be occurring, and with surprising ease the fibroid (see Fig.) separated at the base of its pedicle and was delivered. The uterus was small, no other fibroids were present, and there was practically no further haemorrhage and none from the pedicle. As no bleeding-point on the tumour was found it was obvious that the severe haemorrhages had been uterine in origin, and that there was no endometrial hyperplasia. The probable cause was due to its position and size the fibroid was elevating the uterus, stretching the uterine vascular pedicle, and thus producing a state of severe chronic congestion.

I have seen a similar case of severe anaemia due to constant bleeding from a normal uterus elevated into the abdomen by the pelvis filled with chronic faecal accumulations. In both cases cessation of bleeding occurred when the two different congesting causes were removed, and in both cases menstruation has since been normal.

Oxford.

JOHN STALLWORTHY, F.R.C.S.

The most effective and simple method of cleansing dairy equipment is by steam sterilization, but since any considerable extension of this method is impracticable at the present time, the Minister of Health (Circular 2319) has made new Regulations permitting the use of sodium hypochlorite solutions for this purpose. Approved solutions, a list of which is given in the circular, must have a total available chlorine content of between 9 and 12% w/w and not less than 0.7% of sodium chlorate to act as a "detector" should sodium hypochlorite solutions get into the milk. Copies of the Regulations can be obtained from the Stationery Office.

Reviews

ANATOMY OF MORALE

The Structure of Morale. By J. T. MacCurdy, Sc.D., M.D. (Pp. 224. 8s. 6d.) Cambridge: The University Press. 1943.

Dr. MacCurdy is a well-known authority on psychopathology, and this book should have a wide appeal at the present time, especially as it is lucid and refreshingly free from technicalities. Based on the same sound biological foundations as Rivers and Trotter, it will also appeal to students of the more objective sciences, some of whom are a little apt to look askance at the psychological approach. At the outset he reminds us that the emotional, as distinct from the rational, side of our lives belongs to the mind that we share with animals. This naturally leads on to a study of the conditioning and de-conditioning of reactions (which he prefers to the label of "reflexes"), and thence to a searching analysis of the nature of fear in the light of such information. Not merely are we all liable to fear, we are also prone to be afraid of being afraid, and the conquering of fear produces exhilaration. The Germans in their exploitation of terror had not studied sufficiently the ways in which people may adapt themselves to actual or threatened danger. They themselves had the worst of all possible preparations in having been assured that no enemy aeroplane could penetrate their defences. Behaviour in the face of danger rests on previous emotional adaptations to "signals" just as with Pavlov's dogs. Thus evacuation has increased neurosis, while sticking at the job has tended to reduce it; what is really terrifying about any danger is inability to cope with it. Anticipation of ordeals may lead by training to proficiency in facing them. When there is a deadlock between a striving to do something and an inhibition which keeps it in check, fear arises. This section ends with a discussion of panic fear.

The second section deals with the basis of morale, starting from Wilfred Trotter's distinction between the union of cells to form a new unit, the body, and the integration of individuals to form a herd. In the former the co-operation is physiological, in the latter psychological. With man the "herd voice" is not merely a signal for instinctive responses, it has evolved into a body of traditional group experience. For man, he never so individual, can never escape his biological fate of being a herd animal. To this profound influence of tradition Dr. MacCurdy attributes the varying reactions of different nations under stress, attaching great importance to this as a factor in British morale. The German Empire and the kingdom of Italy, on the other hand, are but recent growths, and the effects of this on morale are skillfully dissected. He tactfully omits detailed discussion of French morale, and reserves his severest denunciation for that of Japan: "Humanity is not in their vocabulary . . . no cure for this cancer . . . except its extirpation." He concludes that the fundamental differentiation of democracy from the authoritarian States lies in its treatment of minorities.

Space prevents reference to the third section, on organization. Suffice it to say that this book is full of good things; it is interestingly written and, despite the gravity of the subject, entertaining.

ORTHOPAEDIC AND INDUSTRIAL SURGERY

The 1942 Year Book of Industrial and Orthopaedic Surgery. (Pp. 424. Illustrated. 19s.) Chicago: The Year Book Publishers.

This little volume gives a brief and pithy account of many interesting recent developments in orthopaedic and allied subjects. The editor is to be congratulated on his choice of material and the way in which it is presented. To the busy surgeon who finds it difficult to keep abreast with the large volume of literature which he should read to keep up to date such a book is invaluable. The subjects range from tuberculosis of bones and joints to all forms of fracture and dislocation, and bone tumours. A short concluding section deals with special problems of industrial medicine and surgery. The section on fractures of the neck of the femur, Volkmann's contracture, fractures of the patella, and fractures of the humerus are

of special interest. Many of the abstracts are supplemented by a brief editorial note, giving the editor's personal opinion.

There is one minor defect which is difficult to remedy in a book of this size. So far as is possible the illustrations correspond with the text, but in some instances the illustrations of one article overflow into succeeding pages and become divorced from their own text. A great deal of the value of the book lies in the excellence and multiplicity of its illustrations, so that they should not be cut down. The small size of the pages makes it difficult to balance the illustrations with the relevant texts.

VENEREAL DISEASES: A POPULAR BOOKLET

Venereal Disease in Britain. By Sydney M. Laird, M.D., Ch.B., F.R.F.P.S.G., D.P.H. (Pp. 80. 9d.) Harmondsworth: Penguin Books Ltd. 1943.

Many people have long been seeking information about venereal disease; now they have got it in *Venereal Disease in Britain*, by S. M. Laird. The publication of this little book written in popular language is more than welcome and cannot be considered a coincidence; the author knows his subject and proceeds to set out briefly the history of venereal disease, what it is, how prevalent it is, and how he thinks it should be dealt with. The facts are presented clearly and succinctly; the descriptions of gonorrhoea and syphilis could hardly be bettered, and the chapter entitled "The Tragedy of Venereal Diseases" is a picture by no means overdrawn. It calls to mind Brieux's *Damaged Goods*, and should serve to emphasize the axiom that early recourse to skilled aid is the way to avoid serious consequences which might otherwise wreck the lives of whole families.

It is when the author turns to the control of venereal disease by compulsory methods that he is on less sure ground. Is it certain that measures which have admittedly been successful in Sweden will be equally successful in Britain? Certainly there is much food for thought in the suggestions put forward; but those who are interested in the pros and cons of compulsory measures will do well to read in connexion with Dr. Laird's proposals the report of the British Mission¹ which visited Scandinavia in 1937 before coming to a definite conclusion. It seems very doubtful whether this country is yet ripe for full compulsion; legislation can hardly go ahead of public opinion.

This really excellent little Penguin Special deserves a very wide circulation. It is written for the man in the street, and all young men and young women will do well to ponder carefully over the lesson which it teaches; by so doing they may dispel their ignorance and save themselves and others much misery and many reproaches.

¹ Reports on Public Health and Medical Subjects, No. 83, 1938.

Notes on Books

The *Wilson Hospital in the Front Line* tells the story of the expansion of this Mitcham hospital (provided for the district by Sir Isaac Wilson) from a peacetime size of 72 beds to 123 beds as an "advanced base" hospital under the E.M.S., and of its work during the raids of 1940-1 for the injured of Mitcham. This locality had its full share of the horrors of that time, and the pamphlet (price 6d.) describes a typical night at the hospital during the height of the "blitz"—a story reflecting what organization and hard work efficiently and ungrudgingly performed can achieve under frequent air attack.

Preparations and Appliances

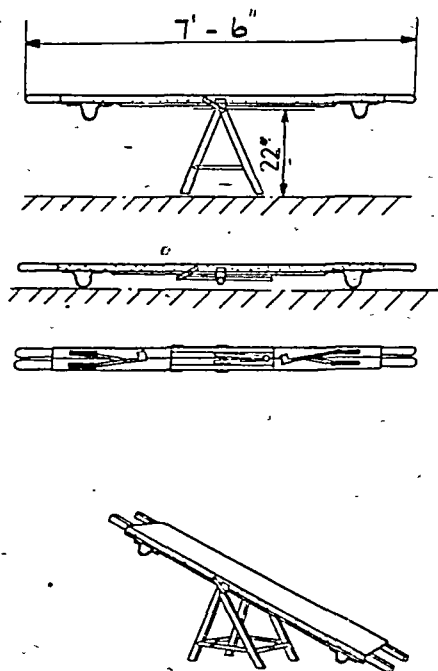
ROCKING DEVICE FOR ARTIFICIAL RESPIRATION

Dr. JOHN R. LAHIFF, a Major in the Home Guard, writes:

Since the publication of that admirable article by Surg. Lieut. G. H. Gibbens (*British Medical Journal*, 1942, 2, 751) I have been advocating in my lectures the use of Eve's rocking method

little time for invention when a drowning man is on deck." Surely we should not have to depend on improvisation when the possibility of the method being required is so universal and urgent, especially at sea and—who knows how soon?—"on the beaches."

The following is a description of a device which it is hoped might meet the situation. In the interests of brevity a diagram is included.



1. It will be seen that use is made of an ordinary stretcher.

2. The trestle arrangement is a fixture, and in no way interferes with the normal use of the stretcher as such.

3. The additional weight is only 4 lb., and the floor-clearance is not affected.

4. It can be opened and placed in working position in under 30 seconds. Thus the time-lag occasioned by improvisation is eliminated, as is also the confusion associated with the necessary coincidental initiation of artificial respiration by Schäfer's or Silvester's method.

5. It can take a person of any weight.

6. It will be seen that the height of the trestle is only 22 in., as compared with 32 to 34 in. as suggested by Gibbens. The purpose of this reduction in height is to ensure a uniform amplitude of "rock." The operator is instructed to hit the deck with the pole-ends at the completion of every rock. It is hoped that in this way an arbitrary amplitude will be avoided, and as a result a more regular rhythm rendered likely and a more uniform periodicity established. An initial sudden jerk of the "head" end downwards at 30 degrees would serve the same purpose as Gibbens's initial dip at 50 degrees.

7. The lower trestle also enables the operator to work the stretcher from the kneeling position. This is considered important, as back-bending would be unnecessary; it is far less tiring, and relays are therefore not required.

8. It is considered advisable that the operator should work at the head end of the stretcher, as he can then observe any signs of return to normal breathing and be ready to alter his rhythm.

9. The device is inexpensive, especially if provided in large numbers.

It is suggested that if all stretchers were to be fitted with such a device a great saving of life might be effected, especially at sea in wartime. They might usefully be included in the equipment of docks, canals, electric-power stations, bathing-beaches, swimming-pools, coal mines, etc.

I wish to record my gratitude to Major D. Walker, 71st Batta. (Ormskirk) H.G., both for his drawings and his help in providing a working model.

of artificial respiration. To most audiences the principle of the idea is readily acceptable and the little skill necessary to its application quickly acquired. Various suggestions for improvisation have appeared in the *Journal* and have emerged from demonstrations I have given. But, as Gibbens says, "there is

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY JULY 10 1943

PROBLEMS OF HYPERTENSION

If any confirmation were needed of the frequency of hypertension it is provided by a recent study in the United States.¹ Defining hypertension as a blood pressure of 150 systolic and 100 diastolic or higher, the authors found that about one-third of the male population and over two-fifths of the female population at ages 40 and over had hypertension. So common a disease has naturally inspired a great deal of study, and visitors to America shortly before this war often came away with the impression that every clinic in the U.S.A. was working on the disease. So much literature has resulted from this activity that it has been impossible for the ordinary reader to keep pace with it, and many will be grateful to Prof. G. W. Pickering for making this the subject of his Oliver-Sharpey lectures, printed in this and our last issue. Pickering points out that a raised blood pressure, like a raised temperature, is a symptom which need not always have the same pathological basis. High blood pressure may be considered in relation to three main types of disorder. The first and most important is constituted by essential hypertension, chronic nephritis, and coarctation of the aorta. The second includes acute nephritis and the toxæmia of pregnancy, and the third is the rare form of hypertension due to excessive secretion of adrenaline by tumours of the adrenal medulla. Clinically, toxæmia of pregnancy resembles acute nephritis in respect to hypertension, albuminuria, and generalized oedema, and in both conditions there may be subsequent development of permanent vascular disease.² They differ from the first and major group of hypertensive cardiovascular disease in that the renal blood flow is not decreased, and, in acute nephritis at all events, the hypertension can be prevented by renal denervation.

The major facts which appear to have emerged in reference to the main group of hypertensive diseases are that the vasoconstriction is not neural in origin and that the renal blood flow is decreased. One of the chief stimuli to recent research has been the demonstration by Goldblatt that constriction of one or both renal arteries results in severe persistent hypertension with normal renal excretory efficiency as measured by urea clearance, a condition closely similar to essential hypertension in man. The steps by which it has been proved that essential hypertension is not due to structural changes in the arteries or to sympathetic overactivity are clearly shown in Pickering's lectures. The changes in the circulation are very different from those produced by neural vasoconstriction or by the adrenal and posterior pituitary hormones, in which the skin is depleted of blood. Pickering's calculations suggest that in essential hypertension there is a 40% decrease in the blood flow to the kidneys, a 60% increase to the muscles, and a 10% increase to other tissues such as the skin and the brain. It is also generally agreed that in the kidney vasoconstriction affects particularly the efferent glomerular arterioles. Very characteristic changes in renal function can be demonstrated by the searching method of the study of the clearance of inulin and diodrast. This demonstrates that the

tubular excretory mass or total function of the kidney is greatly reduced. The effective renal blood flow is also reduced, while the rate of glomerular filtration is much less reduced than the tubular function, so that the fraction of the renal blood flow filtered off in the glomeruli is increased.

It would seem appropriate to explain all these effects in terms of the Goldblatt experiment and its humoral consequences. When the blood flow to the kidney is restricted a substance renin is produced. Renin is a ferment, and it reacts with the alpha globulin of the plasma (hypertensinogen or renin-activator) to form a fairly stable substance, hypertensin or angiotonin, which produces the same type of rise in blood pressure as is found in essential hypertension.³ One might therefore expect that the primary disturbance in essential hypertension and chronic nephritis is a structural lesion in the kidney which produces a change in the blood supply to the glomeruli akin to the Goldblatt experiment, and it is indeed such a lesion of the afferent arterioles which Pickering postulates in his final hypothesis. The suggestion is made difficult of acceptance by the work of Castleman and Smithwick.⁴ These authors took biopsy specimens of kidney and muscle during the operation of sympathectomy for the treatment of high blood pressure. The average pressure in their hundred patients was 210/130, and the hypertension had been present for about six years. Nevertheless 28% of the biopsies showed no or insignificant vascular disease, and in an additional 25% there were only mild changes. It is clear that the end of the story is not yet told. Vascular changes in the kidney aggravate hypertension and produce a vicious circle, but it does not seem that the time has yet come to abandon the orthodox view that the hypertensive state precedes the renal vascular disease in many cases. We may have to look elsewhere for the primary disturbance of the renin-hypertensin mechanism that sets the fatal engine of destruction to work.

The clinician looks to research not for a sign but for a cure, and he will be anxious to know whether these discoveries have led to any advance in therapeutics. The answer unfortunately is: Not yet. The theoretical basis of the treatment of hypertension by sympathectomy has been undermined, though many would still defend the operation on its results in practice. It provides an opportunity to explore the adrenal glands and has revealed the unsuspected frequency of tumours. Seven of Castleman and Smithwick's patients had tumours of the adrenal glands, and two of them were pheochromocytomas of the medulla, which had presumably provoked the hypertension. The only immediate application of the Goldblatt experiment is the realization that hypertension may be produced by unilateral renal disease and may be relieved by unilateral nephrectomy. The disease must be of a type to produce atrophy and vascular sclerosis, and these conditions may be found in pyelonephritis and calculous nephritis. In hypertension of recent origin in the young subject it is always worth thinking of the possibility of unilateral renal disease and the relief of the hypertension by nephrectomy, though the chances of lasting improvement should not be rated too high. The possible medical applications of the renin-hypertensin mechanism seem more hopeful, though we are still in the land of surmise. Renin acts more powerfully in recently nephrectomized animals, and repeated doses of renin in intact animals rapidly diminish in effect. This and other evidence has led to the hypothesis of an angiotonin-inhibitor or hypertensinase which is secreted by the kidneys and to a lesser extent by the intestine. Extracts of kidney have therefore been prepared for the treatment of hypertension in experimental animals and man, but the

¹ Master, A. M., Marks, H. H., and Dack, S., *J. Amer. med. Ass.*, 1943, 121, 1251.

² Dexter, L., Weiss, S., Haynes, F. W., and Sise, H. S., *ibid.*, 1943, 122, 145.

³ Pincus, A. A., and Page, I. H., *ibid.*, 1943, 122, 135.

⁴ Castleman, B., and Smithwick, R. H., *ibid.*, 1943, 121, 1256.

effects are often clouded by the presence of pyrogens and toxic principles which may themselves lower the pressure. Nevertheless, some of the results obtained are full of promise.⁵

EPIDEMIOLOGY OF DIPHTHERIA

The response to the campaign for immunization against diphtheria, despite the publicity given to it, has not been large enough to attain the desired result of eliminating diphtheria as a major cause of mortality. At a recent Press conference at the Ministry of Health the Chief Medical Officer stated that about half the child population had been immunized, and a drive to increase this proportion to at least three-quarters was to be made. In these circumstances the report by W. T. Russell⁶ has a topical interest. This paper gives an excellent statistical review of the trends of mortality and morbidity during the past 40 years and a chapter on immunization.

The mortality from diphtheria during this period has fallen by approximately 60% in England and Wales. Among the factors that may have been responsible for this reduction are: a possible change in the type of the disease; the improved social conditions of the last two decades, which may have increased the recuperative powers of those attacked; an increase in the proportion receiving hospital treatment at an earlier stage of the disease; changes in method of treatment. Hospital records support the last two suggestions. The case fatality rises rapidly as the length of the interval between onset and administration of antitoxin increases, and the curve of fatality reaches an asymptotic level at the fourth day, after which the progress of the disease is not influenced to any extent by antitoxin treatment. An example of changes in treatment is provided by the London hospitals. In 1916 the average dose of antitoxin was 16,607 units per patient, and in 1925 it was 26,335, while the corresponding average case fatality was 12.2 and 4.8. The decline in mortality has not been uniform for each age group but has fallen more rapidly for the pre-school ages of 0-5 than for the school ages. In the quinquennium 1906-10 the death rates at ages 0-5 was 163% and at ages 10-15 it was 15% of the rate at ages 5-10. In 1931-5 the death rate at ages 0-5 had dropped to 95% of the rate at ages 5-10, while the death rate at ages 10-15 had risen to 24%. An entirely different trend was observed in the U.S.A., where the rate at ages 1-5 rose from 207% of the rate at ages 5-10 in 1920-4 to 315% in 1935-8, while the rate at ages 10-15 fell from 26.4 to 22.0% of the rate at ages 5-10 during the same period. The fall in the birth rate and improvement in environmental conditions are the factors that were responsible for trend of the mortality in England and Wales. A study of the London rates shows that in the residential areas the rate at ages 0-5 as a percentage of the rate at ages 5-15 remained practically constant at 210 during the last 30 years, while in the densely populated areas the index fell from 637 during 1911-13 to 231 during 1937-8. As a result of the decreased birth rate the families in the overcrowded areas have become smaller; the children are not exposed to the same intensity of infection as formerly, and now tend to have a risk of infection that approximates to that of children in residential areas. The result is that in the poorer areas relatively more children contract the disease and die of it during school life than used to be the case. The opposite trend experienced in the United States was probably due to concentrating at first on immunizing the

school child, and the relative greater reduction of mortality at these ages indicates the efficacy of controlling the death rate from diphtheria by active immunization.

The annual case rates—based on the total population because the age of the patient is not notified to the Registrar-General—show a slightly rising trend during the past 30 years. The case rate fluctuated between 105 per 100,000 population to 186 during this period. The child population at ages 0-15 has declined from 32% of the total population in 1901 to 24% in 1931, and the slight rise in the notification rate means that there has been an increased incidence among children unless the incidence among adults has become greater. This may not be a real increase, because more attention is now paid to this disease and the number of doubtful cases has grown. Although a case is notified as diphtheria, no correction is made in the returns when a different diagnosis is arrived at in hospital. The diagnostic error in London was 15% in 1901-2, 23 in 1928-9, and at the North-Western Fever Hospital in 1931 it was nearly 50%. The incidence of morbidity in London follows the trend of mortality; the children aged 0-5 in the densely populated districts have a higher incidence than those in the residential areas; but whereas the children aged 5-10 in the residential areas had a rate in excess of those in the densely populated areas during the first part of this century, the position was reversed at the end of the period. A similar change in the adult notification rate in London was noted. In the first part of the period the rate for adults was greater in the residential districts, but at the end of the period the rate was lower than in the overcrowded boroughs. No national statistics of age incidence are available, but the reports of the local M.O.H. suggest that variations exist between the age distributions of different areas. During 1936-7 one-third of the cases notified in London were aged 0-5, while in Manchester one-fifth of the cases were in this age group, although the children in the group formed 7.52% of the population in Manchester, compared with 6.76 in London.

Russell reviewed trends of diphtheria in New York and Toronto, where inoculation has been intensively practised. He concluded that there is strong evidence that immunization has lowered the mortality and morbidity rates in both cities. Although the incidence had been declining before immunization was introduced, the statistical evidence of diphtheria in both cities is significantly better than would have been expected from the trend of either mortality or morbidity in the pre-immunization period. In the pre-immunization period an epidemic occurred at intervals of six years in New York and four years in Toronto, and therefore epidemics should have appeared in both cities between 1930 and 1940 but did not. The proportion of children immunized in the county borough of England is in sharp contrast to New York City and Toronto: there were two towns, Hastings and Hull, where fewer than 50 per 1,000 had been immunized during 1940, and only one town, Lincoln, where half the children had been immunized. A comparison of the experience of the large county boroughs with a population of 150,000 or more shows some interesting contrasts. Hull and Liverpool had the highest death rates, 72.7 and 60.5 per 100,000 of the population aged 0-15, and the highest notification rates 278 and 253, and the lowest proportion of children immunized, 47 and 57 per 1,000 respectively. Bolton and Newcastle with large immunization rates of 346 and 306 had death rates of only 17.9 and 19.7. A negative correlation was found for immunization and both mortality and morbidity, though the former was not statistically significant.

The discovery and classification of three types of diphtheria bacilli—mitis, intermedius, and gravis—has enlarged

⁵ Page, I. H., and Corcoran, A. C., *Advances in Internal Medicine*, 1942, 1, 183.

⁶ *The Epidemiology of Diphtheria during the last Forty Years*, by W. T. Russell, D.Sc. Med. Res. Cncl. Sp. Rep. Ser. No. 247. H.M. Stationery Office. (1s.)

he scope of diphtheria statistics. The last two are generally said to be the severe forms of the disease and have a high fatality, while infections of the first type are milder. From the data available it appears that gravis is now the prevailing type, but there is not enough statistical evidence to show that this type is always accompanied by a high mortality. There is evidence that the type of infection varies within a district. The predominant form in Edinburgh during 1936 was intermedius with 54.4%, and gravis formed only 28.1% of the infections, but as a result of a continuous rise in the proportion of gravis the percentages were 83.3 for gravis and 10.8 for intermedius in 1939. In 1937 the most frequent type in Liverpool was mitis, 41.1%. This proportion fell to 11.1 by 1941, while during the same period gravis rose from 34.2 to 71.1%. The experience of Southampton showed that the types were in constant proportions during the years 1936-40, with about two-thirds of infection due to mitis. The changes in the type incidence may be related to the proportion of immunized children, but the data are not large enough to make this more than a suggestion.

ACTION OF DIGITALIS

For many years it was believed that digitalis influenced the heart mainly by a vagal action which slowed the rate. This belief arose from the fact that digitalis was regarded as a specific in the treatment of auricular fibrillation; and it is only after some 30 years of clinical and laboratory study that attention is now more specifically focused upon the action of digitalis on the heart muscle. Thus Gold and his co-workers¹ showed that the slowing brought about by small doses of digitalis in man was abolished by large doses of atropine. This vagal slowing could be attributed to a reflex following the improvement in the myocardial compensation. After larger doses of digitalis, however, atropine no longer increased the cardiac rate, so that the ventricular slowing must have been due to an extra-vagal action of digitalis. The practical importance of these considerations is expressed in the fact that arrhythmias must no longer be regarded as the primary indication for digitalis therapy, but rather cardiac decompensation. There is also a tendency nowadays to turn to the use of the pure alkaloids separated from the crude digitalis leaf; and it must be admitted that the methods of standardization of the crude leaf were not always an absolute reflection of the therapeutic requirements. Rose and his associates² found that digoxin was very satisfactory when given orally to some 88 patients, of whom 55 were under constant supervision in hospital. For rapid digitalization they recommend an initial dose of 1.5 mg., followed by 0.75 mg. six-hourly until the desired effect has been achieved. These doses may be increased or decreased by 0.25 mg. to suit the individual patient, and the average therapeutic and toxic doses by this method were 3.75 and 6 mg. respectively. For digitalization with single doses daily they recommend 1 to 1.5 mg., and for maintenance somewhat less than a third of that required for full digitalization. The toxic manifestations with digoxin were like those of the crude leaf, but of brief duration. Though intravenous therapy (1.5 to 2.5 mg.) was followed by an effective response, usually within 15 minutes, there were 2 fatalities in the series of 13 patients; these patients were in any event bad risks, and it is not certain that death was in fact immediately due to the digoxin, but the limitations and dangers implied are self-evident. On the other hand Tandowsky³ has studied the glycoside lanatoside C (from *Dig. lanata*)

on some 40 patients, comparing the effect of 16 gr. *Dig. purpurea* orally with a single dose of 1.6 mg. lanatoside C intravenously. The maximum alteration of the S-T segment in the E.C.G. was seen within 2 to 3 hours, which was 11 to 12 hours sooner than with *Dig. purpurea*. There were no fatalities; toxic effects were mild and transient, and on these grounds Tandowsky recommends the drug especially where quick action is desirable or gastrointestinal symptoms are troublesome. However, it is reasonable to expect further clinical trials before these drugs displace entirely ouabain, the strophanthin derivative, in parenteral therapy, and in general it can be said that claims for a particular glycoside based on the toxicity are deceptive, as the toxic manifestations are mainly extensions of the therapeutic effect.

TRANSMISSION OF KALA-AZAR BY THE SANDFLY

Few tropical diseases in the course of their investigation have more puzzled and at times more surprised the research worker than has kala-azar. It was first thought to be a form of chronic malaria, and from this arose the classical conception of "malarial cachexia." Discovery of the Leishman-Donovan body brought to a sudden end the controversy as to whether or not kala-azar was malaria or some other condition. No sooner had workers begun to speculate on the nature of this quite new and strange form of parasite when Rogers found that Leishman-Donovan bodies developed into flagellates of the well-known herpetomonad type when kept *in vitro* under certain conditions. The next mystery was the manner in which this parasite, included in the visceral cells, could be transmitted. The most likely view was that it was carried by an insect host, a possibility made more feasible by the discovery that the parasite did at times occur in the peripheral blood, though in small numbers. The most promising of possible vectors appeared to be the bed-bug, but after much work it became clear that this pest must be exculpated. Experiments were made on lice, *Triatoma*, *Ankylostoma*, and other possible hosts. Finally Knowles, Napier, and Smith, working on the Ancillary Kala-azar Inquiry at Calcutta, recorded that in the gut of sandflies fed on kala-azar cases flagellates could be observed which were indistinguishable from the flagellate form of the Leishman-Donovan body—an observation soon proved to be true. Investigation of this stage in the life history of the parasite was further carried out by feeding experiments by the Kala-azar Commission in Assam. Shortt, Barraud, and Craighead found that in a proportion of fed flies the buccal cavity was so heavily infected with flagellates that a bite could scarcely fail to inject the organism when the flies next fed. Once more, however, the smooth course of investigation was interrupted, for the laborious efforts of Shortt, Craighead, and Smith to infect human volunteers by the bites of sandflies fed on kala-azar cases were uniformly unsuccessful. In one series alone in this work over a quarter of a million sandflies were reared and nearly one hundred thousand fed. It is with especial interest, therefore, that we can now record the successful transmission of the kala-azar parasite through the bite of the sandfly. This is the work of Swaminath, Shortt, and Anderson,¹ who have followed the technique described by Smith, Halder, and Ahmed in 1940: infected sandflies were kept alive by feeding on vegetable juices until ready to infect. Five human volunteers were utilized and all five developed infection. Thus at the end of some twenty years of almost continuous active research has the final proof been given of the sandfly transmission of this dread and widespread tropical disease.

¹ *J. Pharmacol. exp. Therap.*, 1939, 67, 224.

² *Amer. Heart J.*, 1942, 23, 435.

³ *ibid.*, p. 472.

¹ *Ind. J. med. Res.*, 1942, 30, 473.

EVACUATION: A BRIGHTER PICTURE

We have had so many dismal tales from the reception areas that it is all the more refreshing to get a report from one of them which gives, not indeed a rosy picture, but one less dun-coloured than most. The area is Westmorland, which received during four evacuation periods 11,600 children, chiefly from Newcastle and South Shields, but some also from the other side of England, at Barrow. In a booklet issued by the county council Dr. J. F. Dow, the county medical officer, and Miss M. A. Brown, a psychiatric social worker, describe Westmorland's experience. Here as elsewhere bed-wetting among the evacuees was a major difficulty. It is stated that the enuretics were divisible into four groups: those who had a short spell of enuresis as a response to a new and difficult situation; those who found difficulty after their home training, or lack of it, in adjusting themselves to a higher standard of cleanliness; those who were highly strung and nervous; and those whose enuresis had some physical background. Some of the chronic cases cleared up completely on the children being removed from the homes where they were billeted and placed in hostels. Others who were thought to have improved broke down again when faced with difficulties in school or in their billet. Purely medical treatment by drugs when no physical cause was found was of little use, and various experiments with recommended remedies completely failed. Next to this group the largest number of "referred" children were those showing behaviour problems, but these were mostly superficial, and the opinion is expressed that juvenile delinquency has been exaggerated. An analysis of the cases of difficulty showed that the fault was more often in the parents than in the children themselves, and sometimes it lay to a certain extent in their hostesses. The evacuated children in Westmorland gained in every way physically, and proved wonderfully free from infectious diseases. The problem of scabies was larger than had been expected, but the use of benzyl benzoate emulsion reduced it to small proportions. On the whole a tribute is paid to the children, who showed great powers of adaptability. The chief disappointment was the heavy drift back during the first few weeks immediately after each of the evacuations.

THE WELLCOME MUSEUMS

Frequent inquiries are being received, from this country and abroad, with regard to the Wellcome Museum of Medical Science and the Wellcome Historical Medical Museum. They are, and will continue to be, housed in the Wellcome Research Institution, 183-193, Euston Road, N.W.1. The Wellcome Research Institution building suffered considerable damage by enemy action, but its structure was unharmed and the museums can quickly be put into shape again as soon as labour and materials become available after the war. Though some of the objects in the Wellcome Historical Medical Museum were damaged, it has been possible to replace or repair most of them. Fortunately the specimens and other valuable material in the Wellcome Museum of Medical Science remained comparatively intact. Both museums are now under the directorship of Dr. S. H. Daukes. A comprehensive scheme for the Wellcome Historical Medical Museum has been prepared and will be brought to completion as soon as possible after the end of hostilities. The Wellcome Medical Library, comprising over 150,000 volumes, will also be in the same building, and suitable accommodation will be provided for research workers so that both the library and collections may be readily available. The Wellcome

Museum of Medical Science—which in the past has been much used by teachers, students, and those engaged in postgraduate studies—will be re-established in its entirety at the end of the war with the utmost speed. The Lecture Hall will be fully re-equipped, including film projection apparatus, and will then be available for scientific lectures and meetings.

THE WAR AND THE PRESS

So gradual have been some of the changes brought about by total war that many otherwise observant people would be astonished if they held in one hand a copy of their favourite newspaper or review of to-day's date, and in the other a copy published four summers ago. Reduction in bulk is the most striking effect of the shortage of paper, but every periodical has adopted other means for economizing space, such as the use of smaller print and narrower margins, and all who can do so have cut down circulation. Hard is the lot of this *Journal*, with an obligatory circulation of 42,500 copies a week and an inflexible Parliamentary Controller; the ration simply will not suffice. In a recent speech on "The Press and the Nation in Wartime" Lord Colonel J. J. Astor, chairman of the Times Publishing Company, dwelt on the important part played by the Press in our democratic institutions in peace, and even more in war. Besides reporting events it has the function of explaining Government policies and schemes, and also criticizing and showing up Government schemes when they are not operating fairly or as intended. This is the good of scientific and professional organs no less than reputable daily and weekly newspapers. So, too, in the matter of censorship: in wartime, as Colonel Astor said, there has to be a censorship, but ours in this country is voluntary. Guiding lines are given, certainly; some form of information obviously helps the enemy. When in doubt an editor naturally refers to the Censor, and where men's lives are involved the final decision must rest with the Service authorities. At times the Censor has seemed to the Press to go rather far, but Colonel Astor reminded his hearers that censorship is not a normal occupation, and was inevitable that at the beginning of the war there should have been mistakes and unnecessary delays—not all of them the fault of the Censor. For our part we have no quarrel with that section of the Press and Censorship Bureau with which we make contact on the score either of delay or of obstruction; submitting proofs is just one of the trials of journalism in wartime. With regard to the drastic rationing of paper, Colonel Astor said (and we agree with him) that if a newspaper is to carry out its function—to give news and relevant comment, to give Parliamentary debates, official statements and lists of honours and awards, to encourage salvage drives, etc., and to retain its features in however attenuated a form—then the Press has made the maximum economies and has reached the minimum consumption of paper necessary to perform these functions.

It is hoped that doctors who send in notifications of change of address will understand that delay in putting these into effect is inevitable by reason of the exceptional conditions under which the depleted staff at B.M.A. Headquarters is working. As many as 900 changes of address, and in the rank of serving members, may be notified in a week. Each of these changes has to be stamped on to a new plate for the *Journal* wrapper. The work is heavier than in peacetime; the staff is fewer. Members are therefore asked to be forbearing if what seems to them a very small alteration is not made as quickly as they might expect.

SOME PROBLEMS OF REHABILITATION

BY

HAROLD BALME, O.B.E., M.D., F.R.C.S.

Emergency Medical Service

Rehabilitation is the popular term of the moment, as freely discussed in non-medical as in medical circles. As is usually the case with new forms of therapy, there is for the time being a violent swing of the pendulum, and rehabilitation threatens to displace the old-time tonic as a convalescent cure for one and all. This may possibly be followed by an equally violent swing in the opposite direction. But there is little doubt that rehabilitation has come to stay, and will form an integral part of the health services of the future. It is therefore of the utmost importance that its problems should be carefully studied and understood by the profession, and the fullest advantage taken of the present opportunity, created by war conditions, to test out experimental methods and lay the foundations of a sound and scientific scheme.

Nothing would be more unfortunate than for rehabilitation to be divorced from medical or surgical control and established as a new health cult. But that is exactly what may happen unless the profession takes the matter seriously and exercises a guiding and controlling hand; for rehabilitation is a subject which goes far wide of medicine and surgery. Already it is interesting the Ministries of Labour and of Fuel as a means of expediting the recovery of workmen after serious illness or injury and ensuring a more rapid return to employment. It is interesting all who are concerned with physical culture and with the maintenance of general fitness. And not only does it form the central theme of the Tomlinson report but it is written deep in every scheme of post-war sociological planning. There is a real risk of rehabilitation becoming an entity in itself, with so-called rehabilitation centres opened up all over the country without any adequate medical supervision, and a fruitful and most promising form of therapy thus led away along unscientific lines. That will not happen if the medical profession takes firm control from the outset, but to assume such control it is necessary to have a clear view of the problems involved and of the methods by which they may best be solved. It is the purpose of this article to marshal the chief facts connected with rehabilitation, and to attempt to suggest the lines along which healthy development may follow.

In the first place, what do we mean exactly by rehabilitation? It is an unfortunate and clumsy term, and one which is already being used with a variety of different meanings, but from a strictly medical and surgical aspect it can perhaps best be defined as the method by which physiological function is fully restored after its temporary loss from injury or illness. This applies to every form of debilitating disease, accident, or surgical operation, and equally in the physical and the psychological spheres, and no rehabilitation is complete unless it pays due regard to both.

At this point we are met with the objection, already articulated in some quarters, that the physician's task is to cure disease, and that if we will stick to our job Nature will do the rest. We seem to have met that objection before, but it really will not bear a moment's consideration, for the whole purpose of the physician and surgeon, when it comes to questions of ill-health and injury, is to supply what Nature lacks. Every surgical operation, every modern therapeutic agent, every use which we make of serology and roentgenology and physical medicine, bears witness to our conviction that Nature, unaided, will not by any means necessarily perfect her cures. This is as true of the restoration of function as it is of the overcoming of infection, the setting of a fracture, or the removal of a malignant growth. It is therefore incumbent upon us to make a careful study of the factors which prejudice full and speedy return to vigorous health, and the methods by which those obstacles can best be met and overcome.

Let us consider, in the first place, the facts which we require to know as a preliminary to formulating a sound and scientific scheme of rehabilitation. We shall then be in a position to discuss such important questions as the organization of a rehabilitation team, the training of staff, the grading of patients,

the provision of the essential facilities, the preparation of handbooks, the relationship of in-patient, out-patient, and post-hospital rehabilitation, and the resettlement of the rehabilitated patient in some form of useful employment.

Problems for Research

A vast amount of time and thought is constantly being expended on the diagnosis and treatment of disease and injury, but surprisingly little attention has ever been paid to the equally important question of the restoration of function. There are innumerable points upon which more research and statistical study is needed before a sound programme of rehabilitation can be drawn up. Here are a few of them:

1. The effect of trauma on every type of soft tissue—fascia, muscle, tendon, serous and synovial membrane, etc.—demands careful study, and we need to know far more accurately than we do at present at what stage, and to what extent, restricted movement is beneficial or harmful, both to healing of the injured part and to the rapid and complete restoration of function. For lack of this exact knowledge many of our rehabilitation methods are of the nature of trial and error—hence the contrary views of those who advocate and those who oppose early remedial exercise. It should not, however, be difficult, by means of controlled experiment carried out on a sufficient number of cases, to establish definite criteria by which to judge of the methods suited to each class of disability and to each stage of recovery.

2. The relationship of pain to immobility is by no means clearly defined; still less do we know of the conditions under which it is wise to abolish pain and promote mobility in diseased or traumatized tissue. It is commonly claimed that pain is Nature's call of alarm, demanding rest and immobilization for the injured part; but that is by no means the whole of the story. We are all familiar with the type of pain produced by stretched ligaments and adherent soft tissues in which mobilization, and not immobilization, will alone cure both the stiffness and the pain. We are familiar, too, with the so-called "vicious circle of pain," as illustrated by certain injuries in the neighbourhood of joints, the trauma producing effusion which causes pain, and the resultant pain leading to sympathetic disturbance and vasodilatation, and hence to more effusion. In such conditions the abolition of pain by deep novocain injection, as advocated by Leriche, or by intensive freezing with ethyl chloride, certainly hastens the restoration of function in a large number of cases. The same may well be true of other analogous conditions in which pain is associated with immobility. In this connexion an interesting suggestion has been made by a recent colleague of mine, Mr. J. M. Fitton, that the frequency of persistent pain after severe spinal injuries—a frequency much more pronounced than after equally severe injuries in other parts of the body—may not be merely a "litigation neurosis," as so commonly alleged, but may be due to the fibrosis and adhesion of soft tissues, and that where manipulation fails to effect a cure it would be worth while to try the effect of mobilizing the parts by open operation, followed by a course of remedial exercises. It is a suggestion well worth putting to the test.

3. It is now generally accepted that prolonged immobilization is to be deprecated in the treatment of fractures, owing to its tendency to produce muscle-wasting, stiff and painful joints, and decalcification of bone. What is not so clear, however, is the best time for starting muscular activity. One school of orthopaedic thought states positively that any movement prior to bony union is harmful, and that, provided a well-fitting skin-tight plaster is applied, bony union within reasonable time is certain, after which movement should be started; whereas, according to these authorities, a padded plaster and early movement involve a serious risk of non-union. This view is countered by others who claim that, provided the fracture is in good alignment and controlled by a properly applied padded plaster, changed at intervals, muscular drill within the plaster combined with regular exercise of the more distal joints (e.g., the hip and toes in the case of fracture of the tibia) not only never leads to non-union but actually expedites the date at which consolidation occurs. This is a matter which can only be settled by experiment over a long series of cases, but it is obvious that if the latter contention is the correct one, and the adoption of such measures reduces the period of inactivity of all fracture cases by a week or a fortnight, the resultant gain all over the country, as expressed in man-day power, would be a great economic asset.

4. Too little is yet known as to the factors which hinder return to full use of a joint subjected to open operation, such as a knee-joint after meniscectomy. Most orthopaedic surgeons have to admit to a small minority of cases in which complete recovery is delayed by pain, by lack of full flexion, or by recurrent effusion. How far is this due to inadequate haemostasis at the time of operation; to particular methods of technique; to low-grade sepsis or local irritation; to too early or to too late movement; to excessive or to inadequate quadriceps drill; to too drastic or to too premature attempts at flexion; or to the use of such resistance exercises as those

provided by weights and pulleys? Far more evidence is needed than is yet available on all these points before we can answer any of these questions, but such evidence is essential if the right methods of rehabilitation are to be chosen for such cases, and—what is perhaps even more important—if patients on whom remedial exercises will have to be slowed up are to be recognized early.

5. The optimum range of movement for every type of disorder, adapted to the stage of recovery, needs to be carefully worked out and formulated. Too often this is left entirely to masseuses or physical instructors, with no medical supervision and no means of checking whether the exercises given are suited to the particular joints or muscles affected, or are too strenuous or not sufficiently active.

6. The remedial exercises in current use have mostly been designed for traumatic cases. But rehabilitation is required for every form of debilitating illness or disorder, not merely for those resulting from accident. Similar care is therefore needed in working out progressive courses of rehabilitation for every variety of medical and surgical complaint. Special exercises are required for thoracic patients, both to promote the activity of the thoracic muscles and to assist good breathing; for post-operative abdominal and hernia cases; to say nothing of the special needs of head injuries, neurotic and psychotic patients, tuberculous patients, infirm children, etc. There is a great deal of work to be done for each of these groups.

7. The particular apparatus to be employed in the work of rehabilitation, especially the place to be allotted to the use of weights and pulleys; the association of occupational therapy, and its application to the various forms of remedial exercise; the choice of suitable indoor and outdoor recreations and handicrafts, adapted to each type of disability; the place of fatigue in the exercising of traumatized or wasted muscles—all these are examples of other matters requiring careful observation and statistical study.

War conditions have given emergency and Service hospitals a unique opportunity of working out rehabilitation experiments, owing to the fact that in certain of them it is possible to keep patients from the day of injury until they are fit to return to full duty. If each of these centres would concentrate on one of the above problems for research valuable material would be secured on which to base future programmes.

The Grading of Patients

If remedial exercises and other forms of rehabilitation therapy are to be adapted to the stage of recovery it is essential that some form of grading should be introduced and patients regularly allotted to the particular group to which they belong at any particular time. In one emergency hospital in the North of England to which a large rehabilitation department is attached such a system has been in operation for the past year and has proved of great benefit, both to the patients and to the staff. At this particular hospital five grades are recognized, the programme for each of which is as follows:

Grade 1: Bed patients.—Muscular drill. Faradism and massage where indicated. Assisted exercises. Light occupational therapy, mainly of a diversionary character.

Grade 2: Patients just beginning to get up.—Light remedial exercises. Mild team exercises, of short duration, for patients suffering from similar disabilities and in the same grade. Some remedial occupational therapy, where applicable.

Grade 3.—Stronger exercises, with introduction of some mild form of resistance (e.g., weights and pulleys). Cycling for patients with weakened thigh and leg muscles. Remedial occupational therapy. Organized games, carefully chosen in relation to the particular muscles requiring strengthening or the joints needing to be mobilized.

Grade 4.—Increased resistance introduced into all forms of exercise, both individual and team. Longer periods, including some marching. Heavier occupational therapy (e.g., wood-sawing, digging, carpentry, loom work against resistance springs). More strenuous games.

Grade 5.—A hardening course, including cross-country running, jumping, heavy occupational therapy (e.g., wood-splitting, stone-shifting, etc.), and various team games.

One of the chief values attaching to such a system of grading is that every patient is kept strictly under medical supervision, only the doctor having authority to "up-grade" a patient, or to "de-grade" anyone who is reacting unfavourably to the type of course assigned to his particular group.

Organization of a Rehabilitation Team

A full rehabilitation team comprises four distinct groups, which may be briefly described as prescribers, medical supervisors, co-ordinating officers, and technicians. In a small

hospital, where patients undergoing rehabilitation are but few these four groups would be reduced to three or even two; but in larger centres all four will be needed, and the closer the co-operation between them the more effective will be their work.

The group entitled "prescribers" will of course consist of the physicians and surgeons actually in charge of the patients, whose duty it is to signify when rehabilitation should start. In some instances they will prefer to supervise this treatment themselves but in most cases it will be found far better for the work of medical supervision to be delegated to one or more members of the whole-time medical staff, whose duty it will be to keep an eye on the type of exercise, etc., given to each grade, to assist in the training of the technical staff, to supervise the keeping of accurate progress records and individual graphs, and to examine every patient whose improvement is held up by pain or other unfavourable reactions. Such a supervisor will usually be charged with the responsibility of changing patients' grades, called for, unless the original prescriber prefers to do it himself.

The task of the "co-ordinating officer" is to see that in various forms of remedial exercise, occupational therapy, recreational therapy laid down for each grade are correctly given; to arrange the programme of each patient; to note new prescriptions ordered by the prescriber or medical supervisor, and see that they are put into force; and, generally speaking, to act as liaison officer between the masseuses, physiotherapy training instructors, and occupational therapists, welding them into one unified team of rehabilitation workers.

The practice which has been adopted in some hospitals of holding weekly meetings of the whole team, doctors included, at each of which some particular disability is fully discussed, cannot be too highly praised. At such meetings a preliminary talk is usually given on the anatomy of the particular region under consideration and the diseases or injuries likely to interfere with its function; x-ray plates and actual clinical cases demonstrated; and a free discussion follows as to the form of physiotherapy, remedial exercises, games, and occupational therapy suitable at each stage of progress.

Training of the Rehabilitation Staff

This is another problem demanding careful consideration and planning. Rehabilitation should not be regarded as a combination of therapy to which masseuses, electrotherapists, physiotherapy experts, and occupational therapists each make their own individual and separate contributions. It is essentially a single process, and should be so conceived. Ideally, therefore, the staff should be trained together in an institution attached to a large rehabilitation centre, and this is probably what will happen after the war. For the present this hardly seems practicable, and the various schools of physiotherapy, occupational therapy, and physical culture are therefore attempting to organize courses in active remedial therapy in addition to the training which they have previously been offering. This is certainly a move in the right direction, but it still leaves much to be desired, as each section continues to receive training in a separate unit instead of as part of a single rehabilitation team. Possibly the only way to counteract this tendency during the war will be by the establishment of special postgraduate clinics at the larger and better-equipped rehabilitation centres, where masseuses, physical training instructors, and occupational therapists will all be eligible to attend, and which will qualify for appointment as recognized rehabilitation technicians.

A very urgent need in connexion with the question of training is the provision of suitable textbooks. A comprehensive volume, describing in detail the various forms of remedial exercise, organized games, and occupational therapy in connexion with rehabilitation, has already been written and should be published in the early autumn; and a valuable handbook of the special remedial exercises suited to each type of disability and to each grade of recovery is now in preparation.

Provision of Essential Facilities

In considering the problem of how to secure the necessary accommodation, apparatus, and trained staff for the carrying out of rehabilitation it must be remembered that, although war has provided a unique opportunity of undertaking the process of rehabilitation at a single centre, as at certain

and emergency hospitals, this is but a temporary stroke of fortune. Normally, rehabilitation will more often be carried out in three stages, though this must never be allowed to interfere with the continuity of treatment. These stages are:

(a) The period of in-patient treatment, during which the type of rehabilitation therapy described above as Grades 1 and 2 would usually be given.

(b) Out-patient treatment following on discharge from the wards.—Where practicable—e.g., where patients are able to attend daily, and to remain not less than half a day for the purpose of remedial exercises, organized remedial games, and occupational therapy—this would ensure the continuity of rehabilitation in the case of patients who can no longer be retained in the wards and for whom suitable accommodation cannot readily be secured in rehabilitation centres. Such cases might be carried through Grades 2 and 3 without involving the hospital in the necessity for providing very elaborate accommodation or equipment.

(c) Treatment in a special rehabilitation centre.—Such centres will doubtless be set up after the war—in some cases even during the war—in suitable country surroundings, easily accessible from the towns from which patients are received, and equipped with gymnasium, playing fields, occupational therapy workshops, swimming pool, and other requirements for full rehabilitation therapy at all grades. Such centres should of course be intimately connected with the hospital or hospitals from which patients are received, the patients remaining under constant medical supervision, preferably carried out by the supervisor who initiated their rehabilitation treatment in the hospital at which they were first treated.

It will be seen that under such a scheme as the above, ordinary hospitals which do not carry patients beyond Grade 3 will not need to provide extensive playing fields or occupational workshops. What they will need, however, and what they should set about providing at once, are:

(a) A trained staff, keenly interested in active remedial therapy (as opposed to massage, passive movements, radiant heat, etc.) and thoroughly versed in suitable and progressive courses of remedial exercises, games, and occupational therapy.

(b) At least one or two masseuses, and, where possible, a physical training instructor and occupational therapist, trained in remedial work, whose whole time is devoted to active rehabilitation.

(c) A commodious room adapted for use as a gymnasium, remedial exercises, and indoor remedial games, and fitted up with simple apparatus such as weight-and-pulley circuits, wall bars, pronation and supination machine, wrist rollers, ropes, plinths, and benches.

(d) Facilities for providing simple occupational therapy, especially such as is useful for mobilizing stiff fingers, such as basket-work, netting, cane-work, and simple embroidery.

(e) A suitable place within or adjoining the hospital grounds for such organized outdoor games as medicine ball, netball, etc.

It must be remembered that, to be thoroughly successful, rehabilitation should occupy best part of a patient's day. It is not enough to arrange for attendance at a course of exercises for a brief period three or four times a week, or even daily, if the rest of the day is left unoccupied. One of the greatest values of rehabilitation is on the psychological side, as the patient's mind gets directed towards his return to full health and he is encouraged to co-operate in the process. For that reason his day should be filled up as fully as possible, not merely with courses of team exercises—his muscles will soon tire if such exercises are continued beyond a half-hour or forty-minute period—but also with other forms of exercise, games, and remedial handicrafts. Very few hospitals yet have the accommodation or staff to provide such facilities for a whole day for any one patient; but all should aim at a full half-day programme for each patient, some attending for morning sessions and the remainder in the afternoon or early evening.

Resettlement in Industry

The task of resettling convalescent patients in employment is obviously not one which devolves primarily on the medical profession, but if the work of rehabilitation is to be carried to its logical and desirable conclusion the collaboration of hospital authorities and of medical supervisors will be essential. This will take the form of advising when a particular patient is fit to return to duty; of indicating whether he can return to his former employment or should be given lighter duties, or, alternatively, whether he should be trained for some different and more suitable vocation; of establishing relations with

industrial medical officers in the carrying out of such recommendations; and, where possible, of reviewing the case after return to full work, either by means of medical reports or by actual examination of the patient himself.

In carrying out this essential terminal phase of rehabilitation the assistance of specially trained social workers, attached to hospitals and rehabilitation centres, is of the utmost importance. It is they who should keep track of each patient's attendance at the rehabilitation department, looking up any who are persistently absent. They should receive the medical officer's recommendations as to patients' return to duty. They should keep in intimate touch with employers and arrange for the re-engagement of those fit to start work. They should make contact with the Labour Exchange authorities in relation to cases that require to be trained in one of the vocational training centres established by the Ministry of Labour. Finally, they should be qualified to assist the patient in the intricate problems arising out of the present laws governing workmen's compensation, encouraging him to attempt light duties in spite of the reduction in disability allowance, while at the same time keeping industrial medical officers informed of the condition of each worker returning to work in factory or mine after illness or injury.

Summary

Rehabilitation is defined as the method by which physiological and psychological function are fully restored after their temporary loss from injury or illness.

An organized system of rehabilitation should be regarded as an integral part of the treatment of all debilitating diseases and injuries.

It is essential that it should not be divorced from medical and surgical control, but such dissociation is liable to occur unless its problems are closely studied by the profession and a sound scheme is adopted by all hospital authorities.

As a guide to the formulation of such a scheme a list is suggested of subjects on which further research and statistical study are required.

A system by which patients undergoing rehabilitation are graded according to their stage of recovery is recommended.

The various groups which should constitute a rehabilitation team, and the responsibility devolving on each, are outlined.

The training of the rehabilitation staff, and the provision of the facilities required by hospitals and by special rehabilitation centres, are discussed.

The contribution of rehabilitation medical officers and of hospital social workers towards the resettlement of patients in industry is indicated.

Nova et Vetera

TEACHING OF ANATOMY

MR. CONNOR BANTRY WHITE of Westminster Hospital Medical School writes: The following extract, taken from an old anatomy book in my possession, shows that the concern felt by teachers of anatomy is by no means recent, and, I think, aptly summarizes the opinions put forward by your correspondents: "The study of Anatomy, as it leads to the knowledge of nature and the art of healing, needs not many tedious descriptions nor minute dissections; what is most worth knowing is soonest learned, and least the subject of disputes; while dividing and describing the parts, more than the knowledge of their uses requires, perplexes the learner and makes the science dry and difficult." This is the first sentence of the preface to the ninth edition of *The Anatomy of the Human Body*, by W. Cheselden, Surgeon to His Majesty's Royal Hospital at Chelsea. His book was printed in London in 1768.

After several refusals to go to the U.S.A., von Helmholtz was persuaded by the German Government to represent German science at the Electrical Congress held in Chicago in 1893. In a letter to Dr. Knapp, announcing the date of his arrival in New York, von Helmholtz, who was then 71, wrote: "I am convinced that America represents the future of civilized humanity and that it includes a vast number of interesting people, while in Europe we see only the approach of chaos or of a world dominated by Russia." Dr. Knapp, who was the recipient of this letter, was the founder of the *Archives of Ophthalmology* and the father of the present chief editor of that journal. ("Purkyne, a Pioneer in Ophthalmoscopy," William Thau. *Arch. Ophthalm.*, Chicago, 1942, 27, 299.)

HAEMOLYTIC TRANSFUSION REACTIONS: THE Rh FACTOR

A memorandum on "The Danger of Haemolytic Transfusion Reactions due to Immunization of the Recipient to the Rh Factor," prepared by the Blood Transfusion Committee of the Medical Research Council, has been circulated by the Ministry of Health to hospitals of the Emergency Medical Service and to all the Maternity Services.

Danger of Reactions due to Immunization to Rh Agglutinin

It is now known that the red blood cells of the majority of human beings contain a hitherto unrecognized agglutinin Rh. The term Rh is used because a similar agglutinin is present in the red blood cells of rhesus monkeys. Approximately 85% of bloods (American white and English), irrespective of ABO group, contain the Rh agglutinin, and these bloods are called Rh-positive. The remaining 15% of persons (Rh-negative), whose red cells lack the Rh agglutinin, are liable to form anti-Rh agglutinins if the Rh agglutinin is introduced into their circulation. This may occur in persons of either sex when Rh-positive blood is transfused, or in a woman who becomes pregnant with a foetus whose blood cells are Rh-positive, the foetus having inherited the Rh agglutinin from the father. When the father is Rh-positive the foetus is not necessarily Rh-positive, however. The Rh agglutinin is inherited by a pair of genes Rh and rh, Rh being dominant. When the mother is Rh-negative (genotype rhrh) and the father Rh-positive (genotype RhRh or Rhrh), all the children will be Rh-positive if the father has the genotype RhRh, but when the father has the genotype Rhrh, each child will have an equal chance of being positive or negative, and there will probably be positive and negative children, although all may be positive or all negative.

A very important aspect of the formation of anti-Rh agglutinins by an Rh-negative person, whether this occurs as a result of pregnancy or of transfusion, lies in the fact that a subsequent transfusion of Rh-positive blood may lead to a severe haemolytic reaction, which may be fatal. Since 85% of bloods are Rh-positive, blood which is selected only on the basis of ABO group compatibility is very likely to prove incompatible in these cases. The only compatible donors are Rh-negative persons of suitable ABO group.

It is of considerable clinical importance to be familiar with the types of case in which the formation of anti-Rh agglutinins should be suspected.

Relation between Iso-immunization of the Mother to the Rh Factor and Erythroblastosis in the Infant

In erythroblastosis foetalis or, to use the more accurate name for the condition, haemolytic disease of the newborn, there is activity of the extramedullary haemopoietic centres (i.e. erythroblastosis) and of the bone marrow, while the peripheral blood shows many nucleated red cells (erythroblastæmia). The use of the term haemolytic disease of the newborn may lead to the confusion of this condition with haemorrhagic disease of the newborn. In the latter condition the common manifestations of melaena and haematemesis are due simply to a deficiency of prothrombin. In haemolytic disease of the newborn, on the other hand, the infant's red cells are broken down by immune agglutinins formed in the mother's circulation during pregnancy. In over 90% of cases the mother is found to be Rh-negative, whereas the father and infant are Rh-positive. During pregnancy the mother produces anti-Rh agglutinins, which pass from the maternal circulation into the foetal circulation and cause the foetal erythrocytes.

The presence at or shortly after birth of either (a) jaundice which rapidly deepens to an intense degree, or (b) marked oedema, or (c) severe anaemia, has led to the identification of three clinical types of erythroblastosis—icterus gravis, hydrops foetalis, and congenital haemolytic anaemia. While clear-cut examples of these types are easy to recognize, the symptoms of haemolytic disease of the newborn are so variable that diagnosis is sometimes difficult. For instance, at birth the infant may appear to be normal and not develop jaundice or anaemia until later; moreover, the jaundice may ever be severe. Again, although a marked degree of erythroblastæmia is frequently present, the number of nucleated red cells varies from time to time and from patient to patient; indeed, at birth there may not be any nucleated red cells in the blood stream, and sometimes erythroblastæmia may not occur in congenital haemolytic anaemia until after recovery has begun. On the other hand, the blood of the healthy newborn full-term child may sometimes contain many erythroblasts as to appear pathological.

Many infants with haemolytic disease are stillborn, often prematurely, and may be oedematous; nevertheless, as is the case with the full-term child, the stillborn infant may be outwardly normal. When there is no other obvious cause of foetal morbidity, it is probably wise to suspect the existence of erythroblastosis foetalis and assume, for purposes of treatment at least, that the mother has

become immunized to the Rh antigen, and therefore to avoid transfusion of blood, unless known Rh-negative blood of suitable ABO group is available.

There is at present no known method of preventing the occurrence of erythroblastosis, and when a woman has given birth to an affected child, subsequent children are also likely to be affected. The mode of inheritance of the Rh factor should always be borne in mind, however, when giving a prognosis with regard to future children in the families in which Rh is involved, because if a subsequent child is Rh-negative it will be unaffected; for reasons, at present understood, occasionally even subsequent Rh+ child may be unaffected.

Iso-immunization to the Rh Factor following Transfusion

The transfusion, and particularly the repeated transfusion, of Rh-positive blood to Rh-negative recipients of either sex may cause development of anti-Rh agglutinins in the recipient's circulation and thus lead to the premature destruction of the donor blood cells. At first this process may be entirely silent; alternatively the onset of evidence of the increased rate of elimination of the transfused blood may be a failure of the recipient's haemoglobin concentration to increase following transfusion. If further transfusions of Rh-positive blood are given, however, the reactions become increasingly severe, the destruction of the donor blood cells is more rapid, and the recipient may become jaundiced or even develop haemoglobinuria. Sometimes no immediate reaction to the transfusion is observed, but the recipient develops oliguria after transfusion and passes into state of uraemia some days after transfusion. The occurrence of any of these signs, and particularly the increasingly unfavourable response to transfusion, should always suggest the possibility that the recipient has become immunized to the Rh factor, provided the course that the possibility of incompatibility due to faulty ABO grouping has been excluded.

In practice, serious haemolytic transfusion reactions due to the Rh factor are considerably more common in the group of women who become immunized as a result of pregnancy than in the group of persons of both sexes who become immunized as a result of transfusion.

Recommendations

Ideally, Rh-negative persons should be transfused only with Rh-negative blood. At present, however, this ideal may be regarded as impracticable because of the technical difficulties of making Rh grouping tests on a large scale and because of the greater administrative difficulty of keeping a sufficient number of Rh-negative blood in small blood banks to serve the needs of all Rh-negative recipients.

(1) Mothers of infants which manifest signs of erythroblastosis should not be transfused with blood unless known Rh-negative blood of suitable ABO group is available. In a case of urgency plasma serum should be used for transfusion.

(2) When transfusions are given to infants affected with erythroblastosis foetalis, blood from a group O Rh-negative donor should be used whenever possible. If no such donor is available, the mother's red cells, if of suitable ABO group, may be used, but the cells must first be washed free from plasma and suspended in physiological saline. When this, too, is impracticable and transfusion is urgent owing to the anaemic state of the child, a donor of group O, taken at random, may have to be used, although it should be realized that such blood will usually be Rh-positive, and that it may produce a transient jaundice in the infant. In these circumstances it is better to seek a donor among the mother's relatives than to use the father or his relatives. The blood must be introduced intravenously and not intramuscularly, and the transfusion should be given at the earliest possible moment after the diagnosis of haemolytic disease has been made. If previous infants in a family are known to have been affected, the cord blood should be examined for the degree of erythroblastæmia with a view to establishing the diagnosis as early as possible.

(3) Recipients of either sex who, from their response to previous transfusions, are suspected of having become immunized to the Rh factor should receive no further transfusions (unless Rh-negative blood of suitable ABO group is available) until the cause of the unfavourable response to the previous transfusion has been investigated.

(4) Although, when the patient's serum contains anti-Rh agglutinins, it is often possible to select a compatible donor by testing the patient's serum against a number of different bloods of suitable ABO (but unknown Rh) group, reliable results are very difficult to obtain without considerable experience, and it is strongly recommended that this method should not be attempted by persons who lack experience.

(5) In all these circumstances contact should be made as soon as possible with the nearest blood depot or regional transfusion officer. Even when the person suspected of having become immunized to the Rh factor does not require transfusion, it is hoped that contact will be made so that serological tests can be carried out. It is difficult to secure enough serum for testing persons, for only a small proportion of persons who become immunized to the Rh factor develop anti-Rh agglutinins which are of sufficient potency for this

purpose. It is therefore of great importance that clinicians should co-operate by sending samples of blood from their cases for testing, and by persuading those patients who have strong anti-Rh agglutinins to give some of their blood in order to secure a supply of test sera.

(6) When it is discovered that a person has become sensitized to the Rh agglutinin a statement of this finding should be handed to the person concerned, and she (or he) should be told to carry this statement with her (or his) identity card or blood group card and to show it to her (or his) doctor.

Reports of Societies

FUNCTIONAL DISEASES OF COLON AND RECTUM

A discussion on functional diseases of colon and rectum took place in the Section of Proctology of the Royal Society of Medicine on June 9. Mr. E. T. C. MILLIGAN presided, and he four openers were physicians and psychiatrists.

Sir ARTHUR HURST, after describing the physiology of the colon and rectum, said that the conditioned reflex which led to regular morning defaecation might begin in the education of the infant and develop in such a way that the normal individual as he got older did not think about it at all. The most common cause of what was called constipation, especially in women, was neglect of the normal call to defaecate. If the prompting was not acted upon the muscular wall of the rectum relaxed, and the desire to defaecate disappeared and did not return until the next quantity of faeces passed into the rectum. If there was persistent neglect of the call the rectum became completely relaxed and distended. Well over half the cases of constipation were caused not by any deficiency in the activity of the colon itself but by interference with the reflex. Another large group of people imagined themselves to be constipated when they were not. Many of those who went to the doctor for what they called constipation would say that they had a liquid stool; that for years they had not passed a solid motion. These were the people who had been taking the aperients which figured so largely in the advertisement columns of the newspapers. The symptoms of auto-intoxication were not produced by constipation; they were the result of diarrhoea brought about by aperients. Yet another cause of upset of normal bowel activity was the procedure common some years ago and now revived, known as colon lavage: not the old-fashioned Plombières couche, but successive washings out by one pipe after another, taking perhaps a couple of hours in all, in the vain expectation that eventually clear water would be returned. This procedure ignored the physiological fact that faeces were constantly coming down and mixing with the water. A point to remember was that mucus could only be regarded as significant of a pathological condition if it was present with spontaneous diarrhoea. With a loose stool caused by an aperient it was merely a protective secretion and of no importance. Mucous colitis was an imaginary complaint based on a wrong diagnosis; it was due to the idea that the presence of mucus was itself significant of disease.

The taking of aperients was the commonest cause of the general low abdominal pain associated with spasm. But when such conditions as real ulcerative colitis and diverticulitis were excluded there remained a small number of cases in which colon spasm was the primary thing—a condition corresponding in some respects to asthma, and not easy to diagnose or treat. He warned strongly against x-ray examination as a method of diagnosis. Finally Sir Arthur Hurst mentioned paroxysmal proctalgia, first described as rectal crises of non-tubercular origin. The patient at intervals had severe pain, always perineal, not at the anus but apparently three or four inches up the rectum. Usually it went off spontaneously after ten minutes or a quarter of an hour. It was not associated with any particular condition of the bowel, but often with sexual activity. It was almost certainly due to a muscular contraction, probably at the junction of the pelvic colon and rectum. Doctor-patients had obtained relief by having at their bedside an enema syringe and blowing air up the rectum.

The Psychological Approach

Dr. HENRY WILSON, in discussing the effect of temperament upon the colon, pictured two extremes of temperamental type—the jolly, happy-go-lucky individual with external interests, who never thought of his bowels at all, and the highly self-conscious and introspective person with rigid standards for himself and others. When the former had intestinal symptoms, organic disease might be expected; when the latter, no physical disorder apart from over-activity of the central autonomic system. The patient ought to be asked, "How do you think your condition is caused?" If some time were spent in listening to his story and getting a picture of the ordering of his life, it might be found that his symptoms were escapist, or that his central autonomic system was subjected to some strain owing to the emotional rigidity and stress of his life. It was important to remember how the hypochondriac enjoyed the display of the details of his bowel movements. Often he was leading a self-thwarting existence; the interest which the normal individual derived from his family and his work were blocked. In dealing with such a patient the recommendations about lavatory arrangements should be of the shortest and the ritualistic directions about drugs, their times and seasons, should be as simple as possible. As for drugs, barbiturates in quite small doses were preferable because they lessened the tension in many cases in which the autonomic system was too active on account of the patient's general abnormal outlook on life. The encouragement of centrifugal interests among such people was as necessary a part of social medicine as occupational therapy in cases of mental disorder.

Dr. GEOFFREY EVANS said he had been taught by an eminent surgeon many years ago that it was of no use to try to get normal action of the bowels in a constipated person unless the anal margin and canal were structurally intact, and therefore he first of all considered piles and such conditions. After this he was accustomed to give his patients a leaflet containing the principles of treatment of chronic constipation which he had learned from Sir Arthur Hurst. They must learn self-knowledge, self-reverence, and self-control. As for the role of the proctologist, this should include rehabilitation. He should not let his patient go until normal bowel function had been restored—i.e., evacuation of a solid stool with a sense of completion. In the practice of medicine perfection of function was as important as regularity. Incomplete evacuation was a failure of perfection in function such as, in another field, was found in the case of a bladder obstructed by an enlarged prostate. As for bad habits, the worst of these was the early morning rush, leading to neglect of the call for defaecation. Another cause of constipation, not always appreciated, was fatigue. He believed that a number of cases of constipation were congenital. He had seen the condition inherited through at least three generations. Physiological disorders were inheritable just as much as anatomical peculiarities. Another functional disease of the sigmoid was a neuro-secretory disorder—a dry sigmoid. He believed that that was the true aetiology of a few cases of ulcerative colitis—a catarrhal sigmoiditis due to the dry sigmoid—the neuro-secretory disorder of the sigmoid going on to an ulcerative sigmoiditis and then spreading up the bowel. These were the cases which did well with a wash-out.

The Costive Patient

Dr. E. H. LARKIN said that in cases of persistent pain in the rectum for which no cause could be found psychiatry could often be of assistance. It was necessary for the physician to detach his mind from the local symptoms and to view the patient as a whole. The common characteristic of the chronic costive would be found to be fear. He was always anxious and afraid for himself in general and for his bowels in particular. All chronic costives were neurotics. Psycho-analysis might reveal why the anxiety had become fixed on one sort of symptom in a particular case. An immediate worry might cause pain or disordered function, and a chronic worry chronic pain and dysfunction. One trouble was that while "a lot of people's emotions flowed to their bowels," when they went to a proctologist they had no ready-made language nor any facts of common experience upon which to rely, unlike patients who suffered from, say, some chest complaint. Their minds were

concentrated upon their trouble, but their tongues could not be glib about it. Sometimes the obsession was removed by a quite different adjustment. He cured one case of obstinate constipation by insisting that the patient should get an accountant to straighten out certain difficulties into which he had fallen with the tax authorities. There was no mistaking these afflicted patients—the wrinkling of the forehead, the lustreless eyes, the drooping corners of the mouth, the hunched shoulders, the cold and lifeless hands, the easy loss of temper, the lack of appetite. True depression could be diagnosed in nearly every one of these cases. It was the depression that needed treating, and the treatment was rest, secured by sedatives and reassurance.

The remainder of the discussion resolved itself largely into a recital of personal experiences with particular patients. Mr. LAWRENCE ABEL said that the proctologists who stayed in London during the air bombardment of 1940-1 would have gone out of practice had it not been for "siren diarrhoea." Dr. WESTMANN said that functional diseases of the rectum could be brought into parallel with functional disorders of other organs, especially in the female. Research work in endocrinology should be watched and encouraged. Dr. PARKES WEBER agreed that some printed instructions such as Dr. Geoffrey Evans gave to his patients were likely to be extremely useful, but he would go further and say that it was young, healthy, non-neurotic people who should have the benefit of such instructions. It was such people who were most tempted to neglect the calls of Nature and to draw upon their reserves of mental and bodily health. He believed that paroxysmal proctalgia was merely one form of unstripped muscular spasm in the abdomen. One ought to try to get at its starting-point, which might possibly be an enlarged prostate or some abnormality of the prostate before actual enlargement was reached. Some people were so constituted as to have the potentiality of painful spasm in the abdomen. They were born with it, and it was necessary in each of these cases to try to learn everything possible about it and so to take measures for its prevention or relief.

SCOTTISH DIPHTHERIA IMMUNIZATION CAMPAIGN

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on May 28, with Dr. E. H. R. HARRIES in the chair, Sir ALEXANDER RUSSELL described the organization and results of the Scottish diphtheria immunization campaign, 1941-2. He began by exhibiting a graph showing the diphtheria death rate for Scotland from 1855 to the present year. The enormous death rates of 1862-5 dwarfed all later figures. From 1873 to 1933 the rate had continuously gone down, and since 1933 it had been stationary, except for the epidemic wave of 1940. A large fall in the rate occurred in 1894-7, immediately following the passing of the Notification of Infectious Diseases Act, which made diphtheria and membranous croup optionally notifiable. The notifications of diphtheria in Scotland, which in 1935 were 11,065, rose to 15,711 in 1940, and fell to 13,586 in 1941, 10,614 in 1942, and to 2,787 in the first quarter of 1943. The immunization campaign opened at the end of November, 1940 (it should, of course, have opened much earlier in the year). All local authorities were supplied with free issues of toxoids A.P.T. and T.A.F. It is said that with the former toxoid, reactions in the older age groups were more likely to occur, but this form had been used for all age groups, and even in older children had caused few untoward reactions. Only in one instance was the reaction such that the family doctor—who had not given the inoculation—felt impelled to notify the case, quite incorrectly, as acute erysipelas. Among the 745,928 children inoculated in 1941-2 (211,335 pre-school and 534,593 school) there was hardly a case of reaction which gave anxiety to parents or doctors. Eight children in three different areas developed somewhat similar symptoms some time after inoculation with A.P.T. The symptoms consisted of paralysis of certain arm and shoulder muscles and appeared from 14 to 25 days after the second injection of toxoid. Six of the eight children had made a complete or almost complete recovery; the other two were still under treatment.

Effectiveness of Immunization

There had been neither time nor opportunity for carrying out post-Schick tests except locally. In one series of tests at Kilmarnock in over 4,000 children 97.2% of the children under 5 to 10 years and 96.9% of those of 10 and over gave negative reaction. In Dundee, where the tests were made only two months after the last injection, the percentages of negative responses for the two age groups were respectively 90.4 and 93, while for the children under 5 the percentage was 94. From examination of swabs in the case of 796 children in Dundee there was no evidence that an abnormal carrier rate existed among the immunized.

A striking variation had taken place since 1939 in the strain of the organism. Figures for Edinburgh showed that while in 1936 *gravis* infections amounted to less than 10% of the total, in 1939 these accounted for 60 to 70%, and in his 1940 report Sir Alexander Macgregor, M.O.H. for Glasgow, also mentioned the rise in frequency of *gravis* infections. In Dundee the *gravis* type became much more prevalent during the autumn of 1940, and the new type had remained strikingly predominant. It could be said that to-day, over a large part of Scotland diphtheria was a different malady from that which had prevailed in the past. Another change had been in age incidence with a marked decrease in the percentage of cases among those aged from 5 to 15, and an equally marked increase among those over 15. It was tempting to suggest that this change of age incidence was associated with mass immunization of the school population, but a somewhat similar change was recorded thirty years ago by Dr. A. K. Chalmers, then M.O.H. for Glasgow.

Mortality Statistics

Turning to mortality statistics, Sir Alexander Russell said that up to the end of March, 1942, it could not be claimed that there had been any remarkable decrease in diphtheria mortality, but a comparison of the figures for succeeding quarters with those for the previous year was instructive:

		Deaths			Deaths
1941	Second quarter	117	1942	Second quarter	57
	Third quarter	88		Third quarter	49
	Fourth quarter	125		Fourth quarter	69
1942	First quarter	115	1943	First quarter	75

The figures for April and May, 1943, suggested that the total for the second quarter would be even lower than for the second quarter of 1942. The case mortality rates for diphtheria in Scotland, which were 19.9% in 1900, had gradually fallen to 4% in 1931, and had remained at that figure for the following ten years, but in 1942 they had dropped suddenly to 2.75%.

In estimating the results of the immunization campaign it could be said that diphtheria had ceased to be a large public health problem in nearly the whole of Scotland. The problem was now confined to the four large cities and to parts of counties lying in the industrial belt. The immunized school child was eight times and the immunized pre-school child about twenty times less prone to attack than the non-immunized. Among immunized children who did contract diphtheria the infection was almost invariably mild, and the complications infrequent. An immunized child was more than one hundred times less likely to die from diphtheria than the non-immunized.

The Situation in England

Dr. J. A. H. BRINCKER added a few remarks on the situation in England. Up to the end of 1942 the number of immunized children according to returns by the local authorities in England and Wales was 3,748,000, which, taking the child population under 15 to be 8,250,000, excluding children under 1 year old, was 45%. He gave reasons for supposing, however, that the real figure was much more like 5,000,000. Certain figures for England and Wales in 1942 suggested that, for every one immunized child who contracted the disease, 5.6 non-immunized children contracted it, and that so far as mortality was concerned the proportion was 1:11. But these figures were far from satisfactory, and the story was very different in particular localities where the medical officer of health had been careful in collecting the facts. In Northamptonshire, for example, for every one immunized child who was notified there were 194 non-immunized children who contracted the disease, and there were no deaths at all among the immunized children.

Correspondence

Conditions for Good Work

SIR,—For the majority of our profession engaged in medical practice our patients leave us little time to think of future standards of remuneration, of pensions, or whether it would be advantageous to crowd the random night calls of a month to one whole night on duty per month. Such reforms don't owe the average "medical" much, although they always figure prominently in official publications, and for obvious reasons. There is, however, one constant refrain on the lips of men I meet in practice: "What we want is conditions that make good work possible." It was the one longing in peace, and the war has intensified it. Although, of course, it may not always be expressed in those precise words, few will deny that it is the dominant dissatisfaction. This letter stresses the chief barriers to progress.

"Numbers" are the chief obstacle. The panel legislates for a maximum of patients, which, coupled with the relatives of the insured and those of better means, is about twice the number the doctor can treat efficiently. Though incessantly taught during training that "successful treatment consists in diagnosis, diagnosis, and diagnosis," a young doctor finds that practice makes a mockery of the aphorism. At his "surgery" the doctor's one idea is how to dispatch the patient quickly and so get in the other forty or fifty thronging the waiting-room. With such interviews even the shrewdest doctor is bound to err sometimes, for "more things are missed by not looking than by not knowing." This scandal will remain whatever the doctor is paid. The remedy lies not with the Mint but with the medical schools, and it will take many years for them to double the number in our profession and so furnish a decent proportion between doctor and patients. Aggravating the foregoing is the unduly high proportion of trivial complaints, however insignificant, each must be "seen," for a serious malady may lurk among them. The minutes so occupied soon mount up to an hour, and those for whom succour is vital are kept waiting and will miss the deliberation and care they merit. The greatly increased demand for certificates is an even worse abuse of medical talent.

This brings us to the second major grouse. "When the interesting case does arise there is no time to go into it properly." Instead of studying it in detail the doctor temporizes by a bottle of medicine or has to send the patient into hospital and so loses sight of him. The obvious remedy is to copy in the panel sphere the satisfying procedure of private practice. Then the doctor would have plenty of time for full consideration of cases, and would automatically attend special consultations, and be expected to share in treatment if the patient entered hospital. This ensures the continuity of care and interest by the family doctor.

Thirdly, the doctor is thwarted by lack of adequate home help for invalids. This causes vexation and disappointment when the illness is one which is well within his competence to treat. We need a "general practice annexe" to major hospitals for such patients. The general practitioner would continue to be in sole charge; the nursing costs would be shared with the hospital—a mutually economical arrangement; specialist services, should need arise, would be close at hand.

Fourthly, "divided responsibility" breeds discontent. Advice by one doctor at the welfare clinic or in school during the day is apt to conflict with that of the family doctor to whom the parents may resort during that evening. One captain should guide the ship of health. Having sole responsibility and the patient's welfare entirely dependent on him put the doctor on his mettle.

The Government that removes these bad conditions will confer a genuine boon on our profession and an infinite blessing on the sick. Left, they induce a sense of frustration disheartening to those ardently seeking efficiency in a vital national service.—I am, etc.,

A. WILFRID ADAMS.

The Government's Proposals

SIR,—The publication of Dr. Grasse's letter (May 29, p. 679) was most opportune. After a careful reading of Dr. Hill's statement of May 16 one is forced to the conclusion that our representatives are not prepared to see the benefits which the Government's proposals offer to both the public and the profession. There is no reason why patients attending a health centre should not see the doctor of their choice provided they attend during his consulting hours, just as it is now possible for a patient to see a particular consultant at a hospital out-patient department. Should treatment be required outside the usual consulting hours it is probable that it would be for an accident or some emergency, in which case prompt attention would be the patient's chief concern. The patient would also have the satisfaction of knowing that there was a doctor readily available at all times. Under the existing system there are partnerships where "free choice of doctor" is present only to a limited extent.

As salaried public servants the profession would probably be more respected. Healthy competition may be a good thing, but there is no sharp dividing line between this and other less ethical methods of maintaining or increasing the income from a practice. The suggested remuneration would appear to be adequate when it is considered that it would be net income and that we should be free from practice expenses, mortgage interest, and capital repayments. Although the salary would mean a reduction of income, it is possible that many practitioners might consider this a reasonable price to pay for freedom from worry. On the other hand, any compromise such as a further extension of N.H.I. would only give us the worst of both worlds. The proposed arrangements should help doctors' wives, two of whom have written to the *Supplement*, as even in peacetime they will, under the present system, continue to live "over the shop"; also to obtain domestic staff will still be a problem. At health centres it would be possible to employ a regular and trained staff for clerical and domestic duties, and a system of shift work could be adopted.

It has been stated that there is some ill-founded optimism regarding the possibility of improving working conditions as there will be no great accession to the ranks of doctors. Surely it would be better to have a definite rota of duties involving more work if it gave us the satisfaction of knowing that there would be some time which we could call our own. As there are men from "single-handed" practices in the Forces who consider that the Government's proposals are being opposed by some older men who are at home in well-established practices, it is to be hoped that all will be given an opportunity to record their wishes before this promising scheme is finally rejected.—I am, etc.,

JOHN V. LAVERICK.
Surgeon Lieutenant, R.N.V.R.

Labour and State Medicine

SIR,—There must somewhere be a fable about a gathering of the animals for the purpose of setting up a community in which it is recognized that each member will have to give up some of his ways in return for the others doing likewise; but all in vain, for none of the delegates would pledge its kind to surrender its predatory habits until all the other animals had done so first.

It is this sort of progress that is contemplated by the writer of the article under the above title (June 19, p. 761) when he suggests to "our would-be political masters" (perhaps forgetting for the moment the strictly non-political attitude of the *Journal*) that "the house should be set in order first, and the people in it fed and clothed properly, before calling in the doctor." If the patient can get well before calling in the doctor, so much the better for the patient, if not for the doctor. But what if he cannot? A state of society which can be set in order before calling in the doctor is one which, *ex hypothesi*, does not need the doctor at all; and, conversely, a state of society in which the doctor plays a necessary part—that is to say, every state of society hitherto known—cannot be set in order without calling in the doctor.

Thus the writer of the article scores what would seem to be a bad point by attributing to the policy of "our would-be

political masters" the very error into which he has fallen himself—that of isolating a single aspect of the programme of reconstruction and treating it as though it were the entire programme itself. In a society in which the relationship of the doctor to his patient changes simultaneously with the relationship of every man's benefits (the doctor's included) to his needs, it will not be true to say that "the doctors will remain the same men" or that "their patients will (in some respects of health and sickness) remain the same men, women, and children."

As to the incentive to work, those many doctors whose impulse to work comes from their enthusiasm for their vocation will not work with the less encouragement because at the health centre they will be provided with the best and most modern equipment and adequate and efficient assistance, an absence of over-strain, and no temptation to waste their time on wealthy imaginary invalids at the expense of the panel queue. Those few who depend for their incentive on financial reward will find their drive in other directions in a world in which what change is left out of the taxes will only buy a very limited amount of comfort and prestige.—I am, etc.,

Great Bookham.

RICHARD A. MANCLARK.

Service under a Lay Council

SIR.—Your leading article on June 19 (p. 761) prompts me to put on record one little incident which occurred while I was a member (Independent) of a town council in Scotland (I have been a member of two town councils and two county councils) where there was a large Labour majority. There was a vacancy for a medical officer of health, and I was a member of the selection committee. We met, and, from the 12 to 14 applications received, formed a "short list" of 5 for interview. The first doctor interviewed was the youngest applicant, and he expatiated greatly on his wide experience in the serum treatment of scarlet fever. I may mention here that I maintained strict silence throughout all the interviews. A later candidate was somewhat taken aback when a member of the committee suddenly asked: "Now, doctor, how do you treat your scarlet fevers?" I must confess that at this juncture I gave the doctor a wink, and here I might mention that I knew none of the applicants nor had I ever seen any of them before, although they were aware of the fact that there was a doctor on the selection committee. The wink doubtless disclosed my identity. The question was asked by a man who once upon a time went round the town with a fruit cart and then later became an agent for the Co-operative Insurance Society.

I would not like to have been in the shoes of any of those medical men who, under the present ridiculous system, were forced to answer the questions (many medical) from the lips of this semi-ignorant and semi-illiterate body of councillors. It is evident that the Labour Party desires not only to perpetuate but to extend farcical local government. I suggest a qualifying examination for prospective town and county councillors as a pre-requisite to good local government.

For myself I am prepared to play my part in any State Medical Service enacted by and under the control of the session, but with the memory of my experience of present local government I will oppose to the bitter end any attempt to force me to serve under a town or county council. I authorize you, Sir, to give my name and address to any medical man who desires further information relative to my own experience with lay committees; but at present I hope I may, for obvious reasons, be allowed to sign as—

FORMER COUNCILLOR.

Medicine and Politics

SIR.—Your correspondents who criticize my two articles appear not to realize that science and knowledge are far more important than any political consideration. When German scientists state that psychoneurosis is unknown in the German Army they indicate the subservience of German science to German politics, and are rightly regarded with contempt. Religions and political creeds have often in this way attempted to pervert and to bend scientific truth. To-day's political creeds, of whatever colour, have not suddenly achieved omniscience and intellectual fairness. Knowledge, or science, is

greater than nationalism or patriotism, and *a fortiori* is greater than any Government of the day. Still greater is it than capitalism, socialism, Marxism, or any other party belief.

I suspect that my critics are tied to political placenta by party umbilical cords, and they fear any threat to the channels of intellectual nutrition. They are attempting to serve two masters—science and politics—or, by rationalization, have persuaded themselves that politics and science are one and the same thing. I believe that doctors, in order to serve the public adequately, must follow science alone, and must retain the right of independent criticism of all political parties or dogms. They must serve the public to the best of their ability, but this duty to the politically expressed wishes of the country applies only so long as these wishes do not run counter to accepted scientific principles. The examples of Galileo, Freud and Einstein illustrate this point.

When Mr. Somerville Hastings (June 19, p. 766) attempts to defend politicians I do not quite know where to take him for he previously attempted to deny that municipal medical superintendents had power to interfere with the practice of their medical staffs by quoting the L.C.C. rule that the medical superintendent shall "organize and supervise the work of the medical staff of the hospital and be responsible for the day and punctual attendance upon the patients and for the giving of the requisite directions as to their treatment, nursing, and diet by the medical officers, and for the condition of the wards." All my statements regarding the political control of medical officers in the L.C.C. and other municipal hospitals could have equally been confirmed. He says that politicians are as mistrustful of doctors as the latter are of politicians. The mistrust felt by politicians is the fear that ignorance is of knowledge. The mistrust that the medical profession has of politicians is founded upon bitter experience of political theory and practice.

Mr. Hastings regards as "arrant nonsense" my statement that intellectual activities are not encouraged by politicians. I would ask him to look into the question of the municipal achievements in that most important of intellectual activities—education. The classes are universally too big, the teachers are scandalously underpaid, and the percentage of subsequent illiteracy is not negligible. Either the politicians concerned are ignorant, or they are incompetent, or they are dishonest. In any case they can hardly be said to encourage intellectual activity, which is exactly what I affirmed. The same educational conditions exist under Tory or under Socialist control. Therefore, it is not without reason that doctors who desire the best treatment for the greatest number look with some degree of mistrust at the possibility of political control of medical practice.

It is the plain duty of those who disagree with my affirmation that medical science must not be politically controlled either to state frankly that they disagree and that they wish the politicians to run medical affairs or to prove that a State service can be devised in which complete professional freedom may continue to exist.

Dr. Gainsborough's letter (June 12, p. 738) is so full of the "skittle technique"—ascribing to me supposititious statements or opinions, and then bowling them triumphantly down—that I suspect his political feelings have coloured his scientific judgment. I do not understand his oratorical flights or his pharmacological parentheses.—I am, etc.,

London, W.1.

GROTFREY BOURNE.

Psychiatry in General Hospitals

SIR.—The solution of the problem of mental hospital and neuropsychiatric wards in general hospitals raised by Dr. Dalton Sands (May 22, p. 628) surely lies in the hands of the mental hospitals themselves. It is because, in general, mental hospitals are so deplorably behind the times, housed usually in overcrowded barrack-like buildings which petrify the ideas of the middle of last century, terribly under-staffed in doctors and nurses, that the growth of hospitals like the Sutton Emergency Hospital is at all possible or necessary. The measure of success attained by Dr. Sands is also the measure of the failure of the L.C.C. to adapt its mental hospitals to present-day needs. It is most urgently desirable that mental hospitals throughout the country should wake up in time and make themselves into

pleasant places, utilizing every available method of treatment to a far greater degree than is customary to-day. To achieve his end a number of reforms are necessary:

1. The repeal of the Lunacy Act, 1890, including abolition of the Board of Control.

2. Certification to be entirely medical in character, along the lines of the present temporary certification, with the Courts of Justice exercising oversight to prevent wrong certification.

3. As an early post-war measure the pulling down of all present mental hospitals and their substitution by temporary hospitals consisting of isolated single-story wards, each holding 25 patients at the most. This will be the solution to Dr. Crichton Miller's (?) fundamental issue of the locked gate (June 26, p. 800). Not more than 5% of the patients in any mental hospital to-day need be in locked wards, but because we are condemned to work in out-moded buildings built by our great-grandfathers we still have to keep the majority locked up. Like the stopped window the locked door is, in general, as out of date as the padded room. These temporary hospitals should be built on the edges of the towns they serve and not isolated in the depths of the countryside. They should have a life of about thirty years and should then be pulled down and rebuilt in accordance with the current ideas of the day.

4. All mental defectives should be removed from mental hospitals to suitable institutions. At present far too many of our beds are filled by defectives who seem to have given a little trouble at a colony for mental defectives and consequently promptly certified and sent to a mental hospital for the rest of their days. Institutions for defectives should be "up-graded" and compelled to take all types of defectives, including psychotic ones for whom adequate psychiatric treatment in the institution should be available.

The adoption of these reforms would constitute a far more radical solution than would the setting up of neuropsychiatric wards in general hospitals. Dr. Minski (p. 800) cannot have it both ways, and despite his desire not to see mental hospitals used "solely as dumping grounds for the chronic, incurable patient," the widespread adoption of neuropsychiatric wards must inevitably lead to this. What sort of patients would Dr. Minski send to the mental hospitals?

A few other matters raised in the correspondence following Dr. Sands's article call for comment. The question of stigma is not peculiar to mental disease. It is attached to any disease of poor prognosis. Malignant disease, tuberculosis, syphilis, the typhoid carrier state, are all subject to it. Make our mental hospitals the curative places they can become and the stigma attached to them will largely disappear.

Dr. Minski's critical letter is itself open to criticism, especially his reference to the unfortunate use of the word "proved" by Drs. Rees and Shepley. In neither letter is it stated what these modern methods of treatment are supposed to have "proved." Surely "to prove" is a transitive verb. Presumably Drs. Rees and Shepley mean that these methods have proved of value in the treatment of patients in certain mental hospitals. Few people would agree with Dr. Minski that this is a "rather sweeping statement." Obviously the methods are still in the experimental stage and will, we hope, soon be replaced by more kindly ones, but the antithesis made by Dr. Minski is a false one. If Dr. Minski wishes to know why the number of voluntary patients at Warrington Park is increasing so rapidly I would advise him to visit the hospital. The visit will provide an adequate answer to his question.

Incidentally, the attitude of what one might term the "Maudsley-Tavistock" group towards the orthodox mental hospitals is in itself an interesting psychological, if not a psychiatric, problem. Adler has a word for it, I believe.—I am, etc.,

Joint Counties Mental Hospital, Carmarthen.

A. M. SPENCER.

Special Clinics

SIR,—I agree heartily with Dr. R. H. P. Hick's annoyance (June 5, p. 707) with the Family Planning Association for starting yet another kind of special clinic for work which G.P.s ought to do. But it must be admitted that Dr. Joan Malleson (June 19, p. 769) has dealt him a heavy blow in reply. We family doctors, if we are honest, must admit that one factor in the growth of the special clinics has been the disinclination and incompetence of many of us for the kinds of work they do. Let any G.P. who doubts this put it to the test as follows: Revise, if necessary, his knowledge of infant feeding and mothercraft by careful study of one modern textbook, buy some

scales, and then start a weekly baby clinic at his own surgery. Within a year not one of the mothers in his practice, whatever her income, will use the infant welfare centre, and—dare I say it?—they will all have finer babies than those who do.—I am, etc.,

Cambridge.

H. R. YOUNGMAN.

The Cult of Negative Health

SIR,—The letter of Dr. R. E. Lucas (June 19, p. 766) is opportune. We cannot be reminded too often that the living organism requires, if it is to thrive, an environment sufficiently unfavourable to provide a constant stimulus and challenge. Without this it becomes fat and soft and a prey to disease and decay. In the human being added symptoms are a restless discontent and a seeking after artificial pleasures. The principle applies in all spheres of life, and while it is right to recognize this inner paradox, it would be a pity to ignore the more remote but not less important effects in social organization. Not only has a greatly improved standard of health been accompanied by an increasing tendency to hypochondria, but an equally great improvement in social services and economic security has run parallel with an increased anxiety about the future, with lessened individual self-confidence and self-reliance. This apparent paradox of increased security giving rise to increased anxiety is only comprehensible in the light of the principles on which Dr. Lucas lays stress.

Apart from these general principles we are faced in the years immediately ahead with special problems arising in a generation that has spent its childhood years in the insecurity accompanying evacuation, parental separation, and war conditions generally. It may be confidently anticipated that the childhood insecurity will give rise to consequences demanding exceptional elasticity and adaptability in the social system. Two of such consequences will be a tendency to postulate on the one hand the conditions supposedly causing the sense of inner disquiet, and to demand on the other hand changes in such conditions. Anxiety over ill-health may well be a prominent feature in the picture.

It has been stated that the general practitioner has a vested interest in disease, and that the development of a State Medical Service would solve all our difficulties. But the public health services have thought as much or more in terms of prevention of disease instead of creation of positive health, and have based their appeal, along with the advertisers of potent medicines, upon the people's fear of sickness. The objectives may be beyond criticism; the methods leave much to be desired.

Why is it that "health centre" is already being widely used in connexion with what is little more than an exceptionally well-equipped general practitioner's surgery, more appropriately termed a "sickness clinic"? The healthy have an instinctive and natural antipathy to sickness and the sick, and there is little hope of attracting the fit to a health centre unless health is presented as worth seeking for the joy of living instead of for the avoidance of pain and incapacity. The valuable field work done by the Peckham Pioneer Health Centre seems to be ignored. The evidence presented in the interim report of that centre is invaluable. They noted the danger of persuasion and even of advice. "Individuals, from infants to old people, resent of fail to show any interest in anything initially presented to them through discipline, regulation, or instruction, which is another aspect of authority." And again, in speaking of the "sick," "they can and do, however, their health doctor—he is different. We can't stress this psychological fact too much. The fact that the health doctor has no interest in sickness or its treatment is apparently a major contribution to the attitude of the sufferer. The health doctor is in the position of the solicitor, not the barrister. . . . The one will be approached in faith, the other in fear." Here surely is the crux of the matter, and one not easy for doctors, who have presumably overcome their instinctive aversion to disease, to understand or assess adequately. A real health centre for positive health will become a practical reality as part of a civic cultural and recreational centre only where the health doctor is one of a team, assisting in the development and maintenance of body and mind at the greatest potential

activity. It must, however, be open to doubt whether the existing training of the medical student equips a doctor to play such a part efficiently.—I am, etc.,

London, W.1.

ALAN MABERLY.

SIR,—I hoped and expected that Dr. R. E. Lucas's letter (June 19, p. 766) would have been followed up by others on the same theme by more competent people than myself. May I beg space to put down some of the thoughts that her letter awakes in me?

A little attention will show how many of our daily experiences bear out the thesis put forward by Dr. Lucas. Take the baneful effects of the N.H.I. Acts on doctors and patients alike, both sets of victims witnessing to the degrading effect of the spoon-feeding of the one and the enslavement of the other. All medical men and women who have anything to do with the insured person can testify to the apathy and helplessness of the average specimen, who expects everything to be done for him or her. Consider next the disastrous effects upon the health of both body and mind of women who have practised contraception and the severe limitation of the family. As one who has spent over fifty years in the profession of medicine I say advisedly that the most healthful women in my experience have been those with large families—i.e., those whose path in life was not of the rosiest; they had to "make do," as Dr. Lucas says of the healthy, capable, resourceful, and ingenious countrywoman.

As but a thin partition divides the conscious from the sub-conscious processes of the organism (for surely all reflex acts must at some time in the evolutionary march have been conscious acts) all those capacities for adjustments of the organism by which it has succeeded in the struggle for survival will surely suffer through lack of use, owing to man's over-zealous scientific interference with the interplay of the forces within the organism and those in its environment. A more "jittery" set of psychoneurasthenics than the subjects of six-monthly or yearly anticoryza, or anti-influenza, or anti-pneumonia injections it would be hard to imagine. If Dr. Lucas means something other than this in her fifth paragraph I have misunderstood her, and I would boldly say she ought to mean what I think she does!

The world is filled with the unfit—unfit physically, mentally, and morally—and it would appear to be the aim (and it certainly will be the end) of the planners, Beveridge or other, to add to their numbers. In conclusion I would say that Dr. Lucas's thesis, stated in her second paragraph, deserves the closest attention. What the world needs is a population of educated individuals—not specialists—all of whose "interests, abilities, and energies" are called into play in the process of living.—I am, etc.,

Acton, W.3.

A. R. EATES.

Vesalius and Gray on Anatomy

SIR,—There were two related subjects dealt with in recent numbers of the *Journal* which you failed to connect in your interesting leading article. They were the account of Vesalius's *Fabrica* (June 26, p. 795) and the article on the principles of exercise therapy (June 19, p. 747).

Vesalius, you comment, had the conception of the human "machine" as something at work; it was always living anatomy as he was trying to describe, and the arresting picture of the man walking so gracefully without his skin illustrates it. One can only look at the picture to see the working of the muscles. The rectus femoris brings the leg forward, the gluteus maximus drags, and then both muscles push the body on in our most frequent movement—walking. Yet in the description of the action of these muscles in my copy of Gray's *Anatomy*, 15th edition, the fact that they are used in walking is not mentioned, and there is certainly no mention of the action of the vastus internus which Mr. Nicoll describes and the recognition of which is of such practical importance.

There has been discussion lately on the teaching of anatomy, and here surely is one of the reforms needed—to return to the conception of Vesalius and teach the anatomy of the skeletal system as living anatomy. Perhaps collaboration of an anatomist and an artist might again be fruitful, and the artist should certainly be Walt Disney.—I am, etc.,

Bury St. Edmunds.

S. D. KILNER.

Subcutaneous Emphysema in Small-pox

SIR,—In view of the recent correspondence in your column on the very rare condition non-surgical subcutaneous emphysema in laryngeal diphtheria, it is worth recording that the complication may also occur in small-pox, a disease not mentioned by Dr. J. D. Rolleston in his letter on the subject (Jan. p. 120).

I noted the complication in 1939 in a Chinese male aged 20 was suffering from severe confluent small-pox. He was admitted to hospital desperately ill on the 10th day of the disease, with muffled breath sounds and signs at both lung bases suggestive of bilateral consolidation. Within 48 hours of admission he had developed marked non-surgical subcutaneous emphysema which extended from the roof of the neck to the intercostal space on both sides. As his illness had only lasted a few days it was improbable that necrosis of laryngeal cartilage had caused the condition, though that diagnosis was tentatively made. He died on the 14th day of his illness, and necropsy showed a marked laryngeal enanthem, oedema of the glottis, disseminated bronchopneumonic foci in both lower lobes, and a ruptured emphysematous bulla on the surface of the upper lobe of the right lung. This explanation clearly held good in this case.

I have found no other record of this complication in small-pox.—I am, etc.,

Famagusta, Cyprus.

PAUL WILKINS

Treatment of Cyclic Vomiting

SIR,—It is probable that the distressing complaint of cyclic vomiting will become more common again among children after the present war as it did after the war of 1914-18. The treatment prescribed in textbooks is not hopeful. For instance, Letheby Tidy in *Synopsis of Medicine* (1939) writes: "Cyclic Vomiting.—Best left alone in dark room. No treatment will attack." (Duration 1 to 5 or 6 days.) "Enema. Fomenta or mustard leaf to the epigastrium. Ice to suck or hot water to drink. Food not to be pushed, but attempt small frequent drinks. Salines per rectum if collapsed." (Italics are mine.) The following treatment is simple and logical, and I have found it highly effective in one well-marked case. Nothing is given by the mouth; the bowels are opened by enemata thereafter normal saline with bicarbonate and glucose is given per rectum every two hours by means of a 4-oz. rubber bulb. Desiccation is thus prevented and the patient recovers in a few hours. Oral feeding can be resumed cautiously with lemon or warm beef-tea. Milk must be avoided. Under these conditions the child does not develop that fear of the complaint which is one of the causes of recurrence.—I am, etc.,

Cambridge.

F. H. STEWART

Adder Bite

SIR,—Flying Officer T. M. Davie's interesting letter on adder bite (June 19, p. 769) is likely to induce others, who are confronted with this condition and unable to obtain antivenom, to follow his example of injecting heparin. I should like to point out, however, that injections of heparin are known to produce a condition of increased liability to haemorrhage. The most striking local effect of adder venom is the production of a "haemorrhagic oedema" due to the escape of lymph and blood from the vessels whose endothelium is damaged. The action of the venom, it is difficult to see how heparin—an anticoagulant—can improve the condition of the bitten limb theoretically, at least, it might rather be expected to make it worse.

Among the remote effects observed in severe cases of adder bite, bleeding from the lips and gums, haematemesis, a uterine haemorrhage (intermenstrual) have been noted. In the only necropsy report which I have seen diffuse haemorrhage on the brain surface, haemorrhagic oedema of the lungs, a congestion of the kidneys were among the findings; and was mentioned as noteworthy that "there was no clotting of the blood." This evidence supports the view that it is the haemorrhagic tissue-destroying fraction of the venom that is of importance, and I know of no clinical evidence in support of the idea that intravascular thrombosis—as by a powerful thrombolytic fraction—is to be reckoned with in human beings bitten by *V. berus*. Venoms of some tropical species—e.g., Russell's viper—are known to contain a powerful thrombolytic but argument from analogy of other species is notably unsound.

the case of snake venoms. In view of the known facts should therefore feel inclined not only to doubt the efficacy of heparin as a treatment for adder bite but to regard its use definitely contraindicated. May not Flying Officer Davie'scellent result have been due (1) to the mildness of the case, (2) to his use of hot-kaolin poultices?—I am, etc.,

Terreford.

C. W. WALKER.

Aspirin and Gastric Haemorrhage

SIR.—The question of aspirin and gastric haemorrhage as viewed in Sir Arthur Hurst's letter (June 19, p. 768) raises her relevant aspects of aspirin and its relation to haemorrhage. It would seem possible, in spite of the gastroscopic appearances of the stomach after aspirin ingestion, that the oduction of haemorrhage may be post-absorptive if com-ison and analogy with other aspirin-produced haemorrhages id true. Thus in three cases of epistaxis seen in a short ace of time all were, in my opinion, caused by aspirin, two them being conclusive. In one of these, a child, subsequent periment showed that epistaxis could be produced at will giving aspirin; no evidence of a haemorrhagic tendency ould be discovered otherwise. In the other, an adult with peripiesia, the information was volunteered by the patient that pirin taken for headache always caused epistaxis. In the ird case aspirin had been given liberally.

Aspirin-taking being such a universal habit it is difficult to it a clear idea as to what extent it does produce a haemor-agic tendency, but it would seem necessary in all cases of scure haemorrhage—whether retinal, nasal, gastric, vaginal ncluding menorrhagia), etc.—to inquire if aspirin has been ken. As aspirin can definitely be a cause of extragastric aemorrhage Sir Arthur Hurst's recommendation that it should e taken in powder form to obviate gastric haemorrhage will e of no benefit, especially should the essential lesion prove e a capillary defect due to blood-borne aspirin or its mpounds.—I am, etc.,

Birmingham.

M. HONIGSBERGER, M.R.C.P.

SIR.—In connexion with my letter in your issue of June 19 n aspirin and haematemesis I have been reminded of the astroscopic observations of Douthwaite and Lintott, which emonstrated that calcium acetylsalicylate showed none of the eal irritant action of ordinary aspirin, presumably owing to is ready solubility and consequent rapid dispersion into solu-ion. It can therefore be used without any fear of causing aematemesis.—I am, etc.,

Oxford.

ARTHUR HURST.

Stilboestrol for Breast Tumour

SIR.—Following the annotation on cases of prostatic cancer eated with diethylstilboestrol (Nov. 28, p. 641) I should like o record a case of a tumour of the breast similarly treated.

The patient, a woman of 78 years of age, stated that the lump n her breast had been present for at least ten years. She had con-ealed it and refused all treatment until I saw her at the end of 942. She was emaciated and bed-ridden. In the upper and outer uadrant of the left breast was an offensive fungating tumour the ize of an orange. It bled easily when touched. There were enlarged lands in the axilla. The tumour appeared to be an adenocarcinoma. The patient complained of pain in the region of the left shoulder and p the back of the neck. She also had difficulty in swallowing. She was anaemic: the red corpuscles numbered 3,900,000 per c.mm., he haemoglobin being 53% and poikilocytosis marked.

On Dec. 21 treatment was begun with diethylstilboestrol, 1 mg. hree times daily by the mouth. This caused no nausea, but the ose was not regularly taken. Up to the present 250 mg. have been bsorbed. On Jan. 13 the tumour appeared to be slightly smaller, and the patient improving in health. On March 20 the tumour was finitely smaller, and covered by a thin layer of epithelial cells. o-day, although she is still anaemic and the ankles are swollen, she feels well and has nearly regained her normal weight. She is up and about at her household duties. She has no pain and no difficulty in swallowing. There is a firmly healed non-adherent scar easuring 3 in. by 1½ in. at the site of the tumour. It is surrounded y a ring of dilated blood vessels. There is some thickening behind he anterior axillary fold, due to some lymphatic glands.

The great interest in the case was the clearly visible tumour, which could be seen during its retrogression. It was unfortunate

that microscopical sections could not be obtained, but one felt much indebted to the patient's horror of an operation for an instructive experience.—I am, etc.,

Pittochry.

W. M. BIDEN, M.B.ED.

Economy of Advertising Space

SIR.—Waste of paper and labour results from the repetition of those parts of each advertisement of hospital and public health appointments which could be reduced to a formula. By the co-operation of those advertisers both as regards the date and form of their submissions, a system of classification could be applied, more economical and more immediately intelligible.

Your journal is believed to have such satisfactory relations with other publications as to be able to agree on a matter of this kind, and sufficient strength of character to make it effective in any case in which the need for avoidance of unnecessary waste is not sufficiently appreciated.—I am, etc.,

Chester.

D. STENHOUSE STEWART.

Obituary

R. W. BEESLEY, M.D., M.R.C.P.ED.

Dr. Robert William Beesley, for many years one of the leading practitioners in Bolton, died on June 5 after a short illness at the age of 70. His death removes a distinguished personality from the ranks of the local profession. He was known and esteemed by a very wide circle of friends both in this country and abroad. A native of Preston, he was educated at Preston Grammar School and studied medicine at the University of Edinburgh, winning the Buchanan Scholarship and graduating M.B., C.M. with honours in 1894; he took the M.R.C.P.ED. in 1898, and in the following year won a gold medal for his M.D. thesis. After graduation he served as resident gynaecological physician at the Edinburgh Royal Infirmary and resident physician at the Royal Maternity Hospital. In 1900 he set up in practice at Bolton, and soon afterwards was elected to the honorary staff of the Royal Infirmary, where he had held the post of house-surgeon for some years. When he resigned from the active staff in 1932 on reaching the age limit and was appointed consulting surgeon, the committee recorded its admiration for his great surgical skill and its high appreciation of his splendid work. He was entirely responsible for the first appeal for funds for extension of the hospital in 1919. Dr. Beesley's lucid evidence in Assize and County Courts in connexion with workmen's compensation cases, and also in the coroners' courts, was widely appreciated. He had been a member of the B.M.A. since 1908 and was a Fellow of the Edinburgh Obstetrical Society and the North of England Obstetrical and Gynaecological Society. Outside his professional life he was an enthusiast for the production and use of pure milk, and had three farms where he kept special herds.

Dr. ROBERT REID McLEAN of Harpurhey, Manchester, died on June 3 at the age of 72. He was a native of Belfast and graduated M.B., B.Ch., B.A.O. of the old Royal University of Ireland in 1897 after studying at Queen's College, Belfast. He had practised in the North Manchester district for over 40 years, in the course of which he built up a very large practice. A colleague writes: Dr. McLean's keenness for work and the enthusiasm with which he kept his medical knowledge up to date were a source of inspiration to his partner and many assistants. Latterly he had been a bitter opponent of State Medicine, and the depth of feeling expressed at his death by his very many patients may be an indication of the ties which bind the general practitioner to those he serves.

By the sudden death of Dr. AUGUSTE BOYES, which occurred at her home on June 4 at the age of 67, Dundee loses a well-known personality. She was the daughter of Thomas Gilchrist Boyes, and graduated M.B., Ch.B. at Glasgow in 1899. Her introduction to Dundee was as resident medical officer in the Eastern (now Maryfield) Hospital. Subsequently she held appointments in Shropshire and Surrey, returning to Dundee in 1919 to succeed a prominent medical woman who was retiring from private practice. Dr. Boyes took a keen interest in both the clinical and administrative sides of medicine, and was a

former vice-president of the local branch of the B.M.A. In addition she was an interested member of the Dundee Burgh Insurance Committee, the Panel Committee, and the Mothers' Welfare Advisory Clinic. Not only patients and colleagues but a wide circle of friends will miss Dr. Boyes, as she was the assistant county controller and assistant county director of the Dundee branch of the Red Cross Society and was a member of the Soroptimist Club, the Women Citizens' Association, the Dundee Art Society, the League of Nations Union, and the Orchestral Society, in all of which she took an active part. Dr. Boyes continued her work and interests until the time of her death, which was her wish. Those who knew her well could not visualize her in an enforced inactivity.

The Services

Temp. Surg. Lieut. J. W. Bringan, R.N.V.R., has been mentioned in dispatches for courage, leadership, and skill.

Surg. Lieut.-Cmdr. J. M. Ridyard, R.N.V.R., has been awarded the Norwegian War Medal for good services with the Royal Norwegian Navy.

Major A. C. Crawford, T.D., and Lieut. J. C. B. Whycherley, R.A.M.C., have been mentioned in recognition of gallant and distinguished services in Malta during the period May 1, 1942, to Oct. 22, 1942.

The following have been mentioned in recognition of gallant and distinguished services in the Middle East during the period, May 1, 1942, to Oct. 22, 1942: Brigadiers (temp.) C. Crawford-Jones, C.B.E., and J. Walker, C.B.E., M.C., late R.A.M.C.; Col. E. Scott, D.S.O., T.D., late R.A.M.C.; Brigadier (local) J. A. Sinton, V.C., O.B.E., Col. W. H. Kerr, T.D., Col. (acting) L. M. Rowlette, D.S.O., M.C., and Lieut.-Col. D. Crellin, M.C., R.A.M.C.; Majors (temp. Lieut.-Cols.) A. C. Armstrong, D. L. C. Bingham, J. H. Dunn, J. B. George, H. G. Kirwan-Taylor, R. R. Leaning, O.B.E., J. T. Lewis, C. I. N. Morgan, A. N. B. Odbert, D. U. Owen, T. McK. Robb, W. H. Scriven, A. Simpson-Smith, and V. C. Verbi, R.A.M.C.; Major G. M. Curtois, R.A.M.C.; Capt. (temp. Major) J. Amos, J. B. Bamford, H. B. Craigie, W. S. Gale, R. S. Handley, J. M. Henderson, C. R. Lane, N. A. Lawler, R. B. Martin, J. H. Mayer, J. J. McCarthy, J. W. F. Munden, M. W. C. Oldfield, and G. M. Willoughby, R.A.M.C.; Capt. L. J. Blay, J. Brennan, W. R. S. Doll, A. A. Evangelides, A. P. Grant, H. A. Koretz, D. D. Muir, and H. M. Pickard, R.A.M.C.; Majors (temp. Lieut.-Cols.) H. W. Farrell and G. S. N. Hughes, I.M.S.; Capt. (temp. Major) (acting Lieut.-Col.) L. Morgan, I.M.S.; Capt. (temp. Major) C. H. Bliss and W. J. Young, I.M.S.; Capt. H. Rees and G. R. C. Palmer, I.M.S.; Subadar T. Singh, Jemadur A. F. M. Burhanuddin, and Asst. Surgeon (1st Class) G. T. Wrafter, I.M.D.

CASUALTIES IN THE MEDICAL SERVICES

Wounded.—Capt. J. L. G. Hartley, R.A.M.C., War Subs. Capt. D. F. D. O'Neill, R.A.M.C., Lieut. J. S. Stevenson, R.A.M.C., War Subs. Capt. A. Winder, R.A.M.C.

Prisoner of War.—Capt. A. J. Bailey, R.A.M.C.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination held:

Medicine.—Part II (Principles and Practice of Physic, Pathology, and Surgery): E. L. Arnold, J. Attenborough, E. H. Back, R. A. J. Baily, B. Balme, D. R. Barnes, C. H. Barnett, R. F. Bates, D. L. Bridgewater, Calnan, D. J. Conway, R. P. Cook, J. Davenport, M. B. Devas, D. H. Egan, F. H. Epstein, J. W. Fawcett, R. M. Forrester, H. A. Fraser, M. R. Geake, S. R. S. Godkin, R. N. R. Grant, H. C. Gupta, B. Halah, J. R. Handforth, E. H. Hare, H. Harris, G. Hildick-Smith, J. K. Hinds, P. H. Huggill, E. N. M. Johnston, P. F. Jones, J. O. Laws, J. Lister, J. C. Lloyd, E. Loder, C. S. McKendrick, A. L. McLeod, D. H. Makinson, N. M. Mann, P. G. Mann, A. S. Mason, R. G. May, P. H. Mitchell, P. A. G. Monte, W. J. Naughton, T. Norman, J. E. Oliver, W. J. L. Pain, R. A. Peebles Brown, J. S. Pegum, J. M. Potter, J. R. Robinson, K. C. Robinson, P. H. Rogers, L. A. Roek, P. H. Schurr, O. L. S. Scott, K. H. L. Scragall, E. L. Simons, P. S. Smith, J. S. Staddon, T. R. Steen, R. V. Stone, P. R. Swyer, J. D. Trethowan, L. R. Twentyman, G. S. Uddall, D. Verel, B. J. Webb, D. B. B. Whitehouse, E. H. Williams, P. A. O. Wilson, O. H. Wolff, W. D. Wylie, Wilcoxon, S. M. E. Ambache, J. Hardy, M. Sidgwick, G. C. Thompson, A. B. Willecock, A. S. Willis.

At the Congregation on May 22 the degrees of M.B., B.Chir. (not B.Chir. alone, as printed here on June 12) were conferred upon A. W. Capon, G. F. Pantton, and F. M. P. Eckstein.

UNIVERSITY OF LONDON

At a meeting of the Senate held on June 23 Prof. Frank Horton, Sc.D., F.R.S., was re-elected Vice-Chancellor for the year 1943-4.

The title of Professor Emeritus of the History of Medicine in the University was conferred on Dr. Charles Singer, F.R.C.P., on his

retirement from the Chair of the History of Medicine at University College.

The additional M.B., B.S. Examination to be held in 1943 began on Monday, Jan. 31.

The degree of D.Sc. has been conferred upon Miss Emmy Klieneberger-Lister Institute of Preventive Medicine; Mr. W. T. Russell, a teacher at the London School of Hygiene and Tropical Medicine; and T. E. Wallis, a Reader at the College of the Pharmaceutical Society.

UNIVERSITY OF GLASGOW

At a graduation ceremony on June 25 the following medical degrees were conferred:

M.D.—1 Archibald Dick, Hugh Stewart.

1 With high commendation.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

On July 1 five Fellows were elected into the Council to fill vacancies caused by the retirement in rotation of Sir C. Wallace, Bt., and Prof. Seymour Barling, by the death of Mr. Braithwaite, and by the resignation of Mr. W. Sampson II and Sir Hugh Lett, Bt. The following Fellows were elected:

PHILIP HENRY MITCHNER, C.B.E. (St. Thomas's)
REGINALD WATSON-JONES (Royal Infirmary, Liverpool)
JAMES PATERSON ROSS (St. Bartholomew's)
ARTHUR TUDOR EDWARDS (The London and Brompton Hospitals)
LAMBERT CHARLES ROGERS (Cardiff)

The following were the other candidates:

Seymour Gilbert Barling, C.M.G. (United Hospitals, Birmingham),
Lennox Ross Broster, O.B.E. (Charing Cross)
Sir Lancelot Edward Barrington-Ward, K.C.V.O. (Great Ormond Street and Royal Northern)
John Bowman Hunter, M.C. (King's College)
Robert Milnes Walker (Royal Hospital, Wolverhampton)
Percival John Moir, M.C. (General Infirmary, Leeds)
Arthur Dickson Wright (St. Mary's)
Stanford Cade (Westminster)

In all 1,190 voted; in addition 20 votes were found to be for Major-Gen. Mitchner, Mr. Watson-Jones, and Prof. Paterson are all elected for the full period of eight years. Mr. Tudor Ed is elected as a substitute for seven years and Prof. Lambert Rogers as a substitute for two years.

Medical Notes in Parliament

APPEAL TRIBUNALS

Sir WALTER WOMERSLEY on June 24 moved the second reading of the Pensions Bill, which would give the right of appeal to all who had been refused pensions since the outbreak of war. He said wound cases received pensions almost automatically. The difficulties had arisen in dealing with disabilities which had been regarded as constitutional and not aggravated by war service. Such cases had been put before an independent medical expert with specialized knowledge of the disease concerned. That expert was nominated by the President of the Royal College of Surgeons or the President of the Royal College of Physicians. In every case pensions had been granted when these experts decided that the constitutional disease had not been aggravated by service in the Forces. The present Bill gave the right of appeal to all appellants who had been refused. There had been pensions appeal tribunals already for those who suffered disabilities arising out of the last war. All those who had been disposed of.

The principles in those tribunals set up after the last war had been satisfactory. He had modified the conditions of 1919 by which there was no pension if there had been serious negligence or misconduct. Provision had been introduced whereby a moderate pension could be granted. The House would agree that there should be an appeal against a reduced award as well as against a refusal of pension. In 1921 an appeal was brought into operation on the final assessment of the degree of a man's disability. He was providing in the Bill for that appeal, it would not be brought into operation at once because it would be against the interests of the man who might show deterioration over a period up to ten years. As after the war each tribunal would consist of three persons—in appeals relating to entitlement a lawyer, a doctor, and a layman; in appeals on assessment two doctors and a layman. He had the right to appoint doctors and had been told by the Secretary of the B.M.A. that there could not be a wide choice. He hoped these doctors would have experience of Service conditions, and that was a matter for the Lord Chancellor.

The right of appeal would extend to all to whom the Ministry had to award or refuse pensions. In the case of decisions on assessment issues, an appeal would require to be brought within 12 months of the notification of the decision. Proceedings of the tribunals would be regulated in England by the Lord Chancellor, in Scotland by the Lord President of the Court of Session, and in Northern Ireland by the Lord Chief Justice.

re tribunals would operate regionally in most cases in such centres as Liverpool, Manchester, Newcastle, Birmingham, and Cardiff. As time went on there would be an extension of tribunals so that no appellant need take a long journey.

Medical Views

Major MANNINGHAM BULLER said the tribunals would find themselves bound, as the Minister was, by the terms of the Royal Warrant. He thought the assistance of a medical assessor as all that was required on a tribunal and that it was unnecessary to provide that a doctor should have a vote. Dr. HADEN WEST said that while doctors were subject to prejudices, a doctor was always bound to be objective in his judgment on a patient. He thought the provisions of the Bill for obtaining evidence required strengthening. He knew of a case in 1939 where a civilian doctor had been ordered to examine a Territorial battalion of 900 men in two days. When women were admitted to the A.T.S. instructions were given that they were not to be completely examined. Therefore the records of those women were not complete. At Dunkirk, in Greece, Hong Kong, Malaya, Singapore, and to some extent in Libya there had been loss of medical records. It would be difficult to ascertain the condition of a man at a particular time. There were also cases of fraud. He knew a man with one glass eye who humbugged a medical officer to get into the Army. Sir HENRY MORRIS-JONES thought the Lord Chancellor was the right authority for setting up the tribunals. He hoped the Minister would accept an amendment providing that the qualification of seven years standing should be required for a medical member of a tribunal as for a barrister. Dr. MORGAN said medical men chosen in the way that had been announced would have no knowledge of judicial procedure, workmen's compensation, or social medicine. The list of men chosen by the B.M.A. had submitted to the Minister had been "vetted" by the Chief Medical Officer of the Ministry and by Lord Horder, two persons unqualified to decide. The Royal Colleges were purely examining bodies. The medical personnel at present available were not such as he would choose.

Mr. PALING, replying for the Government, said appellants could bring in any witness so long as there was no question of payment, but if the tribunal decided that specialist evidence should be brought in, the specialist would be paid. The Ministry had endeavoured to get the best people for the tribunals from the medical point of view.

The Bill was read a second time.

Postgraduate Course in Medical Radiology

Mr. MESSER asked Mr. Brown on June 10 whether the students of the only postgraduate course in medical radiology at present operating in this country had protested against the way it was conducted; and whether, in view of the urgent need for radiologists, in civil practice and the Services, he would consider exercising some measure of control over the British Institute of Radiology. Mr. ERNEST BROWN said the method of conducting this course was a matter for the university authorities and was not within his province. The British Institute of Radiology was not responsible for the course, but provided premises and other facilities for lectures arranged on behalf of London University through its special advisory board for the Diploma in Medical Radiology. His officers were discussing with this latter body the arrangements that could be made in the coming academic year to provide postgraduate instruction for suitable students to meet the requirements of civil hospitals and the Services.

Penicillin Clinical Trials Committee

Replying on June 10 to Major LYONS, Sir JOHN ANDERSON said the committee established by the Medical Research Council to organize clinical trials with penicillin was known as the Penicillin Clinical Trials Committee. Its members were: Prof. H. R. Dean (chairman), Dr. A. N. Drury, Prof. A. Fleming, Prof. H. W. Florey, Dr. Percival Hartley, Mr. R. Vaughan Hudson, Dr. C. M. Scott, Dr. J. W. Trevan, Prof. R. V. Christie (secretary), and Prof. L. P. Garrod (assistant secretary). Sir John added that there was consultation between this committee and the committee set up by the Minister of Supply (*Journal*, May 1, p. 553). The latter committee was primarily concerned with production, though it had to take clinical requirements into account. He was satisfied with the active attempts being made to manufacture penicillin. He thought its value had been established.

Tuberculosis Death Rate

In county and borough mental hospitals of England and Wales the death rates from all forms of tuberculosis per 1,000 resident males were: 1938, 4.92; 1939, 5.35; 1940, 7.52; 1941, 12.79; 1942, 13.06. For females they were: 1938, 3.77; 1939,

4.6; 1940, 5.68; 1941, 8.73; 1942, 9.01. For Scotland the comparable death rates were, for males, in 1938, 6.22 in mental hospitals and 2.66 in certified institutions. In 1939 the rates of males were 6.78 and 3.02 respectively; in 1940, 7.61 and 1.48; 1941, 9.11 and 3.43; 1942, 11.08 and 3.38. For females the rates in mental hospitals and certified institutions were: 1938, 6.14 and 1.18; 1939, 6.03 and 3.38; 1940, 6.33 and 1.11; 1941, 6.17 and 1.29; 1942, 9.23 and 4.32.

Hospital and Medical Services in Tunisia

On June 22 Sir FRANCIS FREMANTLE asked the Secretary of State for War if he would give some account of the arrangements and results of the hospital and medical services in Tunisia. Mr. ARTHUR HENDERSON circulated the following reply:

Detailed figures have not yet been received from North Africa, but all reports show that the medical arrangements made were highly successful. The medical services which formed part of the North African Force included certain new units which had not previously been employed on active service. Such, for example, were the field surgical units, which were attached either to main dressings stations of field ambulances or to casualty clearing stations. These units are in effect highly mobile operating teams, designed and fully equipped to function as such in forward areas. Associated with them were the field transfusion units, which have revolutionized the treatment of shock in the field. They conveyed and distributed the large quantities of blood and plasma used throughout the campaign, and together with the field surgical units played a large part in markedly reducing the mortality rate among casualties.

The evacuation of casualties on the whole followed lines which had been found successful in the past, but the evacuation was greatly accelerated by the transport facilities now available. These included ambulance cars, hospital trains improvised from rolling stock available locally, hospital ships, and aircraft. American aircraft evacuated over 16,000 British and American troops. The divisional medical units on occasion handled as many as 400 to 600 casualties a day. The less urgent cases were sent direct to casualty clearing stations, the cases in need of blood transfusion and resuscitation were retained, and the cases requiring immediate operations were dealt with by the field surgical units.

The hospitals in general used to accommodate casualties were general hospitals of 200, 600, and 1,200 beds. The speed with which they opened on new sites and accepted casualties was one of the outstanding features of the campaign from the medical point of view. These hospitals were mainly accommodated in tents, although the administrative parts were often in buildings. Hospitals were provided with the necessary specialist personnel and equipment to deal with cases of all types, including surgical, medical, laryngological, ophthalmological, dermatological, psychiatric, neurosurgical, and maxillo-facial cases. Special depots were provided to care for convalescents and for those who were lightly wounded, and to ensure that they were soon fit to return to duty. The general health of the troops and their standard of hygiene remained good throughout the campaign. This was due, at least in part, to the improved education of all ranks and to the better understanding by all of the problems involved.

Pneumoconiosis, Etc.—Schemes were presented to Parliament on June 29 entitled the Coal Mining Industry (Pneumoconiosis) Compensation Scheme, 1943; the Pneumoconiosis (Benefit) Scheme, 1943, and the Silicosis and Asbestosis (Medical Arrangements) Amendment Scheme, 1943; and also the Pneumoconiosis (Medical Fees) Regulations, 1943.

Medical News

Prof. Semon Sarkisov, Vice-President of the Scientific Medical Council of the U.S.S.R. and Director of the Institute of the Brain, Moscow, will speak on Soviet medical workers in the present war at the Royal Society of Medicine, London, on Thursday, July 15, at 5.30 p.m. Visitors will be welcome.

The Nuffield Ulster Provident Association, Ltd., has been launched under guarantee of the Nuffield Provident Fund. The benefits and premiums are identical with those of the Nuffield Provident Schemes in Great Britain and membership is interchangeable on transfer of a member to another locality where such a scheme is in force. The affairs of N.U.P.A., Ltd., are in charge of an elected Council of 16 members under the chairmanship of Mr. D. Lindsay Keir, Vice-Chancellor of Queen's University, Belfast. A survey of the hospital services of Northern Ireland is at present being carried out for the Nuffield Regional Hospitals Council by Lieut.-General Sir W. P. MacArthur, Dr. Duncan G. Leys, and Dr. Stanley Barnes.

The British Association of Scientific Workers has arranged a meeting on Sunday, July 11, at 7 p.m., in the Lecture Theatre of Birkbeck College, Fetter Lane, E.C., in order to demonstrate the importance of the joint efforts of the scientists of the British Commonwealth and the U.S.S.R. It is timed to coincide with a meeting of Soviet scientists in Moscow, and greetings will be exchanged. Chairman, Sir Robert Watson-Watt, F.R.S.; speakers, Prof. J. D. Bernal, F.R.S., Mr. J. G. Crowther, Prof. S. A. Sarkisov, and Sir Alfred Webb-Johnson, P.R.C.S.

Sir StClair Thomson, who died on Jan. 29, left £149,675. Among other bequests are £1,000 each to the Royal Medical Benevolent Fund and the Royal Society of Medicine; £500 each to the Royal College of Physicians, the Royal College of Surgeons, and Epsom College-Foundation; and, on the death of his sisters, £4,000 to the Royal Society of Medicine, and £500 each to the Royal College of Physicians and Epsom College Foundation.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the downward trend of infectious diseases continues: scarlet fever by 280, measles by 252, whooping-cough by 145, diphtheria by 67, and acute pneumonia by 50 cases. Notifications of dysentery were up by 37, of cerebrospinal fever by 9, and of paratyphoid by 6.

The 540 notifications of diphtheria establishes a new low record for this disease. The incidence is unusually large in the North, and the counties of Warwickshire, Lancashire, Yorks West Riding, and Durham contributed 265 cases—practically half of the total for the country.

The fall in incidence of scarlet fever was steepest in Yorks West Riding by 64, London by 51, and in Kent by 38 cases. The only large variation in whooping-cough was the drop of 104 cases in Lancashire.

There were 101 fewer notifications of measles in Staffordshire, 68 in Surrey, 63 in Northamptonshire, and 61 fewer in Buckinghamshire. Among the counties with an increased incidence the most notable were Kent, with 129 additional cases distributed generally, and Norfolk, with an increase of 58, mainly due to a local outbreak in Wayland R.D.

For the third week running an increase has been recorded for dysentery. The fresh outbreaks during the week were in Essex, Saffron Walden U.D., 17; in Berkshire, New Windsor M.B., 10; Cornwall, Bodmin M.B., 8; Somerset, Long Ashton R.D., 7; Lincolnshire, Scunthorpe M.B., 6; 8 further cases were reported from the outbreak in Gloucestershire, Bristol C.B., and 15 more from the two outbreaks in Warwickshire, Birmingham C.B. 9 and Warwick R.D. 6.

Of the 7 cases of typhoid fever 4 occurred in Surrey, Richmond C.B.

In *Scotland* the fall in the incidence of infectious diseases was general, but notifications of scarlet fever were up by 20. Although 79 fewer cases of dysentery were recorded, the disease remains at a fairly high level, with 56 cases (Edinburgh 14, Glasgow 11).

In *Eire* there were slight rises in the notifications of diphtheria, 14, and of scarlet fever, 7. Both diseases are widespread, the largest centres of infection being Dublin C.B., with 18 cases of diphtheria, and Co. Limerick, Newcastle R.D., with 9 cases of scarlet fever.

Quarterly Return for Eire

The birth rate during the March quarter was 22.7 per 1,000, was 3.3 above the rate for the first quarter of 1942. Infant mortality was 94 per 1,000 births, this being 14 above the rate for the corresponding quarter of 1942. The general death rate was 17.1 per 1,000, being 0.8 above the rate for the first quarter of the preceding year. Deaths from the principal epidemic diseases yielded a rate of 0.7 per 1,000, compared with 0.3 in the first quarter of 1942. Deaths from pulmonary tuberculosis numbered 959, compared with 904, 832, 824, 690, and 673 in the first quarters of the five preceding years: 224 deaths were attributed to other forms of tuberculosis, the same number as that recorded for the preceding year but slightly above the totals for the first quarters of 1939-41. The other most notable increases were those of whooping-cough, diphtheria, and diarrhoea and enteritis under 2 years, for which 93, 94, and 277 deaths were recorded with the averages of 43, 69, and 137 for the five preceding first quarters.

The Week Ending June 26

The notifications of infectious diseases in *England and Wales* during the week included: scarlet fever 1,680, whooping-cough 2,330, diphtheria 582, measles 5,774, acute pneumonia 553, cerebrospinal fever 64, dysentery 107, paratyphoid fever 11, typhoid fever 11.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 26.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	59	2	27	1	1	104	6	34	2	
Deaths		1	2				—	1		
Diphtheria	540	28	159	65	25	660	20	138	42	
Deaths		1	3	—	3		—	4		
Dysentery	164	10	56	—	1	11	5	36	—	
Deaths										
Encephalitis lethargica, acute	2	—	1	—	—	3	—	1	—	
Deaths		1					1			
Erysipelas	—	—	58	7	3	—	33	6		
Deaths										
Infective enteritis or diarrhoea under 2 years	—	—	—	19	—	—	—	—	—	
Deaths	52	13	9	7	5	33	3	13	7	
Measles	6,472	314	432	27	27	6,629	773	860	80	
Deaths	1	—	2	—	—	8	3	4	1	
Ophthalmia neonatorum	78	5	25	—	—	90	5	22		
Deaths										
Paratyphoid fever	12	1	2	—	—	9	—	3		
Deaths	—	—	—	—	—	—	—	—	—	
Pneumonia, influenza*	587	31	6	—	—	593	28	3	2	
Deaths (from influenza)	13	—	4	—	—	13	2	—	2	
Pneumonia, primary	—	17	208	14	4	—	16	188	24	
Deaths				3	10				11	
Polio-encephalitis, acute	—	—	—	—	—	—	—	—	—	
Deaths										
Poliomyelitis, acute	5	1	—	—	—	5	—	1	—	
Deaths										
Puerperal fever	—	—	17	—	—	—	4	13	1	
Deaths										
Puerperal pyrexia†	154	15	20	4	2	169	11	16		
Deaths										
Relapsing fever	—	—	—	—	—	—	—	—	—	
Deaths										
Scarlet fever	1,686	144	251	44	51	1,317	67	239	68	
Deaths										
Small-pox	—	—	—	—	—	—	—	2	—	
Deaths										
Typhoid fever	7	—	3	9	—	7	1	2	8	
Deaths						1	—	—	—	
Typhus fever	—	—	—	—	—	—	—	—	—	
Deaths										
Whooping-cough	1,918	101	210	26	53	1,389	143	37	59	
Deaths	7	2	5	—	2	4	1	—	4	
Deaths (0-1 year)	287	40	62	29	29	312	38	63	25	
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	3,754	486	592	168	130	3,833	529	635	191	
Annual death rate (per persons living)			13.3	11.0	†			14.3	12.8	
Live births	5,971	748	974	371	317	5,947	672	900	532	
Annual rate per 1,000 persons living			19.9	24.4	†			18.6	35.5	
Stillbirths	208	22	29	—	—	219	18	47		
Rate per 1,000 total births (including stillborn)			23					50		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS if reprints are required, as proof's are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be sent to the Secretary.

TELEPHONE: No. 1—B.M.A. and B.M.J.: EUSTON 2111.
LITHOGRAPHIC ADDRESSES—EDITOR, *Attilage Westcent*, London; SECRETARY, *Medisecra Westcent*, London.
M.A. SCOTTISH OFFICE: 7, Drumshrub Gardens, Edinburgh.

ANY QUESTIONS?

Treatment of Unresolved Pneumonia

Q.—What measures may be adopted to hasten the resolution of an unresolved pneumonia?

A.—(1) Make sure that the condition is one of unresolved pneumonia and not of empyema. If there is any doubt—and there often is—explore the chest. (2) Do not give any more sulphonamide drugs. (3) Apply heat, either in the form of cataplasma kaolin, renewed every 12 hours, or, if possible, use short-wave therapy. (4) Encourage the patient to take deep breaths to expand the lung for a few minutes every hour. (5) If the general condition of the patient is bad, the temperature low, and the pulse unduly frequent, cardiac and respiratory stimulants are of the greatest importance. Nikethamide 1 c.c.m. or leptazol 1 c.c.m. should be injected subcutaneously three or four times a day. (6) In asthenic cases in which there is no leucocytosis dium nucleate, 0.1 g. in 2 c.c.m., should be injected intramuscularly twice daily. (7) Antiserum or vaccine treatment is not recommended.

Dystocia Dystrophia

Q.—Forty-five days after the expected date of birth a Caesarean section was performed on a woman aged 32, and a baby was delivered weighing 12 lb. 8 oz., having great development of adipose tissue, articulary about the upper eyelids. After operation no milk was secreted, and the uterus did not retract very well. The baby died 9 hours after birth, the post-mortem findings being negative. No ailed-eye changes were observed in the placenta. The mother made an uninterupted recovery. Previous to Caesarean section, castor oil and quinine had been given in fruitless attempts to start labour, which even at the time of operation showed no sign of approach. Uterine had appeared in the urine six weeks before the expected date of birth. This cleared up with rest in bed, dieting, and laxatives, but there were recurrences throughout the pregnancy—never more than a trace. Blood pressure varied from 135 to 162 systolic and 0 to 85 diastolic. She once had slight haziness of vision but no usual retinal changes were seen. The pelvic measurements were transverse $4\frac{1}{2}$ in. and antero-posterior $4\frac{1}{2}$ in. Five weeks before the expected date of birth the foetal position was L.O.A., and the head, though not engaged as firmly as one expects in a primipara, was easily palpable and could be pushed into the pelvis. What treatment should be adopted in any future pregnancy? Should Caesarean section be done at term? Was the prolongation of pregnancy due to lack of pituitary? The mother began to menstruate at the age of 15 and had a 32- to 35-day interval.

A.—This case presents in a gross degree the features of a syndrome which in recent years has been described in American literature under the term "dystocia dystrophia." Patients presenting this syndrome are usually of heavy build, are relatively infertile, and are especially prone to the late toxæmias of pregnancy. The uterus is insensitive, formation of the lower segment is delayed or disturbed, and the presenting part remains high. Post-mature onset of labour is common, and the labour itself is characterized by incoordinate or feeble uterine contractions with slow dilatation of the cervix. Faults in the shape or size of the bony pelvis are often present, but even in the absence of these the labour is long and difficult and posterior rotation or transverse arrest of the foetal head is common. Foetal mortality is high. The syndrome, in varying degrees, is not uncommon, and as its name implies is believed to be the result of disturbed pituitary function, although definite proof is lacking. No special treatment is of any real value during pregnancy, although the administration of oestrogens in the last few weeks may improve uterine tone and sensitivity. Medical induction usually fails, and quinine is contraindicated in the presence of toxæmia. Mechanical induction should be avoided if the presenting part is high. Treatment in labour should follow the ordinary rules of obstetrics, and should in the early stages be conservative, but if the labour is not progressing satisfactorily then lower-segment Caesarean section is preferred.

able to any difficult vaginal procedure. In the particular case in question the treatment of any subsequent pregnancy should be by Caesarean section one or two weeks before term, or earlier if signs of toxæmia develop and the size of the baby is sufficient to ensure it good prospects for survival. The risks of faulty retraction of the uterus and post-partum haemorrhage would be minimized by operating under local anaesthesia.

Vitamin Requirements

Q.—What are the current accepted daily adult requirements of the vitamins A, B, C, D, E, and K, expressed in milligrammes and I.U.? How do these requirements vary with age and/or body weight?

A.—The answer to this question is best given in tabular form.

Age	A		B		C		D		E		K	
	I.U.	Mg.	I.U.	Mg.	I.U.	Mg.	I.U.	Mg. of 1 lb.	I.U.	Mg.	I.U.	Mg.
Adult	5,000		600	1.8	1,500	75	300-7-600-2	0.0075-0.015				
Under 1 year	1,500		133	0.4	600	30	400-800	0.01-0.02				
1-3 years	2,000		200	0.6	700	35	400-800	0.01-0.02				
4-6	2,500		266	0.8	1,000	50						
7-9	3,000		333	1.0	1,200	60	3,500	0.0375				
10-12	4,000		400	1.2	1,500	75	weekly	weekly				
Girls 13-15 years	5,000		500	1.5	1,500	75	300-7	0.0075				
16-20	5,000		500	1.5	1,500	75	600-7	0.015				
Boys 13-15	5,000		500	1.5	1,500	75						
16-20	5,000		666	2.0	2,000	100						

* It is not certain whether adolescents and adults need an extraneous supply of vitamin D. Enough may be made under the skin by the action of light.

Requirements and Body Weight: Vitamin A.—Requirements directly proportional to body weight and age. Vitamin B₁.—Requirements depend on caloric intake and not body weight. Vitamin C.—Requirements depend upon degree of body metabolism rather than on actual body weight—e.g. a small person suffering from pyrexia will need more than a larger person who is afebrile. Vitamin D.—No apparent relation between body weight and requirements.

Complications of Diverticulitis

Q.—A patient had diverticulitis of the pelvic colon 10 years ago with perforation into the bladder. Colostomy was followed by immediate "functional" closing of the fistula, but stent was passed occasionally per urethram. A gradually increasing amount of pus (now about 1 oz. daily) is passed, chiefly from lower opening (anus) of lower bowel, latterly becoming bloody. Examination shows *B. coli*, staphylococci, and non-haemolytic streptococci in the pus. There are no cellular elements suggestive of malignancy. Surgical intervention is not advised. Will any palliative treatment diminish the pus—which may eventually enter the bladder? Sulphonamides in moderate doses for short periods are ineffective. Are any of the flavins advisable locally? If so, in what form and concentration?

A.—The pus in this case is probably derived from two sources—one a diverticular abscess and the other a secondary proctitis which is kept up by the constant drainage of pus into the rectum. Although the effect of courses of sulphonamides has not been spectacular, it is advised that these be repeated at intervals (with the usual check on the white cells), ringing the changes on the various products, owing to their specificity of action. Penicillin is not yet generally available, but would be worthy of trial when it becomes so. Flushing the lower segment of the bowel regularly would be advisable, but it is doubtful whether the antiseptic lotions (e.g. 1/1000 acriflavine) have much advantage over plain saline.

Night Sweats and Anxiety

Q.—Is anything definite known of the underlying aetiology of night sweats? A patient of mine (aged 43) has been troubled with these every night for about six months. He is quite healthy apart from duodenal ulceration. He wakes suddenly about an hour and a half after falling asleep to find himself sweating all over. Immediately he wakes the sweating stops. It is not that he has too many clothes on the bed. He has been troubled similarly at times within the past few years, but the periods were appreciably shorter (7 to 21 days). I can rely on his story, as he is a well-educated intelligent man. He tells me that since boyhood he has been an easy sweater, perspiring profusely when playing games, dancing, etc. All the conditions with which night sweats are associated have been excluded. Incidentally, I have seen this condition in men about 40 years old fairly often in the past two years, though the condition did not persist so long. Is there any treatment of help?

A.—Little is known of the pathogenesis of night sweats. As the questioner says, the complaint is not rare, and slighter disturbances of the same type are commonly met with. Night sweats have been regarded as a cardinal symptom of the anxiety neurosis. In a patient

therefore who is already suffering from one psychosomatic disease, it is most probable that the night sweats are to be explained by a similar mechanism. Inquiry should obviously be made for any sources of anxiety which may be playing a part in the aetiology of both the duodenal ulcer and the sweating. It would also be reasonable to try a zinc oxide and belladonna pill and one of the shorter-acting barbiturates, though the response to treatment is usually not good.

Immunity after Virus Infection

Q.—Is the solid immunity which so often results from virus infection due to persistent infection? Is it not true that this persistence of infection may actually be detrimental in that it renders the individual more susceptible to reinfection?

A.—It is known that under experimental conditions clinical recovery from a virus infection may not represent a complete recovery; a residual infection is left which may persist for a considerable time. Such a residual infection would presumably be kept going by the occasional breakdown of an infected cell with the liberation of virus and the infection of a few new cells. The repeated antigenic stimuli so provided would maintain a high antibody level and so a high degree of immunity. One is tempted therefore to conclude that the solid and lasting immunity which is left by so many virus infections is the direct result of persistent infection. The life-long duration of the immunity which is left after recovery from diseases like small-pox or yellow fever makes some hesitate to accept this view because they think it unlikely that the infection with these viruses would persist so long. There is no evidence that persistence of a virus infection renders an individual more prone to reinfection. An apparent exception such as herpes is apparent only since—with the exception of the primary infection, which in the majority of cases occurs in the early years of life—the virus responsible for the attack of herpes is carried by the sufferer.

Allergy to Bee Stings

Q.—What form of allergy is shown in the following case? A man aged 30 was stung by a bee on the right eyebrow in May, 1942. The swelling subsided in 48 hours. In August, 1942, he was stung again, this time on the first finger, left hand. The right eyebrow as well as the finger were swollen, both subsiding in 48 hours. In May, 1943, he was stung on the left side of the neck. The whole of the left arm was affected, and also the right eyebrow and the neck. All subsided in 48 hours.

A.—Two characteristic phenomena of allergy are exemplified in the experiences outlined.

(a) Persons engaged in certain occupations become sensitized to substances they handle, bees differing from other hazards in that in their case the allergen is injected into the patient and not just applied to the skin or inhaled by the mucous membranes, and so the reaction tends to be primarily of an angioneurotic oedema type. With each sting the patient tends to become a little more sensitive, and with sufficient bites acute allergic shock or even sudden death may occur. The original sensitization in a non-allergic person usually follows a massive exposure or some period of ill-health, worry, or fatigue, conditions in which the body's supply of adrenaline is low. If the patient is already allergic to other substances or a member of a very allergic family, severe reactions arise after fewer exposures and the period of low adrenaline production may not be essential.

(b) If serum is prepared, say, from a person allergic to egg, and injected into a site in the skin of a non-allergic person, and the non-allergic person either eats egg or has egg injected parenterally, or a site in the skin is tested with egg, a localized wheal appears, showing that localization of sensitization does occur even in a non-allergic person. If an allergic person gives a large local reaction to a skin test, say, for dust or pollen, and a course of desensitizing injections is begun, the sites of the previous skin tests frequently swell and itch with each injection, and often each of the sites of his previous injections as well, showing that a greater local sensitivity at certain points is maintained. So in this bee case. Each site of a sting is more highly allergic than other sites, whilst the body develops its general sensitization and so reacts more obviously with each dose of the allergen.

Preventive treatment consists in giving up the bees or in desensitization. For desensitization bee toxin can be used in gradually increasing doses with additions of small amounts of adrenaline to each dose; or a whole bee extract (obtainable from Messrs. C. L. Bencard Ltd., 30rgate Hall, Dereham, Norfolk) can be employed, as experiments have shown that the whole bee extract protects against bees, wasps, and ants.

Invasion of Earwigs

Q.—What is the most effective insecticide with which to combat an invasion of earwigs?

A.—Invasions of earwigs in houses seem to be more common in recent years, especially in new housing estates. They favour damp situations, so they are frequently found in bathrooms and recently decorated rooms. One way of discouraging them therefore is to

dry out the house so far as is possible. The grounds about the house should be inspected, and rubbish or any articles giving cover to insects should be removed, as well as kitchen refuse, which should be provided them with food. It is difficult to suggest a good insecticide at present owing to demands for more serious pests. If the infestation is very heavy the best measure is fumigation. A light infestation can be cleared up with a good domestic spray (of which the several on the market) plus extermination of the earwigs in the garden. For the latter the following poison bait has proved effective in extensive American trials: wheat bran (or dried apple powder) 12 parts; sodium fluosilicate (or sodium fluoride) 1 part; fish oil (or cod-liver, rape seed, or coconut oil) 2 parts. The bran and fish oil are mixed together and the oil added afterwards; no water should be added. Strew the bait evenly and thinly about the neighbourhood, especially at the base of walls, fences, trees, and telegraph poles.

Toxic Properties of Paradichlorobenzene

Q.—Paradichlorobenzene is much used to keep away the clothes moth. The other day I was in a house where the airing cupboard contained the hot-water cylinder. The winter blankets were hanging here, and there was a liberal sprinkling of the above-named substance, which was vaporized by the heat of the cylinder, and a powerful odour permeated the adjoining bedroom. What would be the probable toxic effects of this vapour?

A.—While the effects of pure paradichlorobenzene have not been closely investigated, they are regarded as similar to, but more than, those of orthodichlorobenzene, and commercial varieties of these compounds contain the other. The acute effects of paradichlorobenzene are fairly strong narcosis and pronounced irritation of the liver and kidneys; concentrations of 0.1% were lethal to guinea-pigs after 20 hours. According to Solomon several workers exposed to this vapour for one or two years developed toxic hepatitis and cataract.

LETTERS, NOTES, ETC.

Sulphanilamide and Mumps

Dr. J. Lowy (London, N.W.1) writes: Many practitioners found that sulphanilamide is highly effective in the treatment of mumps. In my opinion its use should be limited to adults because of its powerful effect, which hinders the body from gaining immunity but protects adults from troublesome complications. On the other hand, complications are very rare in children, and they gain long immunity if mumps is treated by the customary method not at all. In Czechoslovakia I observed how effective treatment hindered the development of immunity when children treated with diphtheria antitoxin contracted diphtheria in three successive years.

Shortened Puerperium

Dr. G. C. TAYLOR (Peterhead) writes: Mr. Denys Neal (May 22, p. 644) reopens a subject which is of great importance. No hard-and-fast rule can be laid down as to the length of the puerperium, but present-day fashion prescribes longer rest than is necessary. I have found, as many others have before me, that leg and abdominal exercises in bed from the first day of the puerperium enable the patient to get up usually from the 8th to 10th day without much difficulty. Many get up to work from the day onward, although this action is usually concealed from the doctor. These leg exercises are the best preventive of that distressing malady white leg. A few weeks ago a 53-year-old woman from a rural district in Scotland consulted me regarding a minor degree of prolapse of the uterus. The patient was very bright and full of life and spirits. On inquiry into her history she stated that her mother, now 75 years of age and fit for daily work in the field, had borne twenty-two children and never spent more than two or four hours in bed after labour. The patient, not to be outdone by her mother, had produced twenty-three children, and again two or four hours was her period of rest. She told me that she always got up on the 2nd day and performed all her household duties besides some heavy outdoor tasks. It is true that 25% of the progeny do not reach adult life, but that is beside the point. The patient apparently none the worse for her "ordeals." The history of the case prompts the question: "Are we right in insisting on the 14 days' rest after normal labour?"

Theophylline for Asthma

Dr. J. F. LANG (Bathgate) writes: In your annotation on theophylline for asthma (June 12, p. 731) you mention the treatment of asthma with this drug by Hermann and Aynesworth, as if their observations were the first made on this treatment. I had mentioned the drug at a meeting of the B.M.A. in Glasgow in 1911 and a note of some of my cases was printed in *Clinical Excerpt* (Jan., 1931). It may be worth while for practitioners to remember while treating intractable cases of whooping-cough where cyanosis and dyspnoea are present, that very small doses of this drug are sometimes effectual for the relief of these distressing symptoms.

HECTOR PERRONE AND MYRON WRIGHT: FATAL CASE OF ATYPICAL PNEUMONIA WITH ENCEPHALITIS

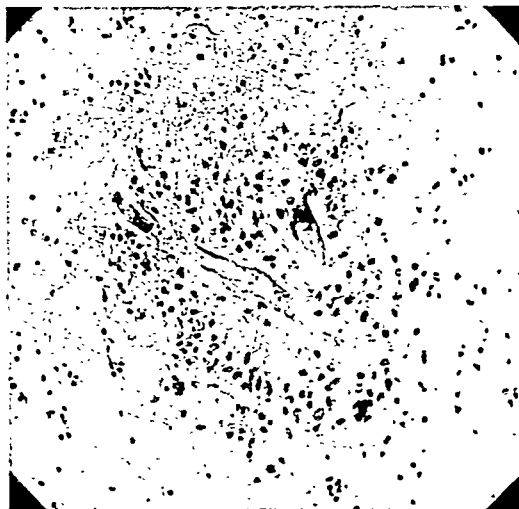


FIG. 1.—Photomicrograph, by Wellcome Research Institute, of brain tissue, cerebral vessel showing engorgement, oedema, and perivascular infiltration. ($\times 175$.)

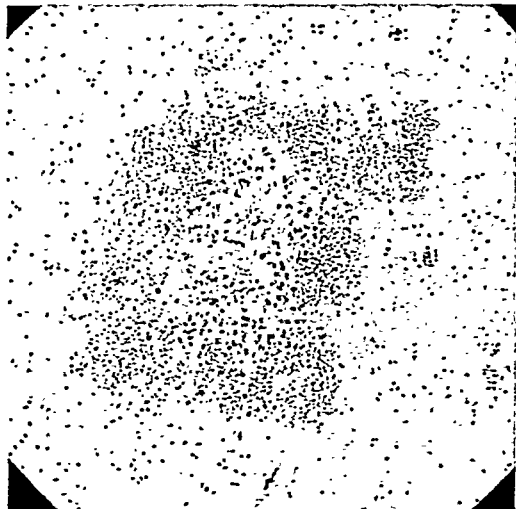


FIG. 2.—Photomicrograph, by Wellcome Research Institute, of brain tissue, showing focal area of increased cellularity. ($\times 100$.)

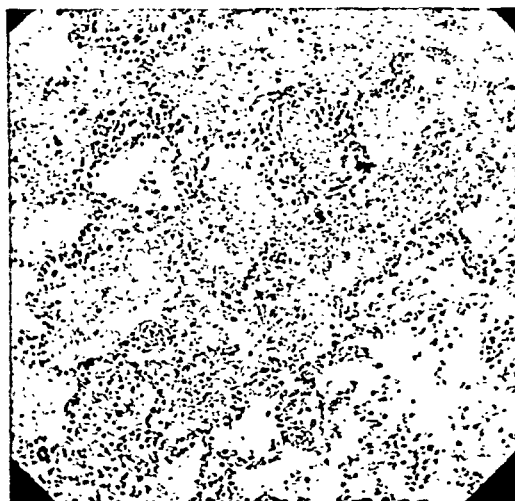


FIG. 3.—Photomicrograph, by Wellcome Research Institute, of bronchiole, showing scanty exudate. Note infiltration of bronchiolar walls. ($\times 100$.)

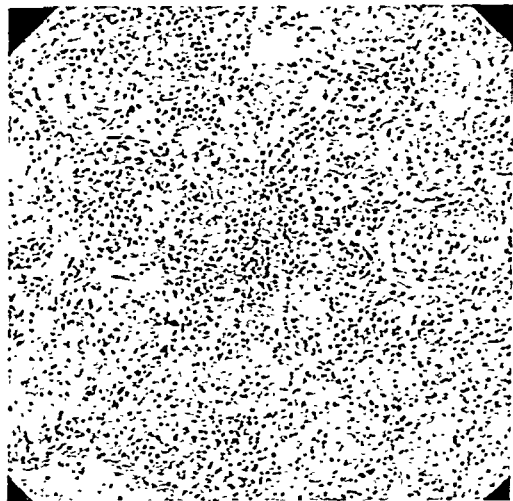


FIG. 4.—Photomicrograph, by Wellcome Research Institute, of lung, showing area of heavy exudate filling, mononuclear cells of macrophage type, and stripping of alveolar epithelium. ($\times 100$.)

JULY 17, 1943

The British
Medical Journal

HECTOR PERRONE AND MYRON WRIGHT: FATAL CASE OF ATYPICAL PNEUMONIA WITH ENCEPHALITIS

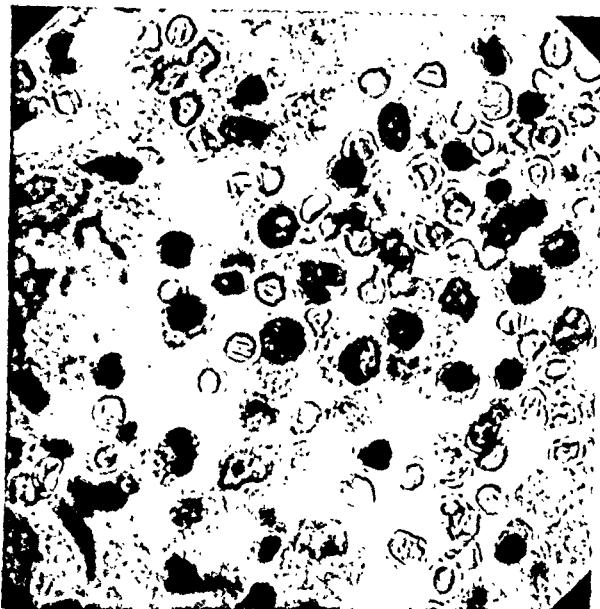


FIG. 5.—Photomicrograph, by Wellcome Research Institute, of exudate from lung; showing predominance of mononuclear cells, with red blood corpuscles, occasional polynuclears, and fibrin. ($\times 1000$.)

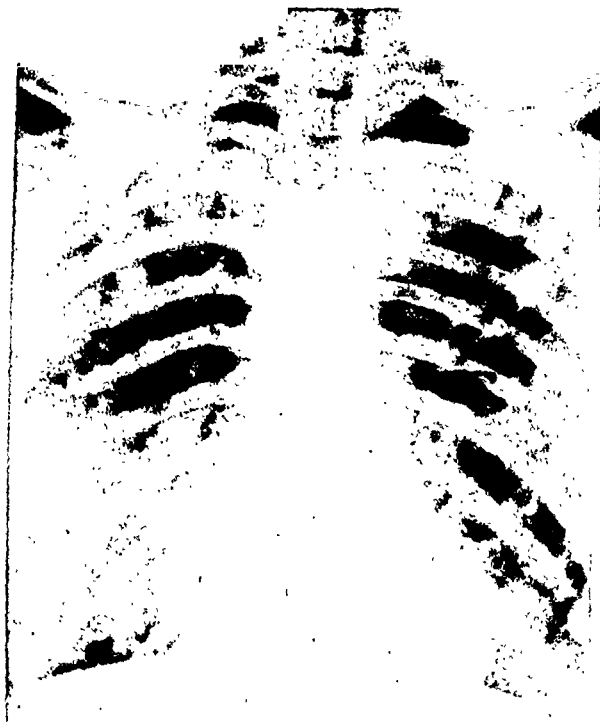


FIG. 6.—Radiograph of chest taken on February 8, 1943; showing a large area of consolidation in right lower lung field; both lung fields filled with numerous soft shadows.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 17 1943

A FATAL CASE OF ATYPICAL PNEUMONIA WITH ENCEPHALITIS

HECTOR PERRONE, M.D.

Captain, U.S.A.M.C.

BY

MYRON WRIGHT, M.D.

AND

Captain, U.S.A.M.C.

[WITH PHOTOGRAPHURE PLATE]

Recent investigation (Kneeland and Smetana, 1940; Longcope, 1940; Blake *et al.*, 1942; Reimann *et al.*, 1942) indicates that the term "atypical primary pneumonia" embraces a clinical group of closely related infectious diseases, in certain cases of which viruses have been definitely established as the aetiological agents. In other instances where no virus has yet been isolated the pathological and clinical evidence suggests a virus infection. Such viruses hitherto isolated appear to be antigenically related to, although not identical with, the viruses of psittacosis, lymphocytic choriomeningitis, and lymphogranuloma venereum, all of which can produce meningitis as well as pneumonia in man or animal. Moreover, Smadel and his co-workers (1942) report two cases of lymphocytic choriomeningitis, in both of which extensive pneumonitis was found at necropsy. The lungs closely resembled those described in the few available pathological descriptions of atypical pneumonia.

Scadding (1937) reported a case of encephalitis and "disseminated focal pneumonia" (atypical pneumonia) in a patient previously treated in hospital for atypical pneumonia. The presenting syndrome was that of laryngeal paralysis. At necropsy the medulla, pons, and midbrain contained small areas of softening and haemorrhage; microscopically, perivascular "cuffing" and focal degeneration of nerve cells were prominent. In two other adult cases in which the brain was examined (Longcope, 1940) no evidence of encephalitis was found. In nine necropsies on infants with "primary virus pneumonitis" (Adams, 1941) no clinical or pathological evidence of encephalitis was discovered.

Reimann (1938) reported a case of atypical pneumonia in which positive Kernig and Babinski reflexes and ankle clonus could be elicited. The patient was comatose at intervals, the pupils sluggish and dilated; strabismus was noted and the neck was slightly rigid. Spinal fluid pressure was 220 mm.; the cell count varied between 220 and 350, with 78 to 91% polymorphonuclear cells; total protein was 74 mg. per 100 c.cm. Attempts to isolate a virus from the spinal fluid were unsuccessful. Complete recovery took place.

Hein (1943) reported two cases of atypical pneumonia showing clinical and laboratory evidence of meningo-encephalitis. One was that of a 23-year-old soldier who developed photophobia, stiff neck, and a positive Kernig sign on the fifth day of his illness. Cerebrospinal fluid contained 380 cells (77% polymorphs, 23% lymphocytes); Pandy's reaction was positive, sugar content raised, chlorides low; cultures were sterile. Temperature eventually fell to normal and the chest became clear, but the cerebrospinal fluid continued to have a high lymphocyte count for some time. Eventual recovery was

complete. The second case was that of a 34-year-old soldier with a maculo-papular rash who on the fourth day in hospital complained of headache, became confused, and developed a stiff neck. Cerebrospinal fluid contained 26 cells, all lymphocytes; Pandy's reaction was positive, sugar and chlorides normal. In this case, also, clinical improvement preceded clearing of the cerebrospinal fluid.

Case Report

Corporal A., aged 20, was admitted to an American Army hospital in England on Feb. 1, 1943. His illness had begun the previous day with cough, soreness in the throat on coughing, fever, nasal obstruction, moderate headache, and some aching pains in the chest and arms. Except for frequent attacks of tonsillitis during the previous year his past history was negative. The family history was also non-contributory.

On admission his temperature was 101.2°, pulse 95, and respirations 20. He appeared moderately prostrated; face and neck were flushed; eyes watery and injected. The right naris was partially obstructed, and a scant nasal discharge was present. The pharynx and posterior half of the palate were diffusely reddened; tonsils were moderately enlarged. The neck was not stiff. Lungs were clear and the rest of the examination was essentially negative.

Laboratory findings were as follows: Urine: Negative except for trace of albumin in terminal specimen. Blood count: Feb. 2, Hb 90%, R.B.C. 4,250,000, W.B.C. 5,700—79% polymorphs; Feb. 6, W.B.C. 8,700—97% polymorphs; Feb. 7, Hb 90%, R.B.C. 4,450,000, W.B.C. 6,550—90% polymorphs; Feb. 10, Hb 103%, R.B.C. 4,040,000, W.B.C. 6,900—85% polymorphs. Sedimentation rate: Feb. 3, 10 mm., Feb. 5, 22 mm. per hour. Blood cultures on Feb. 4, 7, and 10 were negative. Throat cultures on Feb. 2 gave *Staph. albus*, and sputum cultures on Feb. 5 and 6 showed *Staph. albus* and pneumococcus. On Feb. 11 the spinal fluid contained 8 polymorphs and 68 lymphocytes per c.mm.; culture was sterile.

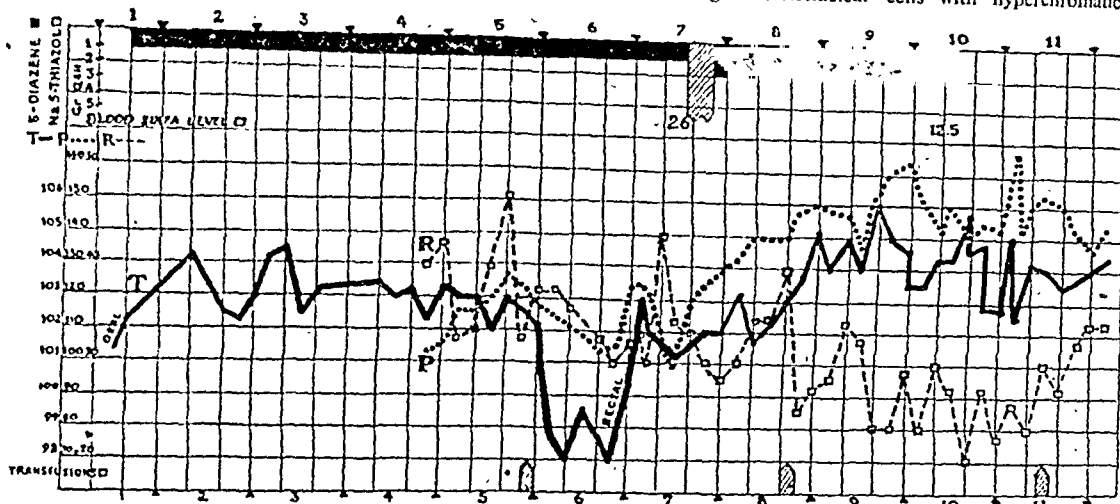
Radiographs of the chest on Feb. 8 revealed a large area of consolidation in the right lower lung field; both lung fields were filled with numerous small soft shadows.

Clinical Course (see Chart)

On admission the patient was placed on sulphadiazine, 1 g. every four hours by mouth. Despite this the temperature rose to 104° each afternoon, and he was moderately toxic. At times slight cyanosis was observed. On his fifth day in hospital rales were heard in the left chest. Because of increasing dyspnoea and cyanosis, oxygen was administered, with immediate disappearance of cyanosis. Moderate amounts of bloody sputum were expectorated. Sticky, bubbling, and crepitant rales and wheezes became audible throughout both lungs; inspiratory dilatation of the alae nasi and expiratory grunting were observed. On the sixth day in hospital sulphadiazine was stopped and the patient was transfused from another patient three weeks convalescent from severe atypical pneumonia. After 125 c.cm. of blood had been given the procedure was halted because of restlessness and increased dyspnoea. Five hours later the temperature had dropped sharply to normal, and the patient seemed greatly improved. The next day he complained considerably of generalized headache; fever recurred in the evening associated with considerable abdominal distension, which was relieved by rectal tube, turpentine stupes, and

posterior pituitary extract. Chemotherapy was resumed, with two 4-g. intravenous doses of sodium sulphathiazole; a blood level of 2.6 mg. per 100 c.cm. was obtained. The oral dose of sulphadiazine was doubled to 2 g. every four hours, and the blood level rose to 12.5 mg. without clinical improvement. Dullness and bronchial breathing appeared in the right axilla. Although dyspnoea was diminished somewhat, the pulse rose from 120 to 140-150 and became thready at intervals. The patient became progressively less

membrane-like layer of fibrinoid material and occasionally embedded in typical fibrin strands. The mononuclear cells predominated in most fields, but were about equalled by the polymorphonuclears in a few areas. Much of the alveolar epithelium had been stripped from the lining surfaces, and formed part, at least, of a mononuclear-type cells. The remainder occurred as a desquamated layer of cuboidal, columnar, or somewhat spheroidal cells. Occasional larger mononuclear cells with hyperchromatic nuclei



responsive; moderate neck rigidity was noted, and motion of the head evidently caused pain. Fluids, sodium chloride, and glucose were given orally, by infusion, hypodermoclysis, and per rectum. The loss of panniculus and muscular atrophy were marked and progressive. Digitalization with 18 cat units of digitalis intramuscularly appeared to slow and strengthen the pulse. A second transfusion of 10 c.cm., using the blood of a two-weeks-convalescent who had had moderately severe atypical pneumonia, was given on the tenth day without noticeable effect. On the eleventh day the patient could no longer swallow sulphadiazine tablets; and chemotherapy, having failed to produce any improvement, was discontinued. The pupils came widely dilated, the skin clammy, cyanotic, and mottled, and the eyes glazed. A third transfusion of 250 c.cm. of blood from a two-weeks-convalescent moderately severe case improved the patient's general condition somewhat, but during the night the pulse came irregular and thready, and respiration stopped. After intratracheal caffeine respiration was restored, and a large mucous plug was extracted from the pharynx. Three hours later respiration again stopped and further stimulation was unsuccessful; the heart ceased shortly thereafter. The patient died on the thirteenth day in hospital.

Necropsy Findings

Post-mortem examination was performed three hours after death. The body was well developed and moderately well nourished. There was slight rigidity, and livor of transient type was present in the dependent parts. Pupils were equal, 7 mm in diameter. There was no discharge from ears, nose, or mouth. The thorax was symmetrical and the abdomen flat. Extremities revealed marked cyanosis. Superficial vessels and lymph nodes were normal.

Lungs.—The right lung weighed 1,260 g., and its size and position were usual. It appeared uniformly bright red. The entire lung was firmer than normal, the most notable increase in consistency being present in the middle and lower lobes. The pleural surfaces were smooth and glistening, with the exception of a small area on the antero-lateral surface of the lung 3 cm. from the apex. Here there were several fine adhesive bands with minimal roughening. The surfaces of lung revealed intense bright-red colour of the parenchyma with moderate increase in moisture. Consolidation was lobular and confluent lobular type. Several small areas of emphysema were present throughout the upper lobe. In the periphery of the upper lobe beneath the pleural adhesions several small areas of necrosis, measuring 1.5 mm. in diameter and appearing much like miliary seedlings, were observed. Yellow muco-purulent exudate issued from the small bronchi, and the larger air passages were filled with this secretion to within 3 cm. of the tracheal bifurcation. The bronchial walls were swollen and congested. Hilum nodes were slightly enlarged and firm. The left lung weighed 1,010 g. The upper lobe was red, moist, and similar in appearance to the right lung. The lower lobe was nodular in appearance, and revealed marked increase in consistency. The cut surface of both lobes was intensely red, and the muco-purulent exudate was present throughout the bronchial tree. The hilum nodes were enlarged and firm.

Microscopical Examination of Lungs.—The alveoli contained varying quantities of exudate consisting of large numbers of mononuclear (macrophage type) and polymorphonuclears lying within a

abundant cytoplasm were seen contiguous with the layer of alveolar epithelial cells. No inclusion bodies were seen in these cells. Zones of interalveolar haemorrhage were present. Bronchioles presented varying degrees of ulceration and deposition of abundant fibrinoid material. The remaining epithelium was of stratified variety. The bronchial walls showed extensive lymphocytic infiltration, plasma cells, polymorphs, and some eosinophils. The pleura revealed some engorged vessels but no exudate. One section showed a nodular zone of fibrosis with a central area of caseation and coagulation necrosis. Rare foreign-body giant cells were present. No acid-fast bacilli were demonstrated with Verhoeff's acid-fast stain.

The heart, aorta, and vessels revealed no pathological changes. The spleen weighed 252 g. and measured 13.5 by 6 by 3 cm. It was red-grey in colour. The capsule stripped with slightly increased difficulty. The cut surface was deep-red and moist. Markings were vague, and pulp scraped slightly. Microscopical examination revealed areas of haemorrhage into the pulp with moderate increase in polymorphs. The liver, pancreas, and adrenals were normal. Gastro-intestinal and genito-urinary tracts were normal.

The Brain.—The dura did not appear swollen. Vessels were of average size. The leptomeninges showed no gross pathology. Spinal fluid was clear and there was no exudate. Convulsions and signs appeared normal. The consistency of the brain was slightly softer than usual. On sectioning the cerebrum numerous pinhead-sized areas of dark-brown pigmentation were noted in grey and white matter. It could not be determined, by gross examination, whether these were small areas of haemorrhage or inflammation. The cerebellum, pons, and medulla were normal.

Microscopical Examination of the Brain.—This revealed frequent foci of increased cellularity in white matter of sections from parietal, temporal, and occipital lobes, from the region of the basal ganglia, paraventricular (III, IV) tissue, and cerebellum. These were located in juxtaposition to or surrounding small vessels, and were usually associated with a ring of peripheral haemorrhage. Cells forming these foci were astrocytes and microglia, with predominance of the former, and occurred in a density approximately ten times that of the regional white matter. There was slight phagocytosis of erythrocytes in a few areas. The grey matter presented occasional large swollen, diffusely staining cells. The ependyma of all ventricles was negative. Leptomeninges presented areas of lymphocytic perivascular infiltration in sections from parietal and temporal zones. Vessels of both leptomeninges and of brain parenchyma were considerably engorged, and scattered "ring" haemorrhages without focal cell proliferation were present in grey and white matter.

Diagnosis

Lungs.—(1) Pneumonia—primary, atypical, of lobular and confluent lobular type—with ulcerative bronchitis and membranous interstitial pneumonitis. (2) Tuberculosis—minimal, old, foci inactive.

Brain.—Encephalitis—acute. (Encephalitis is used in the general sense and not necessarily as the designation of direct reaction to a specific infectious agent. The severity of the reaction and doubt a

purely degenerative character of the lesions make this term preferable to encephalopathy or encephalosis.)

Bacteriology.—Cultures from brain, heart, and right and left lung all sterile at the end of 72 hours.

Studies.—The following-virus studies were negative: (1) Lungs were inoculated into twelve mice, one rabbit, and one guinea-intranasally by Major T. F. McNair Scott, M.C., U.S.A. glycerinated lung tissues were inoculated into cotton-rats and reported as non-effective by Dr. C. H. Andrewes, National Research Institute, Hampstead. (3) Brain tissues were inoculated by McNair Scott intracerebrally into six mice, one rabbit, one pig, and one hamster. The rabbit died with encephalitozoon on the fifth day after inoculation.

Discussion

Initial descriptions of cases of atypical pneumonia often stress the frequency and severity of headaches. Thus out of 45 cases we have observed at one hospital, 41 (47%) complained of headache—14 mild, 6 moderately severe, and 21 severe. Headache is usually frontal or ocular, though it may be realized in severe cases. It occurs as a rule at the onset of the disease, and is rarely absent in severe cases of atypical pneumonia. Coughing increases the headache considerably. Including the case reported above—the sole fatality in our series—lumbar puncture was performed in only one other case. This was one with severe frontal headache but no signs of meningitis or encephalitis; spinal fluid was normal. We have under observation another patient who, during a previous attack of atypical pneumonia, had severe headache and positive Kernig, Chaddock, and Oppenheim reflexes. Unfortunately lumbar puncture was not performed. Recovery was complete. Apparently our patient died of encephalitis rather than of pneumonia, since dyspnoea and rales became less in the last days and abdominal distension disappeared. Indications of central nervous system involvement appeared abruptly on sixth day in hospital, when the patient began to complain of severe headache. At the same time the temperature rose and neck rigidity was noticed. This encephalitis must be distinguished from a post-infectious encephalitis, which is characterized histologically by patchy areas of demyelination. These were not a prominent feature in this case, in which brain lesions resembled more closely those of epidemic encephalitis.

In our case of atypical pneumonia was due to a virus it might be conjectured that, as with analogous virus infections, antibodies would develop in the blood of convalescents, and that transfusions of convalescent blood might favourably affect the course of the disease. Flexner and Garon (1943) report three cases in which small transfusions from convalescents were administered. Two of these patients, very ill at the time of transfusion, eventually died; the third, who had had a sustained temperature of about 103°, became afebrile within 24 hours and remained well. Kneeland (personal communication) has tried use of two unpublished cases in which convalescent blood was employed. In one case a husband, three weeks convalescent, gave 500 c.c.m. of blood to his wife, who had apparently contracted the infection from him. The patient, who was pregnant and desperately ill, showed marked and improvement. In the other case, receiving only 50 c.c.m. of convalescent blood, no apparent benefit was obtained.

Our patient seemed to show a remarkable, though transient, response to the first transfusion; this was manifested by a drop in temperature to normal, and by definite clinical improvement. The second transfusion appeared to have no effect. The third seemed to benefit him somewhat without affecting the temperature. The amounts of blood given on each occasion were small, as circulatory failure was feared in a larger transfusion. Yet the smallest transfusion, the first, appeared to have the greatest effect. The first donor was the most severely ill of the three and had been longer convalescent than the others. Thus it might be supposed that his serum would have a higher antibody titre than the others.

Summary and Conclusions

A case of fatal atypical pneumonia with encephalitis is presented, with necropsy findings. The incidence of encephalitis in atypical pneumonia is discussed.

Convalescent blood transfusion in atypical pneumonia is considered.

Special thanks are due to Lieut.-Col. Yale Kneeland, jun., M.C., U.S.A., for the unpublished data recorded above. We are deeply indebted to Lieut.-Col. John B. Hazard, M.C., U.S.A., for the histopathological descriptions and review of findings in the reported case.

REFERENCES

- Adams, J. M. (1941). *J. Amer. med. Ass.*, 116, 925.
Blake, F. G., Howard, M. E., and Tatlock, H. (1942). *Yale J. biol. Med.*, 15, 139.
Flexner, M., and Garon, M. (1943). *Kentucky med. J.*, 41, 5.
Hein, G. E. (1943). *Lancet*, 1, 431.
Kneeland, Y., and Sreznana, H. F. (1940). *Johns Hopk. Hosp. Bull.*, 67, 229.
Longcope, W. T. (1940). *Ibid.*, 67, 268.
Reimann, H. A. (1935). *J. Amer. med. Ass.*, 111, 2377.
— Havens, W. P., and Price, A. H. (1942). *Arch. Intern. Med.*, 70, 513.
Scadding, J. G. (1937). *British Medical Journal*, 2, 956.
Smadel, J. E., Green, R. H., Paltauf, R. M., and Gonzales, T. A. (1942). *Proc. Soc. exp. Biol., N.Y.*, 49, 683.

THE FAILURE OF H 11 TO INHIBIT GROWTH OF TUMOURS IN MICE

BY

W. E. GYE, M.D., F.R.C.P., F.R.S.

R. J. LUDFORD, D.Sc., Ph.D.

AND

HILDA BARLOW, B.Sc.

(From the Laboratories of the Imperial Cancer Research Fund)

The preparation known as H 11, which is being used in the treatment of cancer, is an extract of urine. It is claimed that the extract contains "anti-growth substances" which have "an inhibitory effect upon cancerous growth." The method of preparation of H 11 and the standardization of the "growth-inhibitory power" of the product by its effect in checking the growth of oat seedlings are described by Thompson and his collaborators (1941). Thompson, Holt, and Forbes Jones (1943) claim that certain fractions of urine have been obtained which stimulate the growth of transplanted tumours. The urine is fractionated by precipitation with copper salts; the precipitate is extracted with dilute hydrochloric acid, which yields a tarry substance partially soluble in sodium hydroxide. The part soluble in alkali is said to accelerate growth, and therefore it would appear that by removal of the "growth-promoting fraction" the "growth-inhibiting properties" of the residue are increased. The improved extract is called 80 K.

It is not our purpose to examine or discuss the general questions of "growth promotion" and "growth inhibition" in relation to the problems of the pathology and treatment of cancer. We wish simply to put on record the results of experiments designed to test whether H 11 or the new improved preparation obtained after precipitation with copper salts does in fact inhibit or affect in any way the growth of cancer cells. Mr. J. H. Thompson of Hosa Research Laboratories has provided generous supplies of H 11 and of his new preparation 80 K; for his kindness we wish to express our indebtedness.

General Remarks on the Testing of "Cancer Cures"

In these laboratories we have gradually worked out routine methods of examining substances supposed to have valuable therapeutic properties for cancer. Our first step is usually a test of the direct action of the substance on cancer cells. For this purpose we use the technique of tissue culture. The substance to be tested is applied in various dilutions to cultures consisting of growths of normal and malignant tissues. The growth of the tissues is measured before and after varying periods of treatment. Control cultures are measured at the same time. From the two sets of measurements the extent to which normal and malignant growth are influenced by the substance can be calculated. Confirmatory tests are made by adding the substance under investigation, in the weakest concentration previously found to arrest malignant growth, to the

media used in preparing the cultures of normal and malignant tissues. Growth of normal tissues in such cultures, and concurrently no growth of the malignant tissues, would indicate a specific inhibitory action upon malignant growth. Treated cultures are examined microscopically for any cellular changes that might have been induced. The estimation of the significance of any changes requires a thorough acquaintance with the morphology of the tissues employed, during both growth and degeneration.

Our second step is to test the effect upon transplantable tumours growing in animals. A convenient method is to take one of the well-known transplantable tumours which have been observed over a period of years and whose growth behaviour is well known. It is important to select a tumour which when grafted gives a high percentage of "takes" and which recedes rarely. Many tumours which are widely used in cancer research are apt to retrogress after some preliminary growth. Such tumours are obviously unsuitable for research in therapeutics. An example of such a tumour is the Brown-Pearce skin carcinoma of the rabbit. The Imperial Cancer Research Fund possesses two transplantable mouse cancers which are eminently suitable for testing chemotherapeutic substances; they are the mammary carcinoma No. 63 and the spindle-cell sarcoma No. 37. Both graft easily, giving 95 to 98% of "takes" in mixed laboratory stock mice; both tumours grow steadily and kill the host in three to four weeks. Retrogressions are not more than about 1%. Injections of the therapeutic substance are made at a site remote from the tumour and are not begun until the graft has become vascularized and the "daughter tumour" is palpable.

Although these two well-known transplantable tumours are suitable for preliminary tests of the "growth-inhibitory" properties of any substance or preparation, we should not regard even a conspicuous retardation of tumour growth as being valid unless confirmation could be obtained on tumours of a homozygous strain of mice grown in the same strain. The grounds for such scepticism are well known and have often been stated in Reports of the Imperial Cancer Research Fund. Briefly the reasons for this extra precaution are as follows:

The tumours 37 and 63 occurred sporadically in two mice of mixed stock more than 30 years ago, and grafting was carried on, again in mixed stocks, until grafts grew readily in a high percentage. These tumours have now been carried through hundreds of generations of mice, but they are still foreign cells so far as the grafted host is concerned. There is in some mice an antagonism to these foreign cells, and in such mice retrogression of grafted tumours occurs. In spontaneous tumours of mice or men the cells of the tumour belong to the body, are a part of the body, and there is no such resistance to their presence in the body. The final test of any therapeutic method in cancer must evidently be made on spontaneous tumours, since these are the strict equivalent of human cancer; the variations which naturally exist among tumours must of course be kept in mind. Spontaneous tumours, even if of the same organ—for example, cancers of the breast—do not all grow at the same rate and behave in the same way. While the majority of mice with such tumours survive comparatively short time—a matter of weeks—after being noticed clinically, some live for months. There is thus no uniformity in the growth rate of the tumours, and consequently, in order to get reliable therapeutic results of an order short of rapid complete cure, it is necessary to treat large numbers of animals, leaving an equal number of untreated controls. It is probable that some of the good reports and the optimism which seem to accompany many "cancer cures" tried out on human beings have their source in the fact that some cancers do not kill their hosts quickly. The case which naturally survives a long time and which is under new treatment may be regarded as a proof that the new treatment has been to a certain extent effective. The credit belongs to Nature, not to Art. As a consequence of such apparent success other cases are treated similarly, and this goes on until at last the remedy is abandoned.

We are able to evade these complexities and to detect minor inhibitory effects by the use of homozygous strains of mice. Tumours arising in a homozygous strain grow uniformly when

grafted in mice of the same strain; there is no resistance to their growth, and such tumours are for practical purposes comparable with spontaneous tumours. The strains commonly used in the laboratories of the Imperial Cancer Research Fund are Strong A, Paris R 111, and C 57 black.

Results of Treatment with the Preparations H 11 and 80 on Animals bearing Tumours

The following tumours have been used in our tests:

- (1) Strong A carcinoma growing in pure-line Strong A mice; 10 treated and 6 controls.
- (2) Methylcholanthrene C 57 sarcoma growing in C 57 mice; 6 treated and 6 controls.
- (3) Mammary carcinoma 63; 6 treated and 6 controls.
- (4) Spindle-cell sarcoma 37; 6 treated and 6 controls.

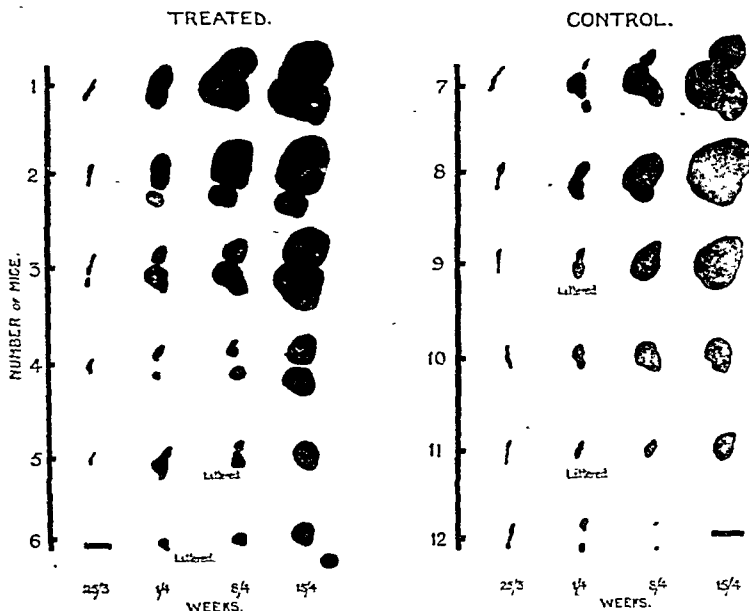
Mr. Thompson recommends the injection of 1 c.cm. intraperitoneally twice daily. Although we cannot believe intraperitoneal injections are of vital importance in the treatment—and it is unlikely that the recommendation is inspired upon in the treatment of human cases—we have nevertheless followed Mr. Thompson's method in three out of the tests, but always with due regard for the health of the animals. Intraperitoneal injection of 1 c.cm. twice a day becomes an ordeal for a 20-g. mouse; it is the equivalent of 14 lb. of fluid injected daily into the peritoneal cavity of a 10-st. man. As soon as the weight of a mouse began to appreciably the subcutaneous route was employed in order to give the animal a chance to recover. It should be noted that any treatment which depresses the animal's health, even an intercurrent infection, may retard the growth of a transplanted tumour. Many transplanted tumours cease to grow, or the growth rate falls strikingly, when the host is pregnant. This applies particularly to the mammary carcinoma No. 63. It will be observed from these brief comments that thorough and critical examination of a "cancer cure" demands experience and knowledge of the behaviour of transplantable tumours.

The rigid application of these rules has been relaxed in our tests of H 11. Thus with tumour 37 we "favoured" the remedy by infiltrating the growing margins of the tumour with H 11; while with tumour 63 almost all the rules were broken as will be shown later. With Strong A carcinoma and C 57 sarcoma we adhered strictly to the rules which we had adopted to exclude a deceptive appearance of a favourable effect.

In all our experiments with mice the tumours in the treated animals grew steadily and at the same rate as in the controls. We could distinguish no "growth-inhibitory" effects whatever. With the rapidly growing tumour 37 the growth of both treated and untreated tumours was so rapid that the experiment came to an end after 11 days: the tumours had become so large that further treatment was unjustifiable. The Strong A carcinoma grows more slowly, and treatment has been more prolonged—30 days; but again there was no evidence of a checking of growth or of any alteration in the cellular structure of tumours of animals killed during the course of treatment. The C 57 sarcoma was likewise unaffected.

One experiment only need be given in any detail, since it is representative in its negative results. Moreover, it was long after it had become evident that H 11 does not inhibit the growth of tumours, and was consequently planned to give the treatment every advantage that could be justifiably arranged. In the first place, we were enabled to use the latest improved extract 80 K, which, in Mr. Thompson's words, "has proved particularly potent as an inhibitor to malignant growth." In the second place, instead of grafting the tumour cells in ordinary mixed stock mice, in which the tumour grows very rapidly we grafted 12 mice of the inbred homozygous strain Paris R 111; the tumour cells grow more slowly in these mice, especially during the ten days following grafting, and regressions are more common. The tumour cells were thus placed in a comparatively uncomfortable environment, and it might be expected that a "growth inhibitor" would have a good chance to show its powers in such circumstances. The rule for testing chemotherapeutic substances were further violated by beginning injections of the extract only four days after grafts had been made—that is, a week before any daughter tumour could be palpated. The "growth inhibitor" was

jected twice daily—mostly intraperitoneally, but subcutaneously when the health of the animals became affected—from March 22 to April 5 inclusive; 25 mice in all. The accompanying chart illustrates the growth of the treated and untreated tumours. A glance at it shows that Mr. Thompson's extract has not inhibited the growth of the tumours; there is no difference beyond chance variation between the treated and untreated animals. In this experiment the lack of "growth-inhibitory" power became evident very early; for in spite of injections being started before palpable tumours had appeared and when the amount of living tumour tissue would not have been more than 0.2 c.cm. — the volume of the original inoculum-measurable tumours equal to those in the control mice were present after 8 days of treatment. These continued to grow normally, as the chart shows. The sizes attained by the tumours can be gauged by the weight of tumour in Mouse 1 in the chart on April 15; it was weighed after removal, and weighed 9.9 g.



Paris R 111 strain of inbred mice grafted with mouse carcinoma 63 on March 18, 1943. Mice 1 to 6, inclusive, treated with 80 K. Injections were begun on March 22, and were continued daily to April 15.

From the results of these investigations we conclude that H 11 has no "growth-inhibitory" effects on the tumours used in the experiments.

REFERENCES

- Thompson, J. H., *et al.* (1941). *Med. Pr.*, 205, 334.
Holt, P. F., and Jones, R. Forbes (1943). *Nature*, 151, 24.

OBSERVATIONS ON THE USE OF H 11 IN CARCINOMA

BY

H. A. KIDD, F.R.C.S.Ed., M.R.C.O.G.

Medical Superintendent, Kingston County Hospital,
Kingston-on-Thames

During the past two years an increasing number of workers have described growth-inhibiting properties of urinary extracts. Turner (1939) indicated an inhibiting effect on an alcoholic fraction of urine, while Bowman and Mottshaw (1941) studied the growth-inhibiting properties of a similar extract on tumour growth. Other workers include Rohdenburg and Nagy (1937) and Murlin *et al.* (1939), who claimed anticarcinogenic properties for such extracts. Thompson *et al.* (1941) published a preliminary account of the preparation of an alcoholic fraction of urine named H 11, and described not only its biological properties and anticarcinogenic action in transplanted animal tumours but also the inhibitory effect on human cancer.

The Present Investigation

An investigation into the effect of H 11 extract on carcinoma as begun at the Kingston County Hospital in Oct., 1940, and is now thought advisable to issue an interim report, although no conclusions can be drawn, as the cases have not been followed up for a sufficient period.

Of the 51 advanced cases 14 received insufficient treatment, and of the remaining 37 patients 11 are dead and no reply was received from 5. Of the 21 patients known to be alive 4 have been under observation for under one year, 12 for over

one year, and 5 for over eighteen months. All the surviving cases except two received some other form of therapy, and in these two—Nos. 18 and 38—the diagnosis was not confirmed, as biopsy could not be performed.

The series (see Table) contains different types of carcinoma situated in various parts of the body. In most instances the condition was inoperable, and usually the patient was in poor general health, although there was considered to be a sufficiently reasonable expectation of life to justify treatment. This period of time was assessed at six weeks in accordance with the statement made by Thompson that objective signs of improvement do not usually occur until such an interval of treatment has elapsed. Some cases had other treatment, including operation and radium, but with few exceptions they were cases in which the operation or radium therapy was considered to be insufficient to eradicate the local disease.

There is some evidence that in a few cases the rate of growth has been slowed up or inhibited, but in no case confirmed by section has, as yet, any growth disappeared as the result of H 11 therapy only. Further research is essential in order to purify the extract, and a more satisfactory method of dosage must be evolved so as to keep the concentration in the blood at a constant level.

No case of carcinoma should be treated by H 11 alone unless a competent surgeon has advised that it is inoperable and unsuitable for radiotherapy, etc. Treatment must be given for at least six months, and the cost should be carefully considered before advising or starting this form of therapy.

H 11 extract has been supplied for this investigation by the generosity of Standard Laboratories, who have prepared the extract. All the research and experimental work has been carried out at the Hosa Research Laboratories by the Director of Research, Mr. J. H. Thompson, and his staff.

Case	Age and Sex	Date of First Inj.	Pathology	Previous Treatment	No. of H 11 Inj.	Result of Examination April, 1942	Result of Examination October, 1942
1	F 57	7/10/41	Infil. left broad lig.; col- lapsed carc. vagina	Radium	63	Less pain. Died 3/1/42	
2	F 35	19/2/42	Adenocarc. breast; sec. lungs and retina	—	496	Less pain; growths sta- tionary	Wt. 9 st. Pain bad in shoulders. Totally in- capable of getting about, but not getting weaker
3	F 39	4/3/41	Solid trabecular polygonal carc. cervix, Grade III	Radium	24, irreg.	Died Sept., 1941	
4	F 61	17/2/41	Carc. cervix, Grade III	Radium; hysterectomy; pre-sacral; neurectomy	950	G.C. v. good 1/5/42. N.A.D. per rectum, vagina, and pelvis; no pain, no dis- charge	G.C. good; rather pale; pain or discharge; vom- iting full day; wt. 9 st. stationary. P.R. utero- sacral thickened
5	F 46	21/5/41	Squamous carc. cervix, Grade III-IV	Pre-sacral neurectomy; radium	22, irreg.	Died 2/12/41	
6	F 53	7/6/41	Squamous carc. cervix, Grade III	Radium; pre-sacral neur- ectomy	20, irreg.	Died 16/8/41	
7	F 56	11/2/41	Solid trabecular polygo- nal and cubical carc. uterus	Radium; subtotal hyster- ectomy	120	Died 21/12/41	
8	M 69	11/7/41	Carc. prostate; renal calculi	Suprapubic cystotomy	30, irreg.	Died 6/9/41	
9	M 20	7/1/42	Mucus-secreting carc. rectum	Colostomy	62, irreg.	Died 10/3/42	
10	F 46	7/1/42	Mammary carc.; spastic paraplegia	—	31, once daily	Return of sensation in lower limbs. 19/3/42. Died 28/4/42	
11	F 56	6/10/40	Papillary carc.; cyst ovary; sec. in peritoneum	Total hysterectomy	119, irreg.	G.C. v. good; no pain, no ascites	Letter states now well. No symptoms
12	F 46	18/3/41	Carc. stomach and ovary	—	10	Died 27/3/41	
13	M 55	26/2/41	Carc. stomach	—	21	G.C. fair; no vomiting	Dead
14	F 60	21/8/40	Carc. uterus	Total hysterectomy; supra- pubic cystotomy	84, once daily	Died 10/2/41	
15	M 68	10/10/40	Carc. stomach and lower end oesophagus	Gastrostomy	22, irreg.	i.s.q.	No reply
16	M 70	18/12/41	Columnar carc. stomach	—	120, irreg.	Died 25/2/42	
17	F 51	July, 1941	Malignant ovarian; numer- ous small metastases; ascites	Laparotomy; left oophor- ectomy	520	N.A.D. abdomen or pelvis. G.C. v. good; gaining weight; no pain, no ascites	G.C. good; no pain or sym- ptoms. Injections March. No signs of re- currence. Gaining weight Very well; no symptoms or abnormal physical signs
18	F 60	Oct., 1940	Carc. rectum; sec. liver. Not confirmed by section	Laparotomy	460	N.A.D. per rectum except slt. thickening of recto- vaginal septum. G.C. very good	
19	M 72	Feb., 1941	Carc. rectum	Colostomy	650	Growth now involving anus. Wt. constant; G.C. i.s.q.	Gets about, but G.C. and pain+. Refuse further injections; grow- th extending.
20	F 56	Dec., 1941	Carc. cervix, Grade III	Radium; pre-sacral neur- ectomy	186	No ulcer, no pain, no haemorrhage; gain in wt.; G.C. imp.	G.C. good; wt. 12 st. 6 lb. no symptoms or signs of recurrence
21	F 68	Dec., 1941	Carc. vagina	Colostomy; pre-sacral neurectomy; rt. int. iliac ligatured	182	G.C. improved, less dis- charge; losing weight. Died 18/6/42	
22	F 60	May, 1941	Transitional carc. cervix, Grade III	Radium; pre-sacral neur- ectomy	380	G.C. good; gaining weight; no pain	G.C. v. good; wt. 11 st. 13 lb.; no pain or sym- ptoms, slight thickening of rt. utero-sacral lig.
23	M 63	July, 1941	Cylindroma of salivary glands	—	248	Mass of glands in neck enlarging	Dead
24	F 53	Jan., 1942	Solid trabecular transi- tional and squamous carc. cervix, Grade III	Radium; laparotomy; pre- sacral neurectomy	188	N.A.D. in abdomen. G.C. v. good; no discharge, no haemorrhage; gain- ing weight	No reply
25	F 45	June, 1941	Squamous and prickle- celled carc. uteri, Grade III	Radium; subtotal hyster- ectomy; colostomy	1,116	No pain; gain wt.; N.A.D. in pelvis; G.C. very good	G.C. v. good; wt. increas- ing; no symptoms or signs of recurrence. Col- ostomy to be closed.
26	M 66	Mar., 1941	Carc. bronchus	—	730	Pain relieved for a time. Mass in neck now ulcerat- ed through skin	Dead
27	F 53	May, 1941	Solid trabecular polygonal and transitional carc. cervix	Radium; Wertheim's hys- terectomy; pre-sacral neurectomy	744	No pain; no discharge; N.A.D. in abdomen. G.C. impd.; gain in wt. Vesico-vaginal fistula from radium necrosis	G.C. good; wt. increasing 9 st. 12 lb. No recurrence Has vesico-vaginal fistula; some thickening of rt. utero-sacral lig.
28	F 79	Apr., 1941	Transitional and squamous trabecular carc. cervix, Grade III	Radium	616	Less pain. Died Dec., 1941	
29	F 75	June, 1941	Malignant melanoma of neck	Local excision	342	No recurrence. Two months after discontinu- ing H 11 small gland appeared. Block dis- section April, 1942	G.C. fair; wt. 8 st. 8 lb. increasing. Some pain in shoulder, but x-ray N.A.D. and no signs of recurrence
	M 44	20/4/41	Carc. rectum; metastases in abdominal and in- guinal glands	Colostomy	153	Primary growth i.s.q.; in- guinal glands smaller. G.C. good; gain in weight. Died 25/4/42	
31	F 58	Sept., 1941	Solid trabecular and squa- mous carc. cervix, Grade III	Radium; pre-sacral neur- ectomy	424	No pain, no discharge; gain wt. G.C. v. good	No pain or discharge. Still having 5 c.cm. daily
32	F 39	Feb., 1942	Gastric carc.	Laparotomy	220	Little pain; G.C. fair; vomiting	Now complains of pain ar- rounding stomach and abnor- mal tumour, probably Krukenberg
33	M 68	27/6/41	Carc. prostate	—	538	25/4/42: Prostate i.s.q.; has retention of urine; G.C. satisfactory	No reply
34	M 70	Dec., 1941	Columnar carc. prostate; mass in left lung	Deep x-ray	58	Died Feb., 1942	
35	F 62	Jan., 1942	Carc. cervix	Radium; pre-sacral neur- ectomy	98	Died 9/3/42	
36	F 56	Sept., 1941	Squamous pricked and horny carc. cervix, Grade III	Radium	256	Repeat radium March, 1942. Growth checked; G.C. impd.; gain in wt.; no discharge, pain, or incontinence. Died 28/4/42	
37	F 66	July, 1941	Squamous carc. cervix, Grade II-IV	Radium; diathermy	1,116	No pain; G.C. satis- fying. N.A.D. in abdomen; utero-sacral lig. still thickened	G.C. v. good; wt. 14 st. 4 lb. increasing; no symptoms no signs of recurrence but some thickening both utero-sacral lig. injections now stopped

Case	Age and Sex	Date of First Injec.	Pathology	Previous Treatment	No. of H 11 Injec.	Result of Examination April, 1942	Result of Examination October, 1942
38	M 53	June, 1941	Carc. prostate; not confirmed by section	—	620	Gland normal; gain in wt.; G.C. v. good; micturition normal	G.C. v. good; no symptoms; no nocturnal frequency. P.R., prostate soft; rt. lobe \pm
39	F 58	Oct., 1941	Squamous carc. cervix, Grade III	Radium	744	No discharge, no symptoms, no pain; G.C. impd. 22/4/42	G.C. v. good; wt. increasing, 7 st. 13 lb.; no pain or symptoms; no signs of recurrence. Injections now stopped
40	F 47	July, 1941	Squamous carc. of cervical stump; had hysterectomy several years previously for fibroids. Large ulcerating mass	Radium; pre-sacral neurectomy	558	V. sat. condition; some scarring vaginal walls; no pain; a little loss of wt.	G.C. v. good; lost 10 lb. in wt. since April; has thickening rt. utero-sacral lig. and small mass in pelvis. To have further injections
41	F 45	Aug., 1941	Squamous carc. cervix, Grade III	Radium; pre-sacral neurectomy; Wertheim's hysterectomy	558	N.A.D. abdomen; no pain; G.C. v. good; scarring and a little thickening of vaginal vault	G.C. v. good; wt. 11 st. 6 lb. Injections stopped in April, 1942. No symptoms; P.R., both utero-sacral thickened
42	F 47	Sept., 1941	Carcinoma cervix, Grade IV	Radium	447	N.A.D. abdomen; no haemorrhage; no discharge; G.C. v. good. P.V., scarred cervix	Gradually lost wt. and pain recurred. Died 11/8/42
43	F 56	Oct., 1941	Solid trabecular transitional and squamous carc. cervix	Radium; pre-sacral neurectomy	249	G.C. v. sat.; gain in wt., 10 st. 7 lb.; no pain; slight cervical scarring	G.C. good; wt. 11 st. 2 lb.; no symptoms but tiredness; utero-sacral ligaments thickened. To have further injections
44	M 60	Sept., 1941	Carc. prostate	—	98, irreg.	—	Doctor states G.C. good; wt. stationary; no pain; working, and feels well
45	M 21	Jan., 1942	Carc. rectum	—	188	Died	
46	F 46	Jan., 1942	Carc. cervix	Radium	150	Condition worse	Died
47	F 26	30/10/41	Carc. stomach	Gastrectomy	240	27/2/42: Epigastric tumour; G.C. deteriorating; losing wt.; vomiting	No reply
48	F 60	13/1/41	Carc. uterus	Wertheim's and radium, followed by recurrence and suprapubic cystotomy	200	No improvement. Died 10/2/42	
49	F 70	9/10/41	Carc. cervix, Grade II	Radium	300	22/4/42: Satis; G.C. good; no sec. palpable V. rapid growth, causing intestinal obst. Died 19.12.40 ? accelerated by withdrawal of growth-inhibiting factor	Dead
50	F 29	1/11/40	Carc. ovary	Ovariectomy; glands+	19, stopped at patient's request	19/6/42: Operable. Growth slowly increasing; started approx. 1" in diameter, now 1 1/2"	No reply
51	F 60	28/8/41	Carc. breast (scirrhus)	Nil; patient refused operation or radiotherapy	540, irreg.		

I wish to express my thanks to the medical and nursing staff of the Kingston County Hospital for their assistance, and to the general practitioners who have co-operated in giving the injections to the patients in their own homes. In particular I am indebted to Mr. J. V. O'Sullivan for his great interest in this research and for his valuable suggestions.

REFERENCES

- Bowman, R. O., and Mottshaw, H. R. (1941). *Cancer Research*, 1, 303.
 Murlin, J. R., et al. (1939). *Science*, 90, 275.
 Rohdenburg, G. L., and Noy, S. M. (1937). *Amer. J. Cancer*, 29, 66.
 Turner, F. C. (1939). *U.S. Public Health Rep.*, 54, 1855.
 Thompson, J. H., et al. (1941). *Med. Pr.*, 205, 334.

CUTANEOUS HYPERSENSITIVITY TO SULPHONAMIDES

A REPORT OF 12 CASES

BY

R. G. PARK, M.B., M.R.C.P.

Major, N.Z. Medical Corps

The following cases illustrate a type of sulphonamide eruption which is being recognized with increasing frequency in the Middle East, but to which I am unable to find any reference in the literature at my disposal. In a previous report from this hospital on sulphonamide eruptions of the photosensitive type (Park and Platts, 1942) it was pointed out that these rashes almost invariably begin after 7 to 10 days of sulphonamide therapy, when there is presumably a high concentration of the drug in the blood. One case, however, was quoted in which there was a severe dermatitis beginning immediately after the first doses of sulphanilamide, differing from the delayed eruptions in its exudative character. An analogy was drawn between this condition and the experimental observations of Epstein (1939), who obtained erythematous and exudative reactions respectively to ultra-violet irradiation of the sites

of two successive injections of sulphanilamide, nine days apart. This phenomenon he christened "photo-allergy." The cases reported below are all of the immediate type, some of the generalized ones being unmistakably photosensitive, and it has been found that all of them have had sulphonamides applied to the skin some time before their eruptions.

Case I

On Aug. 16, 1942, Private B., aged 36, developed a seborrhoeic intertrigo of the left axilla. On the 19th this became pustular, and sulphanilamide ointment was applied, clearing up the secondary infection and leaving the intertrigo as before. He gave a history of a widespread eruption, lasting several weeks, following sulphanilamide dressings to a wound of the back 8 months previously. On Aug. 23 he developed acute tonsillitis, and was given three 0.5-g. doses of sulphanilamide by mouth. That evening the intertrigo became worse and a general rash appeared.

Next day, on admission to hospital, he showed a weeping eczematous intertrigo of the axilla and a diffuse papular dermatitis of the trunk and limbs. He received no more sulphanilamide until Sept. 1, when his tonsillitis recurred. Three 4-hourly doses of 1 g. were then given, and that evening the entire eruption recurred, more severely than the first time. It took two weeks to clear. On Sept. 23 0.5 g. of sulphapyridine caused a mild erythematous reaction at all the previous areas, lasting two days. On Sept. 26 1 g. of sulphaguanidine produced no reaction. On the 27th 5 g. of sulphaguanidine gave a mild erythematous reaction. On Oct. 1 1.5 g. of sulphathiazole caused no reaction.

On Oct. 4 a paste consisting of equal parts of sulphanilamide, starch, soft paraffin, and lanolin was applied to several test areas. This caused an immediate reaction in the left axilla, but none on any other part of the skin. Intradermal tests were carried out with 0.01, 0.1, and 1% of sulphanilamide in normal saline, using controls of normal saline alone. Only the 1% gave a reaction, consisting of a raised erythema, beginning in about 4 hours and lasting 24 hours.

Case II

On Aug. 1, 1942, Leading Aircraftman T., aged 38, suffered abrasions of the left elbow which became infected and were treated with eusol and sulphanilamide, applied locally. On Aug. 8 ar

eruption appeared; by Aug. 28, when he was admitted to hospital, this had spread to involve the whole forearm. It was an acute weeping dermatitis. On Sept. 9 he developed acute tonsillitis, and was given sulphanilamide in an initial dose of 2 g. and three 4-hourly doses of 1 g. That evening he developed an acute papulo-vesicular dermatitis of the trunk and limbs and an exacerbation of the left forearm.

Test applications of sulphanilamide paste were negative. Sulphapyridine 2 g. gave no reaction, but there was an erythematous reaction of the trunk after 5 g. of sulphaguanidine. No reaction was obtained from 1.5 g. of sulphathiazole. Intradermal and scratch tests with 1% sulphanilamide were negative.

Case III

About the middle of July, 1942, Private M., aged 23, developed a "desert sore" (ecthyma) of the right forearm. It was treated at first with eusol and later with local application of sulphanilamide and cod-liver oil: a dermatitis followed in the area treated. By the end of August the whole forearm was affected, and then the face, hands, and feet. He was admitted to hospital, and on mild applications the condition settled down in two to three weeks.

On Sept. 18 one application of sulphanilamide paste was made to the right forearm, where an immediate acute exudative reaction took place. On Sept. 25 a test dose of 0.5 g. of sulphanilamide was given orally. A few hours later the patient developed an acute vesicular dermatitis of the right forearm and both hands and feet. On Sept. 27 a sulphanilamide paste was applied to the face, with an immediate reaction, and to the left forearm (which had never been the site of eruption), with no reaction. On Oct. 13 0.5 g. of sulphapyridine gave no reaction, but 2 g. next day produced a mild erythema at all the previous sites, lasting a few hours only. From Oct. 16 to 22 doses totalling 12 g. of sulphaguanidine and 4.5 g. of sulphathiazole were given with no effect.

Case IV

On Aug. 6, 1942, Sapper R., aged 35, suffered an abrasion of the left elbow, which developed infection and was dressed with sulphanilamide. A dermatitis subsequently appeared on the forearm, and by Aug. 18 had spread to other parts of the body.

He was admitted to hospital on the 20th with a bullous dermatitis and subcutaneous oedema of the left elbow, a papulo-vesicular eruption of the face, scalp, neck, trunk, arms, hands, and legs, and a mild crural and intergluteal intertrigo. His temperature was 101°. He was given 2 g. of sulphanilamide followed by 1 g. 4-hourly; the drug was discontinued two days later, since there was no improvement, the temperature chart varying from 99° to 102°. This then subsided in two more days and his skin steadily improved. On Sept. 26 1 g. of sulphanilamide was given with no reaction, but on the next day three similar doses caused a sharp flare-up of the left arm and a milder erythema of the face, neck, hands, and feet.

On Oct. 6 three doses of 5 g. of sulphaguanidine gave a papulo-vesicular reaction on the left forearm only. Sulphapyridine 15 g., in divided doses over three days, gave a mild papular reaction on both forearms. Applications of sulphanilamide paste, and intradermal and scratch tests, were negative with 1% sulphanilamide.

Case V

About the beginning of Sept., 1940, Warrant Officer D., aged 40, had lesions of impetigo and ecthyma on the arms, which were treated with acriflavine and later with sulphanilamide powder. In the middle of September areas of dermatitis appeared on both arms and on the 29th an eruption occurred on the hands, legs, face,

and he was admitted to hospital on Oct. 3, when he had circumscribed areas of moist dermatitis round the sites of previous ulcers on the left forearm and right hand. There was a more recent vesicular and pustular dermatitis on the legs, hands, and face, and in scattered areas on the trunk. Intradermal tests with sulphanilamide gave a reaction with the 1% strength only, starting in 24 hours and lasting 4 days. On Oct. 13 0.5 g. of sulphanilamide, given orally, caused irritation on the existing areas and the appearance of a few new papules. Application of sulphanilamide paste to the area of subsiding dermatitis on the left forearm produced a distinct erythematous and papular reaction.

Case VI

About the middle of Aug., 1942, Private R., aged 25, developed some desert sores on both knees. These were treated by dusting sulphanilamide powder on them and dressing them with acriflavine gauze. An ulcer on the right knee healed in three days, but two on the left knee healed only very slowly. About the middle of September a patch of dermatitis began round each of these, with which he was admitted to hospital on the 21st. They were about 2 to 5 in. in diameter, with a weeping and scaly surface and fairly sharp margins. Both these areas became dry on rest in bed and simple dressings. On Sept. 29 one application of sulphanilamide

paste to the milder of these areas caused it to weep profusely, while the other remained dry. Applications to the other knee gave no reaction.

A positive reaction was obtained to 1% intradermal sulphanilamide, none to the other strengths. This was a raised erythematous area, 1/2 in. in diameter, beginning in 18 hours, reaching a maximum in two days, desquamating on the surface, and finally fading in about 10 days. Scratch tests with the same dilutions were all negative. On Oct. 13 0.5 g. of sulphanilamide was given, with an immediate exudative reaction on both areas, together with a papular dermatitis on the face, arms, trunk, and other leg. The patient recalled that a similar eruption had appeared for a few days when he was having his leg dressed with sulphanilamide. On Oct. 19 and 24, respectively, weeping reactions were obtained in both areas, but not on other parts, from oral doses of 0.5 g. of sulphapyridine and 1 g. of sulphaguanidine. On Oct. 31 0.5 g. of sulphathiazole was followed by irritation but no exudation, and on Nov. 4 a total of 5 g. in divided doses caused a definite recurrence of exudation.

Case VII

The case of Leading Aircraftman C., aged 25, was one of pre-existing eczema which developed an intercurrent hypersensitivity to sulphonamides. Between the ages of 5 and 7 he had suffered from intermittent eczema of the face and hands. There was a family history of asthma and a personal history of nervousness and dyspepsia. On the way to the Middle East in Aug., 1941, a septic abrasion of the right index finger started a scaly and vesicular eczema of the hand, which steadily spread and had recently begun to involve the left hand. He had sulphanilamide ointments applied at intervals for four months before his admission to hospital on Aug. 29, 1942. He settled down with mild application and fractional doses of irradiation.

On Oct. 6 0.5 g. of sulphanilamide was given. An exacerbation took place on both hands, and in addition a papular dermatitis appeared on the right forearm. Intradermal and scratch tests and the application of sulphanilamide paste were all negative. Successively larger doses of sulphapyridine and sulphaguanidine were then given from Oct. 17 to 29. Papular reactions were obtained on the right forearm with 3 g. of sulphapyridine and 40 g. of sulphaguanidine in divided doses.

Case VIII

Sapper H., aged 42, began in July, 1942, to suffer from boils in both axillae. Sulphanilamide powder was applied, between other treatments, at intervals over the next three months. At the beginning of October an eruption appeared in both axillae and became progressively worse. A week later he began to itch all over, and a milder eruption spread to the trunk and hands.

On admission to hospital on Oct. 16 he showed an acute exudative dermatitis and furunculosis of both axillae, and a papular dermatitis on the hands and scattered over the trunk. The dermatitis rapidly subsided and the boils improved steadily. One application of sulphanilamide paste to the left axilla caused a recurrence of dermatitis in both axillae, and a papular eruption when applied to an area on the right arm, which had not erupted before. By Nov. 4 both axillae were clear, and 0.5 g. of sulphanilamide was given by mouth. Next day he was covered with an irritable papular dermatitis of a photosensitive nature, being confluent on the face, neck, and trunk above the waist, moderate on the knees, mild on the lower trunk and legs, and absent from the inner surfaces of the upper arms. Both axillae were again the sites of a weeping dermatitis.

An intradermal test with 1% sulphanilamide was negative.

Case IX

About the beginning of Aug., 1942, Lieutenant P., aged 30, was wounded in the right hand and left knee. These were dressed, and he remained with his unit. Sulphanilamide powder was used. The wounds failed to heal, and about the beginning of September his knee underwent secondary infection, with inguinal adenitis and fever. On Sept. 5 he was sent to hospital, where he was treated at first with sulphanilamide locally, and afterwards, as there was no improvement, with other applications. He was almost healed on his discharge 6 weeks later. He was transferred to a convalescent home, where sulphanilamide powder was again applied, and in a few hours both areas were weeping profusely.

I saw him for the first time on the following day, Oct. 24, when he had areas of exudative dermatitis about 3 in. in diameter on the right hand and left knee. There was no adenitis or secondary infection. Dressings of Lassar's paste were applied and he was instructed to avoid sulphonamides locally and by mouth. By Nov. 2 the lesions had cleared, and he was given 0.5 g. of sulphanilamide by mouth. A few hours later a general eruption appeared. When next seen on Nov. 4 he showed an acute papulo-vesicular dermatitis, intensely irritable, and universally distributed from head to feet.

Case X

In June, 1942, Captain B., aged 30, was wounded in the right arm. The wound, suppurated and caused some surrounding pustular dermatitis, which persisted until August, when he was admitted to hospital. He had been treated with sulphanilamide powder locally at intervals during this time. About Oct. 8 he developed a small eczematous sore on the lobe of the right ear. Two days later similar sores appeared on the left leg, and after a further 24 hours these had progressed to a cellulitis, for which he was evacuated from the field. At the field ambulance he was noted to have bullae on the left shin, with surrounding cellulitis and a temperature of 100° . Sulphanilamide was started on Oct. 11: 2 g. followed by 1 g. 4-hourly. On Oct. 12 the bullae were larger and the oedema more extensive, with inguinal adenitis and oedema of the right ear, and a temperature of 101.3° . On the same day an eruption began on his hands and feet.

On reaching hospital on the 13th he showed cellulitis of both ears and legs, bullae on the left leg, and a vesicular and pustular dermatitis of the hands, face, and the area of his original wound of the right forearm. Sulphanilamide was stopped on Oct. 13. By Oct. 21 his skin was clear except for an infected ulcer on the left leg where the bullae had been. This slowly healed. He gave no reaction to the local application of sulphanilamide to any areas. Sulphathiazole 16 g. and sulphaguanidine 16 g. in divided doses gave no reactions. On Nov. 5 0.5 g. of sulphanilamide was given, to be followed by an irritable erythematous dermatitis of both legs below the knees and the skin on the right forearm at the site of his original wound.

This condition was considered to be a streptococcal infection, plus reaction to oral sulphanilamide, to which he had been sensitized by local applications two months previously.

Case XI

Corporal C., aged 26, had suffered from a mild eczema of the feet, hands, and trunk for two years, which had been almost quiescent over the past two months. On Oct. 13, 1942, a spot resembling impetigo appeared on the scrotum. It was treated with iodine. On Oct. 15 sulphanilamide and fomentations were applied three times. On Oct. 16 he was given 2-g., 1-g., and 1-g. doses of sulphanilamide by mouth. On the 17th a generalized irritable rash appeared.

He reached hospital on the 20th, showing a small area of weeping dermatitis on the right side of the scrotum, and a widespread papular dermatitis of the trunk and limbs. An intradermal test with 1% sulphanilamide caused an irritable area of raised erythema, 4 to 5 in. in diameter, lasting three days. Sulphanilamide paste applied on Oct. 31 caused no reactions. On Nov. 1 he took 0.5 g. of sulphanilamide orally. An immediate generalized eruption appeared, of a photosensitive type. It consisted of irritable papules, becoming confluent on the upper trunk, with a sharp lower margin at the waistline. It was also present on the face, arms, and legs, especially the exposed parts of the knees, but was absent from the axillae and the trunk below the waist.

Case XII

Lance-corporal H., aged 32, was operated on for hammer-toe on Sept. 17, 1942. His wound healed slowly, and sulphanilamide powder was applied intermittently to it over the next month. A mild degree of sepsis supervened, and at 10 a.m. on Oct. 21 he was given an initial dose of 2 g. of sulphanilamide, followed by 1 g. 4-hourly until 2 p.m. the next day—a total dose of 8 g. Two hours after the first dose he developed macules on his hands and feet. About 6 o'clock that evening he had a rigor and his temperature rose to 102° . Macules were then seen on his face and neck. His temperature continued between 102° and 104° , with a pulse rate of 100 to 120.

Seen on Oct. 24, he showed a morbilliform erythema, universally distributed, but confluent on certain of the exposed parts—face, neck, eyelids, and dorsum of the hands. It was scanty on the lower trunk and in the axillae—parts seldom exposed to the light. It was not irritable. Malaise was the only symptom, and there were no signs of measles or other exanthemata. The temperature fell by 10 a.m. on Oct. 25, and the rash had faded two days after that, except for a mild exfoliation on the face, neck, hands, and feet. There was a little secondary pustulation on the hands.

Discussion

All these cases show a cutaneous hypersensitivity to sulphonamides, apparently induced by their local application. When its sensitization has taken place dermatitis can be caused by the local application of sulphanilamide, and by the internal administration not only of sulphanilamide itself but of other drugs of the sulphonamide series. The reaction is proportional to the dose of the drug and to the degree of sensitivity (which varies considerably). In the same patient a large dose will cause a severe eruption, a moderate dose a mild one, and a small dose no eruption at all.

Three of the above cases were ones in which hypersensitivity could be expected, two being pre-existing eczemas and the

other a seborrhoeic subject with an axillary intertrigo. All the remaining cases were pyogenic skin infections of one kind or another. No cases were seen as a result of dressing clean wounds or burns with sulphanilamide. After a varying period of treatment patches of dermatitis appeared in the areas treated and steadily spread. In some of the cases there has finally been a rapid extension of the sensitivity to other parts, causing a widespread acute dermatitis.

The reaction to oral administration is the most sensitive. All of the above cases have flared up on giving sulphanilamide by mouth, usually with as little as one 0.5-g. tablet. Four out of six cases tested gave a reaction to sulphapyridine, but in rather larger doses. Four out of six reacted to sulphaguanidine in still larger doses. One case reacted only to sulphathiazole, but owing to shortage of this drug at the time it was not possible to test all patients with full doses. The reaction usually begins about 8 hours after administration. In 3 cases it has shown a typical photosensitive distribution, and in one case it has been accompanied by drug fever.

Sensitivity to local application is less marked. Of the 12 cases 6 reacted to it in the eczematous area where the original sensitizing applications were made. Other parts of the skin are much less sensitive. Even those areas which became inflamed on oral administration of the drug reacted to its contact in only one case. Patch tests on unaffected areas of skin, therefore, would not be of any diagnostic value in this condition.

Intradermal tests were positive to a 1% solution in 4 out of 10 cases tested. In a series of 10 control subjects they were negative in all cases. A positive reaction appears in anything from 4 to 24 hours, and lasts from 24 hours to a week. It consists of a raised area of dull erythema, and may itch considerably. Scratch tests gave no positive reactions.

It is not known how long this sensitivity persists. None of these cases has been under observation long enough for it to pass off, and no diminution has been observed in the degree of sensitivity with the passage of time. The cases have reacted for periods of up to two or three months after local sulphonamide therapy has been stopped.

In Case III, one of the most sensitive, an attempt was made to transfer the hypersensitivity by the Prausnitz-Küstner technique. Serum from the patient was injected intradermally into the arm of a normal subject (my own). A scratch test was performed 48 hours later on this site, with no reaction. Nor was there any reaction to the ingestion of sulphanilamide tablets by the subject.

Although hypersensitivity to many substances used locally on the skin may occur, its existence with sulphonamides is a more serious matter. It is easily seen that should these men get pneumonia, cerebrospinal meningitis, bacillary dysentery, or any of a large number of other diseases, their treatment with sulphonamides would be gravely hampered, if not rendered impossible. These cases present a strong argument against the indiscriminate use of sulphonamides as applications for skin infection or dressings for wounds. Other materials will usually do the job equally well, if perhaps not quite as quickly. It should be added that this does not apply to the introduction of sulphonamides into the depths of wounds, since in all cutaneous sensitizations it is necessary to have actual contact with the skin itself.

Most of the above cases have had sulphonamides applied for prolonged periods, and in Case VI an area of skin treated for only a few days escaped sensitization, in contrast to those treated for several weeks. This indicates that when these drugs are used it should be for as short a time as possible. Such a principle should not prove any hindrance in practice, since an infection susceptible to sulphonamides will be eradicated in a few days if it is going to be eradicated at all.

Summary

Twelve cases are described in which local sulphonamide therapy has caused sensitization dermatitis.

This is a serious drawback in the treatment of subsequent infections for which sulphonamides are really needed—e.g., pneumonia.

The fact that these 12 cases were seen in this hospital over a period of less than three months suggests that the condition

is by no means a rare one. It is to be suspected whenever eczematization occurs in skin lesions receiving local treatment with sulphonamides.

Intradermal and patch tests are of little value in diagnosis, which is best confirmed by the reaction which follows a small dose of sulphanilamide by mouth.

My thanks are due to Major B. C. Tate, R.A.M.C., who first drew my attention to the existence of this condition, and to the Director of Medical Services, N.Z.E.F., for permission to publish this paper.

REFERENCES

- Epstein, S. (1939). *Arch. Derm. Syph.*, Chicago, 39, 225.
Park, R. G., and Platts, W. M. (1942). *British Medical Journal*, 2, 308.

THE MODERN TREATMENT OF GONORRHOEA

BY

Brigadier T. E. OSMOND, M.B.
Consulting Venereologist to the Army

The following article has been written in response to a request from the Editor, who recently received a letter from a surgeon saying he was "appalled by the way patients are being mistreated in general practice." I have therefore set out the treatment somewhat dogmatically, because my remarks are meant not for the venereologist but for the general practitioner, who may be none too familiar with either gonorrhoea or its treatment.

GONORRHOEA IN THE MALE

The incubation period is of some importance; a gonorrhoeal discharge usually starts 3 to 5 days after infection, with extremes of 2 to 10 days; do not believe the patient who says he has not indulged in sexual intercourse for several weeks or even months—he is either a liar or suffering from a relapse. It is said that non-gonococcal urethritis—and this is a very definite entity—has a rather longer incubation period: often a week or 10 days or more. Don't forget the possibility of an intra-urethral syphilitic chancre causing a discharge, in which case the incubation period is likely to be not less than 3 weeks.

Diagnosis

In a typical case there is a profuse greenish-yellow purulent discharge from the urethral canal; make sure that it does come from within the urethra and not, as in balanitis, from behind a tight foreskin. A thin watery discharge usually indicates chronic gonorrhoea or non-specific urethritis.

1. Take a loopful of the pus from within the meatus with a platinum loop and spread it thinly and evenly on a slide—or prefer two slides—and allow to dry in the air. Do not rub the slide the tip of the glass penis. Stain by Jensen's modification of 's method—gonococci appear as Gram-negative intracellular cocci. If there is likely to be any question of legal proceedings a wise plan to have the discharge cultured as well, in which case it is better to refer the patient to a pathologist before starting treatment.

2. Take a specimen of urine into two or more glasses; if the infection is recent, that in the first glass will be hazy owing to pus, and that in the second clear (anterior urethritis). If both glasses are hazy there is posterior urethritis as well. Add half an ounce or so of acetic acid to the urine in each glass; if the haze is due to pus it will not disappear; if due to phosphates it will clear.

If gonococci are found treatment may be begun; if they are not found take further specimens (smear and culture) next day, having told the patient to hold his urine all night or at least 4 hours before coming to see you. If gonococci are still not found refer the case to a specialist. You may get into deep water if you undertake chemotherapy without having made a definite diagnosis.

Only in urgent cases in which the diagnosis is clinically probable may chemotherapy be started pending the result of microscopical examination.

Treatment

The general practitioner should be chary of undertaking the treatment of gonorrhoea unless he has had considerable experi-

ence not only of the disease but of chemotherapy: gonorrhoea cases have a way of "going wrong," and the sulphonamide drugs are dangerous in unskilled hands. Many practitioners do not care to treat these cases, and there are plenty of venereologists and V.D. clinics available in most parts of the country. Remember, the average venereal patient is not a satisfactory one: if you cure him he shows little gratitude if you fail he is apt to turn nasty.

However, if you do decide to undertake treatment start the following lines. Don't forget the importance of general as distinct from specific treatment. During the acute stage patient should lead a quiet, peaceful, sedentary life, keep bowels well open with cascara or liquid paraffin, and avoid sexual intercourse, alcoholic and other stimulants, and pornographic literature. No special diet is necessary. Above all things he should avoid introspection; many of these patients take far too much interest in their disease and its treatment. This applies more particularly to those cases which do not react well to specific drugs. All patients should be warned of the contagiousness of their condition and of the necessity of simple hygienic measures to avoid infecting their own eyes and communal articles such as towels, baths, etc. While it is true that adults do not get gonorrhoea from such things as lavatory seats, nevertheless young female children are particularly susceptible to infection, and simple hygiene is desirable on aesthetic grounds alone.

Chemotherapy

Before starting this exclude previous intolerance and other contraindications such as certain dermatoses, blood dyscrasias, renal disease, jaundice, and neuritis, and ask the patient if he has already taken any sulphonamide. Remember that sulphonamides may cause vertigo: do not allow a patient to drive a car or pilot an aircraft while taking these drugs. Use optimum conditions from 80 to 90% of early acute cases can be cured by the best of the sulphonamide preparations without any other treatment. Those recommended are sulphadiazine, sulphathiazole (thiazamide, M & B 760), sulphapyridine (M & B 693), and sulphanilamide, in that order of merit; the first named is often unobtainable, and sulphathiazole is therefore the usual choice. Prescribe 5 g. (10 tablets) a day for 2 days; 3 tablets on rising, 2 at midday, 2 at tea-time, and 3 at bedtime; the tablets should be given crushed; two tumblerfuls of water or other bland fluid to be taken on each occasion. It is of utmost importance that the fluid intake should be at least 6 to 7 pints in the 24 hours in order to avoid the risk of haematuria which may be a very serious complication of treatment. If the patient shows a dramatic improvement at the end of 48 hours no further chemotherapy may be needed; if, however, there is still some discharge, or the urine is still hazy with pus, continue chemotherapy on the same dosage for a further 4 days; total—20 g. of sulphathiazole in 4 days. Then stop the drug. Insist on seeing the patient daily, preferably early in the morning, and do not give a prescription for, or supply, sufficient of the drug for more than one day: sulphonamide preparations cannot be obtained by the patient from a chemist without a prescription. The sulphonamide preparations appear to act best and to be less apt to cause haematuria or anuria when the urine is rendered alkaline; therefore prescribe 11 following from the start of the treatment:

Pot. cit. (or sod. cit.)	..	..	gr. xxx
Pot. bicarb. (or sod. bicarb.)	..	..	gr. xx
Chloroform water	..	..	ad 3ss

Sig.—One tablespoonful to be taken 4 times a day.

If the discharge clears in 2 to 4 days watch the patient daily for 7 days after the termination of chemotherapy, noting whether there is any discharge or heavy threads in the urine. If both are absent at the end of this period a presumptive cure has been obtained. If after 4 days' chemotherapy minor signs of urethritis persist, put the patient on to antero-posterior irrigations (into the bladder) of 1 in 10,000 potassium permanganate or 1 in 8,000 oxycyanide of mercury. (Before using the latter drug make sure the patient is not taking iodides in any form.) Irrigations should not be carried out by the patient himself but by someone skilled in the procedure. The lotion should be at blood heat, given with an irrigator, raised not more than 2½ feet above the patient's penis, and a nozzle of the fan type; the anterior urethra should first be cleansed, and the

solution then coaxed, not forced, into the bladder. Fill and empty the bladder two or three times, using 2 pints of the antiseptic lotion. Do not in any circumstances use a syringe or urethral treatment: syringing is an inefficient method, and serious consequences may result. If 7 days' irrigation fails to complete the cure you may give a second course of sulphonamide drug, but first have a total and differential white blood count done to avoid the risk of agranulocytosis: preferably use

different preparation—e.g., sulphadiazine, 6 g. a day for 4 days, or sulphapyridine, 5 g. a day for 4 days. If this second course of chemotherapy fails you may assume that the patient is sulphonamide-resistant, and further chemotherapy is not only useless but even dangerous.

Cases which resist chemotherapy and irrigation are most likely to be troublesome—look out for complications, especially epididymitis and prostatitis. The most efficient treatment for sulphonamide-resistant cases is artificially induced hyperpyrexia; this is a dangerous procedure unless carried out by an expert. The most effective method of raising the patient's temperature is the heat cabinet—e.g., the Kettering hypertherm or the induction therm—but as these cabinets are rarely available, recourse is usually had to simpler methods, such as intravenous or intramuscular injections of various forms of protein—e.g., typhoid or *coli* vaccine, sterile milk, peptone, or one of the various proprietary preparations.

If the patient is not cured after two courses of chemotherapy and irrigation refer him to a specialist; the same applies to those cases which show intolerance of the sulphonamides.

Intolerance to Sulphonamides

The following are the commoner side-effects of sulphonamides, with recommendations concerning them.

Side-effect	Recommendation
Headache, lassitude, disorientation, diplopia, insomnia	Unless severe, maintain dosage. Keep patient in bed
Pyrexia (above 100° F.)	Reduce dosage; force fluids; stop drug if temperature persists
Nausea, vomiting, epigastric discomfort, diarrhoea	If mild, maintain dosage but give a diet of staps and alkaline gastric sedatives. If more severe, reduce dosage or stop altogether
Conjunctivitis (sulphathiazole)	Imperative to stop drug and force fluids
Cyanosis	Exclude sulphur-containing foods and drugs. Do not stop drug unless severe. Give methylene blue 0.5 to 1 g. a day by mouth
Haematuria	Discontinue drug; force fluids. If oliguria or anuria develops call in a G.U. surgeon; urethral catheterization or nephrostomy may be indicated
Dermatitis	Avoidance of exposure to the sun assists in prevention. Discontinue drug. Induce diuresis; check leucocyte count
Agranulocytosis	May be ushered in by sore throat, headache, and fever; do blood count. Pentnucleotide 0.35 g. intramuscularly twice daily. Transfuse with fresh defibrinated blood
Haemolytic anaemia	Omit drug, induce diuresis, transfuse
Jaundice, toxic hepatitis, acute yellow atrophy	Imperative to discontinue drug

Summary.—In dermatitis (rash) and fever it is wise to stop the drug and force fluids. In conjunctivitis, acute haemolytic anaemia, haematuria, severe leucopenia, hepatitis, and jaundice it is imperative to do so. Remember that persons who have shown themselves susceptible in the past will almost certainly do so again. Therefore always question the patient as to previous idiosyncrasy before prescribing sulphonamide drugs.

Complications

These usually call for specialized treatment unless they react to the sulphonamides, and therefore will only be mentioned briefly.

Infection of Tyson's glands, situated on each side of the fraenum, and of the *para-urethral ducts*, situated beside the meatal opening, is not uncommon; it usually clears up under chemotherapy. If not, it may have to be dealt with by electrocautery or surgically.

Folliculitis (inflammation of Littre's glands), infiltrates, and peri-urethral abscess usually occur somewhat late and in maltreated cases, and may call for the use of Kollmann's dilator or intra-urethroscope treatment such as cauterization or incision.

Posterior urethritis probably occurs in a large proportion of those cases which are not treated in the early stages. It usually presents no special symptom; when it does, frequency, strangury, or even retention of urine may occur. Treatment consists of hot baths and suppositories of morphine, gr. 1/4, and atropine, gr. 1/70, one each night for a few nights; rarely it may be necessary to pass a

soft rubber catheter to relieve retention, but this should be done only as a last resort and with the strictest aseptic precautions.

Epididymitis occurs in about 5% of cases, and can usually be avoided if the patient leads a sedentary life during the acute stage and wears a jock-strap or sports slip. It may be caused by external violence such as a blow, too strenuous exercise, unskilled instrumentation, or over-forceful irrigation. In the acute stage the patient should lie up, the testicles should be supported with cotton-wool and bandage, and ice-packs or glycerin of belladonna or kaolin poultices applied. It usually clears up rapidly under chemotherapy; if it does not, puncture with an intramuscular needle often relieves the acute pain. Irrigation, if being given, should be stopped during the acute stage. Epididymitis is usually preceded by prostatitis and vesiculitis, and these should be dealt with when the condition has subsided. The vas deferens on the affected side is usually permanently blocked, so that if the condition is bilateral the patient is likely to be permanently sterile.

Prostate-vesiculitis.—This probably occurs in all cases of posterior urethritis and almost always precedes an epididymitis or arthritis. If acute it usually resolves under chemotherapy, but if it persists sedative treatment by means of hot sitz baths and morphine-and-atropine suppositories is indicated. A prostatic abscess generally bursts into the urethra, but may require surgical incision. In the chronic stage, when the only evidence is pus and perhaps gonococci in the secretions, regular gentle massage every 5 to 7 days and diathermy are indicated.

Arthritis and tenosynovitis usually attack one or two of the larger joints or the tendons around them—e.g., knee, ankle, shoulder, wrist; arthritis may also affect several of the smaller joints, such as those of the hands and feet. Treatment should be directed to the original focus—nearly always the prostate and vesicular seminales; artificial hyperpyrexia is very successful in early cases.

Cowperitis, keratoderma blennorrhagica, septicaemia, and endocarditis occur very rarely and call for the services of an expert.

Ophthalmia is rare in adults, and usually reacts very rapidly (within 24 hours) to chemotherapy. Protect the sound eye; instil atropine drops into the affected one and bathe frequently with boric lotion or sterile normal saline. Since ophthalmia may lead to permanent blindness it is wise to call in a specialist.

Test of Cure

If the patient has reacted well to chemotherapy, with or without irrigation, and if presumptive cure has been obtained by one or two courses of the drug within a week of discontinuing treatment, he should be re-examined once weekly for 3 weeks in order that any tendency to relapse may be detected, and then finally at the end of 3 months. *No lower standard of cure is permissible.* At the 3 preliminary weekly tests of cure the urethra should be examined for any discharge and the urine for heavy threads—i.e., those which sink within a minute. It is best to see the patient early in the morning after he has held his water all night. The presence of gonococci or numerous pus cells indicates incomplete cure.

Final Test of Cure

- Look for any discharge.
- Examine all-night specimen of urine in two or more glasses, telling the patient to retain some urine in his bladder. Make smears and cultures from any discharge or threads.
- Massage prostate and seminal vesicles firmly but gently with the patient in the knee-elbow position; expressed fluid should appear at the meatus. If it does not, tell the patient to pass the remainder of his urine: centrifuge this; make smears and cultures. Note condition of Cowper's glands before removing finger from rectum.
- Wash out urethra and bladder with oxycyanide of mercury lotion 1 in 8,000, leaving some in the bladder.
- Examine anterior urethra with the urethroscope for follicles, infiltrates, stricture, etc.
- Pass the largest curved sound which will traverse the meatus (say 22-26 Clutton) into the bladder.
- Tell patient to empty bladder.
- Take a specimen of blood for Wassermann, Kahn, or other serum test to exclude syphilis; have a gonococcal complement-fixation test done if the patient has been resistant to treatment or has suffered from complications.

If the patient passes all these tests satisfactorily he may be dismissed as cured.

Relapse

About 5% of all cases may be expected to relapse, and this is much more apt to occur in those cases which have reacted

poorly to chemotherapy. Treatment of a relapse is similar to that of the original attack, but tests of cure should be even more meticulous.

Summary of Treatment

1. Make sure of the diagnosis.
2. Before starting chemotherapy inquire for history of previous intolerance. No special diet is necessary.
3. Give sulphathiazole, 5 g. a day for 2 to 4 days, in evenly spaced doses; the drug need not be taken during the night. Give concurrent alkaline mixture and plenty of fluids. In place of sulphathiazole the following may be used: sulphadiazine, 6 g. a day for 4 days; sulphapyridine, 5 g. a day for 5 days; or sulphanilamide, 5 g. a day for 5 days. *Never give a sulphonamide preparation for more than 7 consecutive days in any circumstances.*
4. Look out for toxic effects of sulphonamides.
5. Look out for complications.
6. Always do a blood count before a second course of a sulphonamide.
7. Make certain that tests of cure are meticulously carried out: you cannot be sure the patient is cured unless you do. If he is not, he may unwittingly infect some innocent person.

Warnings

Cases are divided into two classes—those which are cured by sulphonamides and those which are not. Refer the latter to a specialist. You may regret it if you don't.

Don't give more or less of the sulphonamide than the dosage indicated above. If you overtreat, serious reactions which may endanger the life of the patient may occur. If you undertreat you may make the patient sulphonamide-resistant: he may then take months to cure.

Don't attempt procedures with which you are not familiar—e.g., irrigation, instrumentation, prostatic massage.

Don't use a syringe for intra-urethral treatment, and don't use provocative instillations for test of cure.

Gonorrhoea is a serious disease, and sulphonamides are dangerous drugs, not to be prescribed lightly.

The average V.D. patient is an unsatisfactory one; he is usually a liar. Tread very warily, especially as regards prognosis.

Appendix: Technique of Irrigation

Tell the patient to pass water.

Cleanse the glans penis with a little of the lotion to be used.

Use an irrigating vessel, preferably of glass, connected by a feet of rubber tubing to a blunt-pointed glass nozzle (anet type).

Pour two pints of the lotion at 100° F. into the container and expel air from tube and nozzle. Clip the tubing.

Adjust the height of the irrigating vessel not more than 6 feet above the patient's penis.

Patient should stand, or lie on an examination table.

Insert nozzle into the meatus, release the clip, and allow it to fill the anterior urethra. Repeat three or four times, allowing the urethra to empty after each filling.

Insert nozzle and tell patient to relax, take deep breaths, and pass water. In this way lotion may be coaxied into the bladder. Don't force it.

Repeat this procedure two or three times.

GONORRHOEA IN THE FEMALE

Treatment of this is carried out on similar lines to that in the male. Chemotherapy in proportionate dosage, making allowance for weight, is usually successful provided there are no closed foci—e.g., Bartholin's. Douching is to be deprecated; dry swabbing or swabbing with weak alkali is usually preferable. Skenitis, Bartholin's, cervicitis, and salpingitis should be dealt with as they occur, preferably by a specialist. Tests of cure should be carried out immediately after the menstrual period for 3 consecutive months following termination of treatment. They should include both microscopical and bacteriological examination of all pathological specimens and, of course, blood tests.

Medical Memoranda

Intestinal Obstruction after Caesarean Section for Contracted Pelvis

Cases of intestinal obstruction after Caesarean section reported up to 1938 are not numerous. O'Connor (1934) had one death from intestinal obstruction in 436 cases of Caesarean section, the patient dying on the sixth day. No suggestion was made as to the aetiology, except perhaps toxæmia. Haultain *et al.* (1933-4) found that irregular action of the bowels was present in 24 patients (14.1%). The lax post-partum abdominal musculature, arising *de novo*, was the only aetiological agent suggested. Montgomery (1936) considered peritoneal adhesions a possible cause of intestinal obstruction after Caesarean delivery, but he does not mention the possibility of pelvic impaction of the uterus. Quigley (1937) reported three cases of intestinal obstruction in a total of 358 Caesarean sections simply as "ileus," with one case—"Intestinal Obstruction: Operation."

The following two cases, treated shortly after each other in 1930-1, aroused my interest at the time. Search of the literature, however, failed to disclose reports of any similar case, although some must surely have occurred. Both women were primiparae under 30. Gestation had been normal so far as was known; there was no evidence of toxæmia and no history of renal disease. In neither had there been any previous laparotomy and no abnormality in the serous layers was observed at operation. Both were unbooked cases, admitted with obstructed labour.

CASE I

A. B., aged 19. Admitted to hospital on July 26, 1930, five hours in labour. No descent; Müller's test showed marked overlap of the anterior symphyseal border; P.V., sacral promontory readily felt. Classical Caesarean section was performed the same day under chloroform-open ether. A 7½-lb. full-term living male child was delivered. Closure was carried out in layers without drainage. Convalescence was uneventful, but there had been no bowel action by the third day. The patient then began to complain of distension and colic. The next morning she looked toxic and dehydrated, and had started vomiting. On rectal examination a large smooth rounded mass was felt, firmly fixed in and filling the true pelvis. It was concluded that this was the involuting uterus, which had become retroverted and impacted in the pelvis. It was therefore decided to reopen the abdomen.

On reopening through the original incision the uterus was found firmly impacted in the pelvis, and the pelvic colon in the region of the pelvic-rectal junction was very congested and flattened. It was decided to perform a colostomy. A Paul's tube was inserted in the transverse colon. The uterus was then fixed with a catgut suture to the anterior abdominal wall. The obstructive symptoms passed off and the colostomy was closed four weeks later.

It may be said that at the time of the Caesarean section there had been no evidence of saccululation of the uterus, indicative of a retention earlier in the pregnancy.

CASE II

C. D., aged 26. Admitted to hospital on June 9, 1931. 6½ hours in labour, which was obstructed, as in Case I, with gross pelvic contraction. The anaesthetic and the procedure were as in Case I. A 8-lb. full-term living male child was delivered.

In this patient convalescence was from the first somewhat stormy. There were early symptoms of chest complications, but, on the other hand, in the first day or two flatus was freely passed, and no tension was observed. On the third day, however, she vomited. Vomiting continued, and she became greatly dehydrated. The measures were adopted without improvement. A rectal examination on the morning of June 13 again revealed a large mass impacted in the pelvis. By this time, however, the patient was very toxic, and furthermore, the chest condition had developed in a manner strongly suggesting embolic phenomena. Operation being unfortunately not feasible, the patient died the next day. No necropsy was allowed but that the mass felt was the post-partum uterus I have no doubt.

The close resemblance between this and the preceding case struck me forcibly at the time, and I felt that prophylactic ventrifixation, as employed in the first case, would have prevented the post-partum uterus falling into the contracted pelvis and obstructing the colon. I have adopted the practice ventrifixation after Caesarean delivery in all cases since then and no symptoms of obstruction have occurred in any of the

DISCUSSION

In both cases Caesarean section was performed for marked pelvic contraction. Even if a post-partum uterus were to become retroverted and fall into a normal pelvis there would be sufficient clearance to prevent its becoming impacted. In the Caesarean operation the uterus is firmly compressed manually. Perhaps, in so doing, it is made small enough to fall into the contracted true pelvis, given that the latter is grossly contracted.

Whatever is the precise pathology, I am convinced that in both these cases the cause of the obstruction was the phys-

ness of the retroverted post-partum uterus impacted in the (contracted) true pelvis.

OBSERVATIONS

Impaction of the retroverted post-partum uterus in the contracted true pelvis has never, so far as I have been able to determine, been quoted as a cause of intestinal obstruction after Caesarean delivery.

Having seen it occur twice, it has seemed wise and logical to perform prophylactic temporary ventrifixation in all my subsequent cases of Caesarean section. Since adopting this practice I have seen no suggestion of obstructive symptoms in any of these cases of Caesarean section, some 20 in number. It would be absurd, however, to argue from two or twenty cases.

The mechanical obstruction I have described may be operative in a proportion of cases hitherto diagnosed as post-operative ileus." Spontaneous remission would of course be expected in most cases, as the uterus involuted.

I am much indebted to Mr. T. J. Shields, the B.M.A. librarian, for supplying the references to this paper.

W. HILTON PARRY, M.C., M.B., Ch.B.

REFERENCES

- Haultain, W. F. T., Robertson, E. M., and Dewar, J. B. (1933-4). *Trans. Edinb. Obstet. Soc.*, 54, 121.
Montgomery, T. L. (1936). *Amer. J. Obstet. Gynec.*, 31, 968.
McConor, C. T. (1934). *New Engl. J. Med.*, 210, 945.
Wigley, K. K. (1937). *N.Y. St. J. Med.*, 37, 541.

Pediculosis Capitis and Corneal Lesions

The object of this memorandum is to draw attention to the frequency of severe corneal lesions associated with pediculosis capitis. It is a summary of observations made on 25 patients admitted to hospital for corneal lesions. I have been unable to trace any similar condition mentioned in the literature available to me, and I should be interested to know whether this observation has been made elsewhere.

It is, I think, a matter of common experience in wartime to find an increasing number of out-patients infected with lice. These observations were made in the out-patient department of the Infirmary during the last six months, with an average 200 patients a day. These infected patients, who came to us for eye consultation, were mostly young children, well fed, without apparent signs of general debility. The presence of lice, which were invariably *Pediculus capitis*, was discovered by chance on examination or later in the wards after admission. We could never find any phthiriasis palpebrarum, and the cilia were always unaffected. Apart from the conjunctivitis which was always present, the majority of cases had corneal ulcers (14 cases), 8 cases marginal keratitis, 1 case hypopyon ulcer, and 2 cases severe conjunctivitis without corneal lesion. The age incidence was as follows: 20 patients under 10 years and 5 patients over 10 years. The oldest patient was a woman aged 30. The Wassermann reaction was negative in all but one case.

The patients usually complained of burning pain of short duration in one eye, which gradually became worse and was accompanied by photophobia. The lesion was always unilateral. A severe conjunctivitis with some muco-purulent discharge was invariably present. Bacteriological examination of the conjunctival sac showed nothing characteristic; diphtheroid bacilli, streptococci, and staphylococci were present in some cases.

The corneal ulcers had no special features; they were central or paracentral infiltrations in the substantia propria with loss of epithelium. The marginal keratitis consisted of multiple subepithelial infiltrations with a quick tendency to break down and to form confluent paramarginal crescentic ulcers. In some cases they were confined to one side of the cornea only; in other cases they tended to spread all round the corneal margin, thus forming a more or less complete ring of infiltration. Slit-lamp examination showed infiltration of the anterior part of the substantia propria. Iris irritation was often present, but no K.P. or posterior synechiae were ever observed. Although this condition is very similar to the metastatic marginal ulcer of Fuchs, it showed but little tendency to respond to the routine treatment. In fact, it took a long time to heal, during which period the eye remained very congested.

The routine treatment was a sassafras cap for the head, carbolic of the ulcer, atropine 1%, argyrol 10%, sulphapyridine or uleron tablets, and protein shock (milk injections).

It seems probable that lice infestation causes not only conjunctival irritation but lowers the vitality of the cornea, resulting in severe corneal infiltration with little tendency to heal.

My thanks are due to the honorary surgeons of the Wolverhampton and Midland Counties Eye Infirmary—Mr. G. F. Haycraft and Mr. H. Campbell Orr—and the assistant surgeon, Mr. A. W. Green, for permission to publish this memorandum.

ARNOLD HIRTENSTEIN, M.D. Prague.

Wolverhampton and Midland Counties Eye Infirmary.

Reviews

THE CAMPAIGN AGAINST TUBERCULOSIS

The Modern Attack on Tuberculosis. By Henry D. Chadwick, M.D., and Alton S. Pope, M.D. (Pp. 95. 6s.) New York: The Commonwealth Fund; London: Oxford University Press. 1942.

Drs. Chadwick and Pope detect in most works on tuberculosis a singular tendency to look on the disease as an isolated problem rather than as one of the communicable diseases in its total social and economic background. "Since enough knowledge is already available to make the eradication of tuberculosis possible within a few generations if the established techniques are effectively applied, they have set out to provide "a concise digest of the experience of many workers and of present-day practices in a form serviceable to the health officer and administrator." The attempt has been wholly successful, and we strongly recommend this little book to readers even in this country, and not only to medical officers of health but to tuberculosis officers and medical superintendents of sanatoria, who will find among its contents sound principles and common-sense conclusions that will act as salutary correctives to preconceived notions or those that are merely the fashion of the moment.

In the U.S.A. sanatorium beds have increased from 9,000 to 90,000 in 40 years. Tuberculosis in dairy cattle has been almost eliminated, and pasteurization is widespread. But, unfortunately, as in this country, little progress has been made in finding cases of early tuberculosis. In naming the essentials of a programme for the eradication of the disease, the authors therefore put first "a medical profession interested in the problem and familiar with modern methods of diagnosis and treatment." And they stress the importance of a knowledge of certain basic data before embarking on any sound anti-tuberculosis campaign. The various diagnostic procedures are critically examined, and the conclusion at the end of this chapter deserves emphasis: "Prompt diagnosis is important to the patient, to the family, to the community. Every suspected case of tuberculosis should be cleared of suspicion as quickly as possible by being proven innocent or guilty of harbouring the disease. Time-consuming observation by physicians without resort to all the diagnostic aids at our command is to be condemned and rated as a disservice to the patient that borders on malpractice."

The sections on the sanatorium as a means of control and treatment, and on case finding in the community, are no less interesting and no less well balanced. The authors hold that tuberculosis presents one of the hardest administrative problems that confronts the health officer. They emphasize that when an authority fails to provide enough beds it is committed to a plan that is wasteful, ineffective, and in the long run costly. "Half-way measures will not exterminate tuberculosis. A sanatorium bed should be available for every active case of tuberculosis regardless of the stage of the disease. Treatment that will benefit the patient and also serve to shield others by protecting them from infection is the real objective of case finding." And, to quote again from later in the book: "From the standpoint of case finding the shift in the age distribution of tuberculosis mortality means that greater emphasis must be placed on the examination of adult contacts and on mass examinations of groups subject to the highest risks, such as workers in hazardous industries and adults on relief rolls." Patients in ante-natal clinics should be among the first to be considered for mass examination; and a selection of other groups should be based upon actual incidence of significant tuberculosis, as demonstrated by preliminary sampling. The yield of mass examinations will vary directly with the incidence of tuberculosis in the area concerned, and in many parts of the U.S.A. this has already fallen to a point which makes the cost of mass radiography, relative to the number of cases found, prohibitive. From the last chapter, "A Community Campaign of Eradication," we choose one final quotation:

"Too often health officers have taken the 'what's-the-use' attitude in regard to tuberculosis. They have been content to make the record a mere bookkeeping chore and let the case rest there. The health officer should look upon tuberculosis as a communicable

sease that calls for his best efforts to assist the physician in obtaining adequate treatment for the patient, and the maximum protection for the public. His responsibility is the same whether the case reported is tuberculosis, diphtheria, or small-pox."

NOTES FOR THE REGIMENTAL M.O.

Notes for the R.M.O. of an Infantry Unit. By C. P. Blacker, M.D., F.R.C.P. Oxford War Manuals. (Pp. 77. 5s.) London: Oxford University Press, 1943.

In this little book Dr. C. P. Blacker crystallizes his experience as a medical officer for three years to a battalion of the Coldstream Guards. It is safe to say that nobody employed in a similar appointment can fail to find something useful in Dr. Blacker's notes. Obviously he knows all the ropes; further, in examining each of the many difficult problems involved in regimental medical duties he brings to bear a mental detachment that results in the advocacy of the most simple and the most efficient methods. His advocacy of decentralization—a virtue that is only gradually permeating the Army—is admirable, not only does its adoption permit the medical officer to devote more time to more essential work but it also increases the efficiency and enthusiasm of those to whom he delegates responsible tasks. Subsequent chapters cover every aspect of a regimental officer's work, including that important part of it so close to many—the proper keeping of records and an efficient office routine.

There can be little doubt that Dr. Blacker was in a better position with regard to his unit than a young and newly commissioned medical officer. High professional qualifications, mature age, and a record of distinguished combatant service in the same regiment during the last war must have given him a standing attainable by few. But those who follow his precepts will surely benefit both themselves and the men under their care. The reader's heart warms to the author because he writes as was presumably the case—the humble, though most important, rôle of regimental medical officer, and because he dedicates the book to two sergeants of the battalion "in attitude for their unfailing help and loyalty."

OXYGEN THERAPY

Manual of Oxygen Therapy Techniques, including Carbon Dioxide, Helium and Water Vapor. By Albert H. Andrews, jun., M.D. (Pp. 191. 51.75 or 11s.) Chicago: The Year Book Publishers, Inc.; London: H. K. Lewis and Co.

This little manual restricts itself to a description of the technique and armamentarium of oxygen therapy. In so doing it becomes a handbook that will be invaluable to both medical and non-medical personnel who have to deal with oxygen therapy apparatus. Cylinders, reducing valves, tents, and masks are all fully described, and detailed descriptions of their use and maintenance are given. There is a most timely chapter on the safety precautions which should be taken whenever oxygen in quantity is used. Instruction in these precautions is now a part of every nurse's training, and much of this might well be reprinted and hung upon every bed where oxygen is being administered. That accidents do not so frequently occur is more a gift of chance than the reward of knowledge. Many of the figures concerning the sizes and capacities of cylinders and reducing valves apply to American types, and this data should be substituted by readers in this country. The use of helium-oxygen mixture and of mechanical humidifiers is described; but the more recent types of oxygen metering devices, developed in this country, are not mentioned. Dr. Andrews's book is well produced, with excellent illustrations, and is a model of clear and concise wording.

Notes on Books

The third edition of *Essentials of Materia Medica, Pharmacology and Therapeutics*, by R. H. Micks, is published by J. and A. Churchill at 16s. The considerable advances in therapeutics during the last five years have called for large alterations in the content of this manual of pharmacology, which presents in a condensed and easily accessible form the principal requirements of the student and the general practitioner. Prof. Micks avowedly deals only with the practical applications of the subject, and in his own words sets out to teach rather than to expound it. This is unfortunate, because though his book is of value for reference, the student coming to the subject for the first time will not find it easy reading. It is a pity

that such an artificial distinction is drawn between sulphanilamide and the other sulphonamides; it would seem more reasonable to classify these drugs from the start according to their bacteriological activity. But these and other minor points depend more or less on personal preferences, and the book as a whole bears the imprint of a practical human experience with materia-medica which makes it a useful accessory both to the student and in the consulting-room.

As Dr. J. J. CONYBEARE truly says in the preface to the sixth edition of his *Textbook of Medicine* (E. and S. Livingstone), one of the greatest problems before the editor of a work with numerous contributors is to prevent a progressive increase in the size of the book. With loyal co-operation all round the number of pages is practically the same as in the fifth edition, though under varying conditions the price has had to be raised to 28s. The sections on tropical diseases and on vitamins and deficiency diseases have been completely rewritten. The same may almost be said of the sections on tuberculosis and on diseases of the respiratory system, to which is now added a chapter on the treatment of wounds of the chest. Other sections which have grown are those on polyneuritis, common skin diseases, and on matters relating to blood transfusion. Dr. Conybeare's textbook in its latest version will make many new friends among final-year students and practitioners.

A new edition of *Aids to Surgical Anatomy* has been prepared by Mr. J. S. BAXTER, University of Bristol, who has revised, added and in part rewritten certain sections of the book in order to adapt it to modern concepts and to meet the requirements of senior students who are preparing for their final examinations. The manual, although small, contains a large amount of essential anatomical and surgical information, given in a form which serves to indicate the surgical significance of many simple anatomical facts which would otherwise be of merely topical interest. The illustrations are simple and serve the primary purpose of giving a visual impression of the structures described in the text. Some are, however, too diagrammatic, and in certain details are misleading with regard to the exact relative position of the parts depicted. This might well be replaced in future editions by simplified drawings made from actual sections of the parts represented; and also a few textual errors which have escaped the notice of the reviser might be rectified at the same time. The text is, however, remarkably free from error, and in these days when brevity is a necessity, a short book of this type should help senior students at the try-out period which precedes their final examinations. It is published by Baillière, Tindall and Cox at 4s. 6d.

The late RICHARD C. CABOT's *Physical Diagnosis* was first published in 1900 and went through eleven editions in 34 years. In 1937, when a more complete revision of the whole work was required, the author asked Dr. F. DENNETTE ADAMS to undertake the task. The text was thoroughly revised and enlarged in the twelfth edition; now a thirteenth has appeared, and once again Dr. Adams has drawn freely on the experience of colleagues at the Massachusetts General Hospital. Like its predecessor, this edition may be said to represent so far as possible a cross-section of the views on diagnosis held by the staff of that world-famous institution. Dr. Cabot died on May 7, 1939, and his name is rightly preserved in the main title, side by side with that of his collaborator and successor. The book now comprises 900 pages printed in good type with many clear illustrations among the text. It is published in this country by Baillière, Tindall, and Cox, price 27s. 6d., and will surely attract many new readers who feel a need for some guidance on diagnostic methods and processes.

Among numerous small cards and leaflets on the principles of first aid, one that deserves special mention is being sold at a price (1d. each, or 6s. a 100) by Dr. BERYL HARDING (16, Drayton Gardens, S.W.10). On a folder which, when doubled, is the size of an identity card, she has set out brief and succinct instructions for the first-aid treatment of fractures, wounds, burns, and shock, together with diagrams showing the pressure-points and the application of a tourniquet—which, Dr. Harding points out, is a dangerous weapon. The sensible balance of the leaflet may be judged from the opening sentences: "First aid is mainly common sense. It is better to do too little than too much. First aid properly applied saves lives and stops panic. Bad first aid may do serious damage and even lose lives."

The second edition of R. A. FISHER and FRANK YATES's *Statistical Tables for Biological, Agricultural, and Medical Research* contains four new tables and extends one of the tables in the first edition. The great value of the work is testified by the appearance of a new edition. Were a biological statistician confined to the use of a volume he would probably choose this. It might easily form part of a service equipment. The publishers are Oliver and Boyd and the price is 13s. 6d.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY JULY 17 1943

BEFORE THE WHITE PAPER

The discussions between the Representative Committee and the Ministry of Health, which have gone on over the past six months, are now coming to an end. In these discussions the committee had no powers of negotiation and no mandate to commit the medical profession to any new policy. The function of the committee was to assert the point of view of the doctors of this country, and this it has done in an unequivocal manner. The twelve medical organizations represented on the committee will now in confidence report to their own bodies the gist of what has taken place. And among these the Council of the B.M.A. will receive such a report at a special meeting to be held on July 28. After that the Council will issue for the consideration of Divisions, early in August, a statement of what it considers to be the basic principles which should underlie the organization of the medical services of the country. The Annual Representative Meeting will assemble on Sept. 21 to 23 to consider these principles in the light of the discussions that have taken place at Division meetings. It is possible that by that time the Government will have published a White Paper on the provision of a medical service to the nation which will satisfy the proposals arising out of Sir William Beveridge's Assumption B. The White Paper will have to be examined with care and deliberation before the medical profession formulates its views on it. It will therefore not be on the Agenda for the A.R.M., for it should first of all be discussed by the Divisions, by Council, and subsequently by a special meeting of the Representative Body. When the views of the B.M.A. and other medical bodies and organizations are declared, a Negotiating Body will be set up to thrash matters out with the Ministry of Health. The situation, then, can be looked upon as falling into three phases. The first and present phase is to be given to the re-formulation of fundamental principles. In the second the White Paper will be examined and appraised. The third phase will be negotiations with the Ministry.

The inadvertent disclosure of the contents of a Ministry of Health memorandum showed that the lines along which the Ministry was thinking diverged sharply from certain principles which the medical profession holds, and holds firmly. At a moment when discussion groups—and in particular the Medical Planning Commission—were looking into the question of health centres, the Ministry confused the issue by linking on to this idea one that is abhorrent to the profession at large—namely, a whole-time State salaried medical service, with the doctor employed in the centre by the local health authority. The first principle, then, of any future reorganization of medical practice is that this should not be based upon a concept of a whole-time State salaried medical service. As Dr. Charles Hill, whose address to a recent meeting at Ipswich is printed elsewhere in this issue, points out, a whole-time salaried service may be a most appropriate form for certain kinds of medical work—for example, the control of environmental health by the public health service. It seems clear, too, that as a rule the whole-time research worker must live on a whole-time salary and with a background of security. But doctors in general challenge the view that the intimacies of family practice can be entered into by an

employee of the State or of a local authority. Bound up with this is the question of free choice of doctor. There is an attempt to decry this, and largely by those who have had no experience of private practice. The doctor employs techniques but is not a technician, and in fact the precise technical aid which he can give to his patient is very limited. What matters most is his quality as a human being in relation to another human being, and the fitness of this quality in any one case is something that only the patient in need of his help can judge. Such matters as this are alien to the administrative mind, which moves neatly and precisely in a world of time-tables and administrative buildings.

For years doctors individually and collectively have cried out against the crippling effects upon health of damp, crowded, and ill-ventilated houses, against lack of food and against food that is bad in quality and bacteriologically contaminated. The medical profession cannot be expected to hold in high regard a Ministry of Health which tolerates the spread of disease through infected milk. A profession which is not controlled by such a Ministry can freely voice its criticism and its policy in this and in other respects. We lay it down as another principle that the provision of good food, houses hygienically built, facilities for games, rest, and recreation in the open air, sound education in ways of thinking, will all promote the health of the public far more than will a reshuffling of the medical services. First things should come first. Medicine progresses not by an increase of authority or of authorities, not by the issue of regulations, but by increase and application of knowledge. Fundamental to this are medical education and medical research—and the State provision for medical research amounts (if we may hazard a guess) in one year to approximately the same sum as the Government has recently spent on Press campaigns against two infections. Another principle firmly held for years by medical men is that lack of money should not prevent a sick person from receiving medical aid when in need of it. Doctors have recognized this by giving their services without pay on the one hand, and by advocating the extension of National Health Insurance so as to include 9/10ths of the population on the other—an advocacy which has so far fallen on deaf ears. As to reform of existing services, the medical profession has been more progressive in its demands for this than has the Ministry of Health under a succession of Ministers of varying political colour. Another of the principles which the profession maintains is the need for thorough reform of both central and local health departments. The function of the State, as Dr. Hill points out, is to see that a comprehensive health service is provided. But it is not the duty of the State to control doctors on the basis of an employer-employee relationship. Most medical men in this country are opposed to the socialization of medicine.

These briefly are some of the major principles held by the medical profession. We feel sure that the Minister of Health is too good a democrat to wish to impose upon a profession that has no reason to be ashamed of its record a form of service that denies to practising doctors that freedom of professional action and initiative which they believe deeply to be indispensable to good work. That in some instances this freedom may be abused is a criticism not of the principle of freedom but of human nature. It is hoped, therefore, that the Government White Paper will be restricted mainly to exposition of the issues to be discussed, and that these issues will not be prejudged in set proposals, however tentative, to which in the main the Government may declare itself committed. It is hoped, too, on more than one ground, that the Government will be scrupulous not to take advantage of the abnormal

conditions in which we now live by putting a loyal and patriotic body of men in a position of having to oppose a National Government in time of war. We gravely doubt the wisdom of making in time of war any cut-and-dried plan for the conduct of medical services in time of peace—that is, if peace is regarded as the normal background of national life. To try to settle such a large issue in an atmosphere charged with the emotions of war would be unjust to both the medical profession and the public.

H 11 FOR CANCER

About two years ago many members of the profession received through the post a circular advertising a commercial preparation called H 11 for the treatment of cancer. The discoverer of the preparation is Mr. J. H. Thompson, B.Sc. It consists of an extract of urine and is described as "a concentrated preparation of growth-inhibiting substances which are normally present in the body." Many practitioners have used, and doubtless are still using, the preparation. In this issue of the *Journal* we publish two articles dealing with the matter: one by Mr. H. A. Kidd, who has treated 51 cases of cancer in human beings; the other by members of the Scientific Staff of the Imperial Research Fund, who have tested the preparation on tumours of mice. Neither article supports the claims made for H 11. So that we may be clear what these claims are it is as well to describe those coming from the laboratories where Mr. Thompson works: "Tumours in mice may either entirely disappear or be replaced by small fibrotic masses." Under the heading of "Clinical indications" the following statement is made: "Various types of cases of advanced inoperable carcinoma treated with H 11 extract in hospitals and private practice have resulted in marked reduction in size of both primary and secondary growths, and eventual disappearance. It is therefore a useful form of therapy in cases of cancer inoperable by other recognized forms of treatment. Approximately 70% of cases have shown objective signs of improvement." It is recommended that treatment with H 11 should not replace treatment by operation and deep x-ray therapy when these are considered by expert opinion to be applicable.

Of 51 cases treated by Mr. Kidd 14 received insufficient treatment, and of the remaining 37 patients 11 are dead, 10 have no reply was received from 5. Of the 21 patients known to be alive 4 have been under observation for under a year, 12 for over one year, and 5 for over eighteen months. Experienced practitioners are well aware of the difficulty of assessing the value of any treatment of cancer in human beings, and all would agree that 18 months is too short a time to reach a firm conclusion that a treatment is of use. Mr. Kidd's experience is hardly likely to encourage doctors to use H 11, especially as therapeutic experiments in human cases are beset with difficulties. Tests on animals must be arranged in accordance with scientific principles. A series of tumours of one kind, all starting on the same day and growing at the same rate, can be provided; proper controls can be set up and animals killed at regular intervals to determine whether the treatment has had any effect on the growth of the cells of the tumour. Using the large resources of the Imperial Cancer Research Fund in this manner, Prof. Gye and his colleagues have been unable to detect any inhibition of tumour growth in animals treated with H 11.

Mr. Thompson began his researches some 12 years ago with the dangerously seductive idea that cancerous growth is merely excessive physiological growth, and that inhibition of growth is brought about by a hormone

located in the parathyroid bodies. The difference between normal physiological and malignant growth was apparently regarded as quantitative and not qualitative, a mistaken view which is often assumed to be true in current literature and which is completely disposed of by mere reference to the growth of an embryo and the slow growth of many cancers. The unique nature of new growths—the unlimited character of the growth, the fact that the stimulus to multiplication of the malignant cell lies within the cell itself, and the failure of the forces which control physiological growth to control cancerous growth—does not seem to have been taken sufficiently into account by Mr. Thompson. That this is not a harsh or unwarranted judgment is well shown by the way in which the supposed value of H 11 is estimated: "The degree of inhibition produced by H 11 extract diluted nearly 5,000 times on the root growth of selected oat seedlings grown under strictly controlled conditions is measured, and the value of the extract adjusted to equal that known to cause regression of Twort carcinoma in mice." It needs no special knowledge or perspicacity to be aware of the fallacy both of correlating the growth of oat seedlings with the growth of cancer and of assuming that normal physiological growth would be exempt from such a non-specific inhibition. If it were true that H 11 can actually inhibit growth in general, then patients injected hundreds of times over periods of months would certainly show some signs of interference with normal growth. Mr. Kidd's patient No. 26, for example, was injected 730 times; surely after a few weeks the patient must have shown some signs of inhibition of growth of skin and hair and of blood cells if H 11 has the property claimed for it. Long before the 730th dose was administered the general consequences of physiological decay would have been observed.

H 11 has been available to practitioners now for the past two years, and apparently practitioners up and down the country have used this preparation for their patients suffering from cancer. It has presumably been sold both as a scientific remedy and as a product which will bring in a financial return to those who undertake the ordinary business risk of manufacture and marketing. This is of course normal practice in this country, against which nothing can be said. Nevertheless during the past years, and especially since the formation of the Therapeutic Trials Subcommittee of the Medical Research Council, it has not been uncommon for manufacturers to submit for controlled clinical trial by responsible bodies products believed by preliminary research to be therapeutically beneficial. In fact signs of increasing co-operation between the pharmaceutical industry, research institutes, universities, and hospitals have been welcomed by the medical profession as it is of the great benefits to medicine to be expected when the vast resources of modern industry, its material, equipment, and scientific knowledge, are harnessed to the existing machinery for clinical research. We therefore regard it as unfortunate that a remedy believed to have the power of inhibiting growth was produced and marketed for the treatment of cancer in the absence of further controlled observations by men with special knowledge of the scientific and clinical aspects of cancer. We do not know where the fault lies, but the fact remains clear that after this preparation has been used by practitioners for two years examination of its properties in the laboratories of the Imperial Cancer Research Fund—one of the leading organizations devoted to cancer research—shows it to have no action on animal tumours. Neither are the claims made on behalf of the remedy supported by the clinical testing to which it has been subjected by Mr. Kidd at the Kingston County Hospital. Cancer is such a grave disease and is looked upon by the genera

public with such intense fear that anyone believing that he has a contribution to make to its relief or cure should regard it as his bounden duty to exercise the utmost scientific caution in making claims on behalf of a cancer remedy, however strong and sincere may be his belief in it. Practitioners similarly have to steel themselves against the natural impotency of sufferers and their relatives before yielding to the temptation to try something on the basis, say, that if it does no good at least it can do no harm. The harm that is done is by a raising of false hope.

HAEMOLYTIC MECHANISMS

The study of anaemia in man has switched for the moment from the field of nutrition to that of haemolysis. The increase in the practice of transfusion has focused interest on transfusion reactions. Mollison¹ has discussed the investigation of these reactions recently in our columns and has shown that they are usually due to mistakes in blood grouping, failure to maintain adequate standards in blood storage, or the use of Rh-positive blood for transfusion to recipients who have become sensitized to the Rh agglutinin. The discovery of the Rh antigen must be ranked as the most concrete gain from these and similar investigations. Some 15% of people have red cells which lack this antigen, and they therefore develop antibodies to it when they receive blood or are impregnated with a child which possesses it. Blood group incompatibility between mother and child, usually in relation to the Rh factor but sometimes to the normal A and B agglutinogens, is responsible for the grave anaemias and jaundice of the newly born. It is now proposed that these anaemias, with their sequels of "kernicterus" and fibrous dysplasia of bone, should be grouped together under the heading of haemolytic disease of the newly born.² The advance of chemotherapy has also led to an increase in haemolytic anaemia. By 1941 nearly 100 cases of haemolytic anaemia due to the sulphonamides had been reported in the literature.³ This appears to be an uncommon idiosyncrasy. It often happens, of course, that breakdown products of these drugs damage the haemoglobin molecule and change it to methaemoglobin. In certain individuals, however, products arise which damage the cell envelope and cause lysis. This metabolic error is persistent, and at any subsequent time a small test dose may induce haemolysis in the patient.⁴ The antituberculous drug promanide, which is related to the sulphonamides, much more commonly induces haemolysis, and it is so usual with the anthelmintic phenothiazine that it is unjustifiable to use it in man. These drugs are not themselves haemolytic *in vitro*, and it may prove a laborious task to discover the path—perhaps the final common path—by which haemolytic degradation products arise. Earlier studies are well summarized in von Oettingen's⁵ review of organic chemical industrial hazards to health, and some interesting results have recently been obtained by Emerson and co-workers,⁶ who have shown that several derivatives of these drugs and chemicals produce increased volume and fragility of erythrocytes *in vitro*. Perhaps there is a tendency to take too narrow a physico-chemical view of haemolysis, and more might be learned by thinking biochemically, in terms of ferments and their substrates—the method which has proved so fruitful in elucidating the mechanism of chemotherapy.

With other forms of haemolytic anaemia more progress has been made by studies *in vitro*, though understanding is still far from complete. We can demonstrate the actions of cold in syphilitic haemoglobinuria, acid in nocturnal haemoglobinaemia, and lysolecithin in acholuric jaundice. Until this year complete ignorance existed of the mechanism at work in the most important of all haemolytic anaemias, blackwater fever. Maegraith and co-workers⁷ have now presented evidence that the tissues normally contain a lytic enzyme, which is species-specific, and the serum contains an inhibitor, which is non-specific. Washed guinea-pig lung haemolyses a suspension of guinea-pig red cells, but the action is inhibited by guinea-pig or human serum in appropriate dilution. A method is therefore available for titrating the concentration of the inhibitory factor in the serum. They have subsequently shown⁸ that the activity of the inhibitory factor is reduced during the haemolytic crisis of blackwater fever. These results are important, not only because they imply a new technique for the study of blackwater fever but because it is possible that the acute haemolytic effects of chemical substances may be due to an interference with either the production or the action of the serum inhibitor.

GOITRE IN COUNTY TIPPERARY

The Medical Research Council of Ireland in its report for 1942 records that for several years it has supported an inquiry into the problem of goitre in the South Riding of County Tipperary. Attention was originally drawn to the prevalence there of colloid goitre by Dr. M. Naughten, county medical officer of health. The Council then arranged that Dr. J. Shee should visit Prof. David Marine of New York to study the methods used in the goitre areas of the U.S.A., with a view to making an inquiry on similar lines, including a survey to determine the incidence and severity of the condition and an investigation of the iodine content of the soil. In Tipperary the disease is not associated with cretinism or mental deficiency. Dr. Shee's survey revealed that goitre was present in about 50% of the school children in certain districts. The estimation of iodine intake and output presented a more difficult problem. Preliminary investigation of the iodine content of foods by Dr. E. M. Mason did not disclose any gross deficiency, but a more detailed inquiry in Cashel Industrial School showed that though the health and development of the children were in all other respects highly satisfactory the incidence of goitre approached 90%, and this was associated with a low intake of iodine: the iodine output was nil. In the Council's experience the results of iodine treatment have not been dramatic, but a careful survey of individual cases did show an improvement, and there was also in some schools evidence of improvement which looked statistically significant. At this stage the situation was carefully reviewed, with an eye to decisions on future policy. As a result the investigation into iodine intake has been widened to include the intake under the ordinary dietetic conditions of the countryside districts of Tipperary where goitre is prevalent, and also other dietetic factors which might have a bearing on the problem. The Council has also instituted a scheme for thorough iodization, in a limited zone, with a view to determining the effect on the incidence of goitre; for this purpose Dr. Stephanie Whelan will direct the iodization of (a) pregnant women, (b) children before school age, and (c) school children in two goitre districts. The Council hopes, in four or five years, to be in a position to claim that by such measures

¹ *British Medical Journal*, 1943, 1, 529, 559.

² *Ibid.*, 1942, 2, 738; 1943, 1, 53.

³ *Triser, M., Acta med. scand.*, 1941, 108, 117.

⁴ *J. Jones, E., Lancet*, 1943, 1, 201.

⁵ *Physiol. Rev.*, 1942, 22, 170.

⁶ *J. clin. Invest.*, 1941, 20, 451.

⁷ *Nature*, 1943, 151, 252.

⁸ *Lancet*, 1943, 1, 573.

oitre can be suppressed in the coming generation. The whole work on this problem illustrates the need for long years in research, even where the investigation appears at first sight fairly straightforward. Acknowledgment is made of the help given by the Iodine Educational Bureau and its director (Dr. F. C. Kelly), Prof. J. Reilly, Dr. Naughten, and Dr. D. K. O'Donovan. Another inquiry during the year was into bacteriological problems arising out of a grave epidemic of diarrhoea and enteritis in Dublin. For these and other purposes grants were made to 25 individuals, and the report gives a summary of work done by grant-holders and a list of their publications.

A POINT IN E.C.G. DIAGNOSIS

The electrocardiographic (E.C.G.) changes in cardiac rhythmia and in coronary thrombosis have been well described and classified. E.C.G. changes of a less definite nature have often been rather loosely interpreted as indicating either myocardial disease or coronary sclerosis. Katz and others¹ have compared the post-mortem findings with the E.C.G. diagnoses in 149 consecutive necropsies. They have confirmed the specific nature of various E.C.G. patterns of right and left ventricular strain. These patterns are not the result of myocardial infarction, but are shown to be associated anatomically with ventricular hypertrophy. Myocardial infarction may, however, simulate these patterns. The authors distinguish a simple change in electrical axis (not commonly associated with cardiac abnormality) from ventricular preponderance—usually evidence of myocardial strain. More recently Katz and others² have noted E.C.G. patterns which are a combination of right and left ventricular strain. The absence of axis deviation in the presence of clinical and radiological evidence of cardiac enlargement is presumptive evidence of combined ventricular strain. They have described six patterns of combined ventricular strain: they are made up of QRS patterns of one type of ventricular preponderance with changes associated with hypertrophy of the other atricle.

This fresh conception of E.C.G. interpretation would be most helpful if it were not that myocardial infarction may cause similar patterns. It is not always easy to be certain in a particular patient that coronary thrombosis has not occurred—in fact, that may be the very point which the cardiogram is to decide. This is especially true in extensive heart disease. Sharpey-Schafer³ suggests that the problem may be solved by giving potassium by mouth; this, according to him, accentuates the T-wave inversion of myocardial infarction and tends to elevate inverted T waves of ventricular preponderance. It will be interesting to see how this cardiographic conception of myocardial strain stands the test of further investigation by other workers, and whether it is going to be of real value in diagnosis and prognosis.

THE V.D. PROBLEM IN CANADA

A report of the proceedings of the South-Western Canada Conference held at Edmonton in October, 1942,⁴ shows how the Canadian authorities are to the problem of venereal disease; their activities have led to a very considerable fall in the incidence of these diseases. One of the great problems has been brothels, and various resolu-

tions were passed calling for more active measures in dealing with them, their owners, and their inmates. Of other subjects discussed the more important were pre-marital blood tests, shorter and more intensive treatment of early syphilis, standards of cure of syphilis, status of serological tests for syphilis, diagnosis and treatment and standard of cure of gonorrhoea, and the liaison and co-operation between the Armed Forces and the civil authorities in finding and dealing with alleged sources of infection. Modern methods of treatment of syphilis all tend to shorten and intensify therapy, and when a short method which is also safe and effective is discovered it will prove a great advance on those hitherto practised. Recent advances in serology have shown how many pitfalls there may be in serum tests for syphilis, and more and more conditions both pathological and physiological are being added to the list of those which may give false positive reactions. Case-finding and contact-tracing occupy a prominent place in the discussions, and there can be no doubt that these procedures are likely to have a very salutary effect in reducing the incidence of venereal disease. Such a conference wherever held must do a vast amount of good in the way of both propaganda and education; the idea might well be copied by other countries, and an international one after the war has much to recommend it.

NEW REGULATIONS FOR THE F.R.C.S.

As explained in our Universities and Colleges column this week (p. 90) the Council of the Royal College of Surgeons of England has revised the regulations for the Fellowship, and these will come into force after the end of 1943. The changes embodied in the new regulations are possibly the most important that have been made since the Fellowship was instituted under the Charter of 1843. After Nov. 29 next the Primary Examination cannot be taken by undergraduates, and the subjects will be anatomy (including normal histology), and applied physiology and the principles of pathology. No candidate for the Final Examination will be admissible without producing evidence of having been engaged in the acquirement of professional knowledge for at least two years after obtaining the M.R.C.S. or some other qualification recognized by the Council of the College. A point to note is the rearrangement of the dates of the examinations, enabling those who are eligible, and who may wish to do so, to enter for both the Primary and the Final at the same time, on the understanding that should they be unsuccessful in the Primary their entry for the Final will be withdrawn and the fee paid for that examination will be refunded in full. All who aspire to the diploma of F.R.C.S.Eng. should write to the Director of Examinations, Examination Hall, Queen Square, W.C.1., for copies of the new regulations.

The Council of the Royal College of Surgeons of England on July 8 received with acclamation the announcement that Mr. Churchill had accepted the Honorary Fellowship of the College offered to him on the occasion of the celebration of the centenary of that Fellowship. All Fellows and Members of the College will share the Council's gratification.

In last week's *Supplement* it was announced that the Annual Representative Meeting of the B.M.A. would be held on Wednesday, Thursday, and Friday, Sept. 22, 23, and 24. It has been found necessary to alter this arrangement. The meeting will be held on Tuesday, Sept. 21, Wednesday, Sept. 22, and Thursday, Sept. 23.

Amer. Heart J., 1942, 24, 627.

Brit. Heart J., 1943, 5, 27.

Ibid., p. 80.

Proceedings of the South-Western Canada Conference on Venereal Disease Control. Issued by the Department of Public Health, Government of the Province of Alberta, Edmonton.

A NEW METHOD OF GAS TRAINING

BY

POLLOK DONALD, M.B., Ch.B., D.P.H.

Teachers of first aid and "gas" know only too well that success is only to be obtained by constant repetition of essentials. Now, training has never been popular outside the lecture-room, possibly owing to the practical training necessitating a scattered personnel. Whatever the reason, the effect is that the personnel become bored and apathetic. To obviate this apathy we introduced a miniature method of gas training which enabled us to lessen the number of practices in the gas section and which, we found, overcame many of the drawbacks and at the same time proved interesting, educative, and even attractive.

In the reception-room of our first-aid post are a number of canvas screens. These were utilized to make partitions, as shown in the accompanying sketch, while forms were used for the front walls, the post being fully open to view. In short, the various sections of a gas post were linked up in miniature so that all could be seen and heard just as in a lecture-room. The whole can be rigged up in a few minutes. Some of the equipment is the same as in the gas post, but cotton reels are made to represent the shower-bath nozzles at the end of short lengths of rope, the latter, etc., being make-believe.

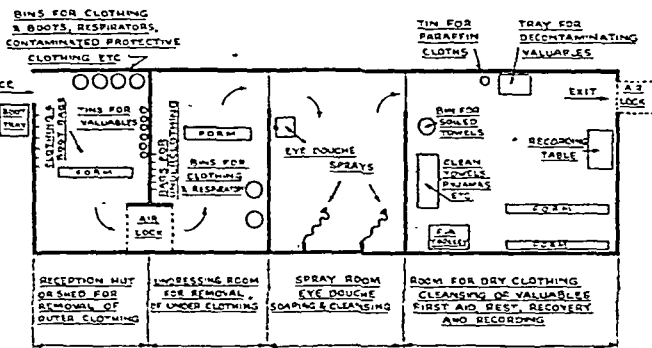


Diagram of miniature gas-cleansing station for demonstration and instruction.

The limit of undressing is that a jacket is removed in the first section to represent outer clothing, while a pullover or waistcoat is removed in the second section to represent underclothing. The dressing is carried out by merely holding the robe or pyjamas in front of the casualty, symbolical of having put them on. The personnel play the parts of casualties and operators. This is especially instructive, since the "casualty" must have a knowledge of the supposed lesions and the operator must know how to question and interpret. Moreover, such carried articles as respirators, helmets, handbags, metallic and paper valuables, crutches, etc., must be dealt with, and, since all are listening and observing, the practice becomes really valuable. We have certainly found it to work out this way, and I can confidently recommend it to those who have not tried it.

Fortunately we have had no experience of actual cases in this country. This, however, has created bands of theorists, so that each post doubtless has its own pet technique. So long as general principles are observed this makes little difference, provided the personnel know what to do and how to do it. The object of this communication is not to instruct but to show how instruction may be given in a way acceptable to all concerned. We do advocate, however, that practice be carried out in a thorough manner from entrance to exit. Slackness is most infectious, and is one of the primary causes of discontent.

LEPROSY RELIEF IN THE EMPIRE

At the annual meeting of the British Empire Leprosy Relief Association was held at the India Office, with the Duke of Devonshire, Under-Secretary for the Colonies, presiding. The annual report, which was adopted, mentioned the work which the medical secretary of the Association, Dr. E. Muir, has been seconded to carry out in the British West Indies, where he is assisting in the control of leprosy in Trinidad and other islands. His work there has coincided with the initiation of operations under the Colonial Development and Welfare Board, and he is in collaboration with the medical adviser to the comptroller, Sir Rupert Briercliffe, who has had experience of leprosy in other parts of the world.

Sir William Peel, chairman of the executive committee, said that he oversea workers whom the Association had sent out were stationed for the most part in Nigeria, the Sudan, and Tanganyika, and consisted of three doctors, fourteen "Toc H" workers, one nurse, and one lady lay worker. In Nigeria the incidence of leprosy was extremely high; the number of sufferers was estimated at over 100,000. In Northern Rhodesia the Governor had reported that the leprosy work already started there by certain missionary societies on lines suggested by Dr. Muir had proved satisfactory, and that his Government had made additional provision in Estimates to enable the work to continue on a more extensive scale.

The medical address was given by Major-General Sir Cuthbert Sprawson, and took the form of a review of the progress made during the 19 years since the Association was founded. He contrasted the leprosy asylum in India at the beginning of that time with what it is to-day. The care of the patients had greatly improved, the scientific classification of cases, their laboratory investigation and efficient treatment were now matters of routine, patients were kept usefully employed, and the atmosphere was one of hope, stimulated by the sight of many leaving hospital fit to return to the outside world. The improvements in treatment had included, in the first place, Sir Leonard Rogers's introduction of active derivatives from the oil and from various species of *Hydnocarpus* seeds, better methods of educating the native population on the disease and the proper mode of living for those who had contracted it, and increased knowledge of nutrition, malnutrition being a predisposing cause. The purely

laboratory side of research had, on the whole, yielded disappointing results, but the new leprolin and the iodide test had proved of value. In the matter of general hygiene more leper settlements and clinics were required, also separate institutions for those who had passed through the contagious stage but were too old or feeble to work, and who took up room in hospital which was wanted for cases needing more urgent treatment.

EUROPEAN ASSOCIATION OF CLINICAL PATHOLOGISTS

At a meeting of the recently formed European Association of Clinical Pathologists held in London the following officers were elected: President, Dr. S. C. Dyke (England); Vice-President, Prof. E. J. Bigwood (Belgium); Secretary, Dr. F. Pick (Czechoslovakia); Treasurer, Dr. B. L. Della Vida (Italy); Council, Drs. A. Benau (Yugoslavia), D. C. Canné (Netherlands), F. Duran-Jorda (Spain), Prof. F. Silberstein (Austria), Drs. G. Ungar (France), J. Ungar (Czechoslovakia). The annual subscription, including entrance fee, was provisionally set at 10s. The meeting adopted rules for the procedure of the Association while its members are mainly in this country, and instructed the Council to consider and report to a future meeting on the procedure to be adopted after the liberation of Europe. A resolution was passed to the effect that free interchange of workers in clinical pathology between the nations of Europe would be an important factor both in the advancement of scientific medicine and also in the development of a common European mentality, these being the main objects of the Association. The Council was instructed to explore the matter and report to a future meeting. It further invited the co-operation of the British Association of Clinical Pathologists in the project. A letter was received from the secretary of the B.A.C.P. inviting members of the European Association to participate in its gatherings.

Membership of the European Association is open to medically qualified men and women of all European nationalities engaged in any form of medical laboratory work. Those interested should communicate with the secretary, Dr. F. Pick, Department of Clinical Pathology, the General Hospital, Walsall, Staffs.

B.M.A. LUNCHEON TO OVERSEA MEDICAL SERVICES

A luncheon at which occasion was taken to welcome representatives of the medical services of the Dominions and Allies at present in London was given by the British Medical Association at the Savoy Hotel on July 6. The guests were received by Sir Beckwith Whitehouse (President of the Association), who was supported by the Chairman of Council (Mr. H. S. Souttar), the Chairman of the Representative Body (Dr. Peter Macdonald), and the Treasurer (Dr. J. W. Bone). The overseas guests included representatives of Canada, Australia, and New Zealand, of the United States, and of Belgium, Czechoslovakia, Free France, Holland, Yugoslavia, Norway, Poland, and the U.S.S.R., the last-named country being represented by Prof. Sarkisov.

Among other distinguished guests were the following:

Sir John Anderson (Lord President of the Council), Mr. Ernest Brown (Minister of Health), Mr. Thomas Johnston (Secretary of State for Scotland), Sir John Maude (Secretary, Ministry of Health), Sir Wilson Jameson (Chief Medical Officer of the Ministry), Dr. A. Davidson (Chief Medical Officer, Department of Health for Scotland).

Surg. Vice-Admiral Sir Sheldon Dudley (D.G., Medical Service of the Navy), Lieut.-General Sir Alexander Hood (D.G., Army Medical Services), Air Marshal Sir Harold Whittingham (D.G., Medical Service of the R.A.F.), Major-General Sir Ernest Bradfield (Medical Adviser, India Office), Prof. F. R. Fraser (D.G., Emergency Medical Service).

Lord Moran (President, Royal College of Physicians of London), Sir Alfred Webb-Johnson (President, Royal College of Surgeons of England), Sir W. Fletcher Shaw (President, Royal College of Obstetricians and Gynaecologists), Sir Stanley Woodwork (Master, Society of Apothecaries), Dr. C. McNeil (President, Royal College of Physicians of Edinburgh), Dr. J. H. Macdonald (President, Royal Faculty of Physicians and Surgeons of Glasgow), Sir Henry Tidy (President, Royal Society of Medicine), Dr. Cyril Banks (President, Society of Medical Officers of Health), Mr. S. T. Irwin (Chairman, North of Ireland Medical War Committee).

Sir Henry Dale (President, Royal Society), Sir Edward Mellanby (Secretary, Medical Research Council), Sir Malcolm Robertson (Chairman, British Council), Sir Hugh Lett (Chairman, Committee of Reference), Sir F. E. Fremantle (Chairman, Medical Committee of the House of Commons).

The guests also included former holders of high office in the Association (Lord Dawson of Penn, Sir Kaye Le Fleming, and Dr. H. Guy Dain, former President, Chairman of Council, and Chairman of Representative Body respectively), the Chairman of the Metropolitan Counties Branch (Sir Crisp English), and the chairmen of the various headquarters committees.

"Allied Medical Services"

After the toast, "His Imperial Majesty," had been proposed by the PRESIDENT and duly honoured, Mr. H. S. SOUTTAR submitted "Allied Medical Services." He said that the profession in Great Britain welcomed these comrades in a struggle upon the issue of which depended all that they held dear. The profession was a brotherhood to fight against disease, and the Allied nations a brotherhood to fight against the devil. Doctors had an interest in both quarrels, and would be satisfied only with a double victory. He referred to his experiences during his recent visit to India, and especially to the medical services in hospitals which he saw in North-Africa. It was inspiring to serve the energy and vigilance which were maintained with the smoothness with which the Imperial Forces and those of the Allies all worked together, in the furnishing, for example, of mobile surgical teams with every possible equipment, in the use of the great ambulance planes, and in the provision of blood banks and other life-saving and health-storing measures. But great as had been the difficulties of the African campaign and high as the achievement of its medical services they were left marvelling at the difficulties and achievements of Russia, whose representatives they saluted at that occasion.

The toast was responded to by Brig.-Gen. PAUL HAWLEY (I.S.A.), who said that the welcome given in Britain to the Allies had been most cordial. One of the few agreeable experiences in this war was the opportunity which it had afforded to the medical professions of the Allied nations to associate with one another. In peace their leaders had always sited back and forth, but the opportunity of such association had come rarely to the rank and file. The rank and file of the American profession were now learning something during their sit here, and they fondly hoped that in their turn they might have behind them two or three useful ideas when they returned home. Many of the landmarks in the history of medical science had come about through the achievements of the ordinary

worker. Sir William Osler once said that the greatest contribution that America had made to physiology was the work of William Beaumont,* a very undistinguished Army surgeon stationed in a veritable wilderness. It might be given to some member of the rank and file now serving far from home in the Army to make a similar contribution.

The Lord President on "Medicine"

Sir JOHN ANDERSON, in proposing the toast of "Medicine," mentioned his own official responsibility, as Lord President of the Council, for medical research and indeed for research of all kinds. When research was mentioned in connexion with this war people thought inevitably of the perfection of the engines of destruction, but he was glad of the opportunity of calling attention to the fact that in quite another field—that of the health, comfort, and well-being of the Armies and of the civil populations—science had made a contribution no less conspicuous and spectacular. They were all aware that in the great campaigns of the nineteenth century disease took a toll far exceeding that taken by the enemy. In the South African War more men died of disease than of wounds. In the first European war the troops were beginning to receive the benefit of the advances in medical science which had been made in the early years of the century, especially in the field of bacteriology. Since then there had been further progress. It was gratifying to learn that when a considerable number of German and Italian prisoners came into our hands in North Africa and were found to be riddled with disease—typhoid and dysentery—our medical men who set to work upon them with the resources at their disposal showed conclusively that for example, the T.A.B. vaccines with which our own people were supplied were infinitely superior to what had been supplied by the enemy. With the resources for combating infection available to British medicine these infections among prisoners of war were being cleared up in a remarkable way. A great new range of therapeutic agents had been made available by the devoted work of biochemists on the sulphonamide compounds, which had completely revolutionized the treatment of infective conditions. He had lately been told of new uses found for these agents as a result of which the treatment of septic conditions, so fruitful a source of illness and death, had been completely reformed. These great advances were due to the work of men who had laboured for the most part anonymously, or at least obscurely, in various laboratories.

But it must not be supposed, Sir John Anderson continued, that they had reached the end of their problems. He was told that the problems presented by cases of traumatic shock were still most baffling. He could never forget, having spent some years of his life in India, that the problem of malaria in eastern regions and in the islands of the Pacific and Indian Oceans (as had been shown again in Madagascar) taxed the utmost resources of medical science. A complication here was the loss of the main sources of the production of quinine, but much work was being done to make good the deficiency by the production of new synthetic drugs, in which American manufacturers were actively collaborating with our own, and he hoped that before long there might be adequate supplies of atabrin when quinine was not available.

Contributions not less important than these had been made along other lines of research. The Medical Research Council had been able by a close study of the conditions under which men served in tanks and aeroplanes to devise measures for ensuring their health and improving their comfort and efficiency in such environment. After the war hundreds of millions in Europe would be found suffering from malnutrition to an extent never before conceived. What would follow in the train of that malnutrition when vast movements of population took place, when armies were demobilized, and workers returned to their homes? It was a task which would call for the utmost endeavour and capacity, and he was glad to feel that in this prospective service medical men of all the Allied nations would collaborate. Two years ago, following a meeting at St. James's Palace, an organization was set up to deal with problems of European relief after the war. A medical committee had been established in connexion with that organization, and the

* William Beaumont (1785-1853), surgeon in the U.S. Army. Published in 1835 *Experiments and Observations*, dealing with the chemical nature of digestion, the significance of the gastric juice, and the causes of interruption of the secretion.

problems with which it would have to deal would demand the utmost that could be contributed collectively in knowledge and service. In associating with the toast the names of representatives of three countries, one of them Poland, he made a sympathetic reference to the tragic death of General Sikorski.

Three Responses

Prof. A. T. JURASZ (Poland) referred to his visit to this country twenty years ago, to the International Congress of surgery, and mentioned that the Congress was opened by the British Foreign Minister of that time, the late Lord Curzon, who confessed, as a man who had never had anything to do with doctors, how the atmosphere of such a medical gathering inspired him. But he added, "Gentlemen, Europe is very sick. Can you suggest a suitable operation to cure her?" Europe to-day was certainly more injured and diseased in every part of her organism than it was five years after the last armistice, and the principles of medicine might well be applied in the great task of reconstruction. The modern medical point of view comprehended not only the physical derangement but the mental and spiritual background. It was the psychical injuries inflicted by the aggressor upon helpless and suffering peoples that would call for the first attention, the most patient and understanding treatment. It would be well if political leaders themselves were imbued with the spirit and aims of true medicine.

Col. J. HOLST (Norway) told of a physician who, narrating he triumphs of internal medicine, said that presently it would become difficult to find a disease from which a patient could live or by which a surgeon could live. He was glad, as a visitor from another country, to have seen the spirit in which British doctors and the British people were responding to the demands of war. There were differences of opinion, he said, as to the new orientation of medicine, but in medicine as in life, while outward forms changed, fundamental principles remained.

Finally, Dr. J. B. MILLER, Deputy Chairman of the Representative Body, after entertaining the company with some student reminiscences, spoke of his pleasure in responding on behalf of general practitioners—the patient oxen who trod out the corn—as well as of the consultants and specialists who on occasion descended from the heights of Olympus to enlighten them.

NEW FIELDS FOR THE ALMONER

Two directions in which the social worker may find new opportunities were indicated by Prof. James Mackintosh of Glasgow in an address at the annual meeting of the Institute of Hospital Almoners. He pointed out that the almoner was now taking her proper place as a member of the company of healing, instead of being a mere assessor of finance, but she had yet to be brought into association with the teaching of medical students. At the Johns Hopkins Medical School the student in his third clinical year was sent for tutorial instruction for one or two hours a week at the almoner's office. The almoner took the student through some of her recent cases, showed him what was written about the diagnosis when the patient came in, what was ascertained on preliminary inquiry as to his social circumstances, and what requests for further information were made by the physician. Presently the student was sent out to some (carefully selected) homes, where he pursued his own inquiries, at first in a stiff and perhaps rather absurd way, but presently he gained the idea of what was meant by social work. A second field of opportunity, but a more vaguely defined one, was open to the almoner in connexion with general practice and the coming of the health centre. The Cathcart Committee in Scotland in 1936 recommended that the family doctor should be the health adviser to the family, but in existing circumstances the doctor was called in only in case of illness, and the present service of general practice was fundamentally a sickness service. On the other hand, there was the health visitor, who had her own special role, but was not trained in social work as the almoner was, and had not the time to undertake these skilled and delicate investigations. In psychiatry the social worker had already established her position, but as for general medicine Prof. Mackintosh was doubtful about the desirability, even if it were possible, of having almoners all over the country like health visitors and nurses. But he felt that the position of almoner might well be regarded as something like that of a health consultant. The future health centres or groups of practices might well employ almoners in a consultant capacity, so that the practitioners could refer to them cases presenting any special difficulty from the social point of view.

MEDICAL PRACTICE: IN THE MELTING-POT?

ADDRESS BY DR. CHARLES HILL

At a meeting at Ipswich on July 8 of the Suffolk Branch of the B.M.A., Dr. Charles Hill, Deputy Secretary of the Association, spoke on "Medical Practice: In the Melting-pot?"

There lay ahead of both the public and the medical profession, Dr. Hill said, a critical period, in which decisions of profound importance to the future of medical services would be taken. So far the Government had committed itself to Assumption B of the Beveridge report and so to a comprehensive health and rehabilitation service available to the whole of the community. It had stated its intention to administer that service through locally elected bodies. Within the framework of these two decisions informal discussions had been taking place between the Minister of Health and his officers, and representatives of the medical profession, voluntary hospitals, and local authorities. At the end of these informal and non-committal discussions the Minister would set out in a White Paper any tentative conclusions of the Government as a whole on the form that the proposed service should take. It was not yet clear to what extent this White Paper would be a statement of the issues or would include the Government's own conclusions. It was sincerely to be hoped that, on a matter of such profound importance to the public as a whole, the Government, by making this White Paper as non-committal as possible, would leave the crucial issues involved for free and frank discussion by the public before Parliamentary decision. It would be undesirable if consideration of these public issues began on the basis of commitments entered into by the Government beforehand. He hoped that the known political sagacity and wide experience of the Minister of Health himself would lead the Government to make a statement of the issues to be resolved rather than a premature, if tentative, expression of Cabinet opinion.

Fundamental Principles

The publication of the White Paper would be followed next winter by exhaustive and critical analysis of its contents by the profession, mainly through the Study Groups and Divisions, the Council and its Committees, and finally the Representative Body of the Association. Service men at home and over-seas would be given the fullest opportunity of expressing their views; but that, Dr. Hill pointed out, was Phase 2, and it would take time. Phase 1 should start now, and should be a clear and candid statement of the principles which should, in the public interest, underlie any future organization of medical services. The profession might well now divest their minds of details and search them for fundamental principles. The Council of the B.M.A., recognizing this position, would shortly be recommending to Divisions, and to the Representative Meeting to be held in September, a statement of fundamental principles. What, Dr. Hill asked, was really fundamental, in the public interest, to future development? He suggested certain points for immediate consideration.

The health of a people depended primarily upon the environmental conditions under which it lived: upon good housing, good food, adequate wages, and security against fear and want. No Government should be allowed to bemuse the public into believing that new hospitals, new centres, or new doctors were of equal importance to the public health. In a free democracy, for the State to ensure that a citizen had sufficient resources to obtain what he needed was generally to be preferred to actual provision by the State.

The medical profession could serve the community only in proportion to the medical knowledge available. The facilities and resources for research should be greatly increased. Medical education was the channel by which modern research could find expression in the daily work of doctors. The facilities for post-graduate medical education needed to be made more extensive and more accessible to practitioners.

Again, the medical profession had for years maintained that where economic barriers stood between the citizen and existing medical services they should be removed. That issue was not discovered by Sir William Beveridge, for it had been urged by the profession itself over many years. But whether that meant, or should in the public interest mean, that the State should

make provision for those who did not need its help was a different matter. In Lord Acton's dictum, "All power corrupts, and absolute power corrupts absolutely." In a democratic community the State should confine itself to what was necessary in the public interest and not indulge in extensions and controls for their own sake.

The Salaried Service Question

On the subject of the invasion of the personal freedom of both citizen and doctor Dr. Hill said that the function of the State might be taken as the organization and provision of medical services. But this did not involve the assumption of control over doctors rendering individual or personal health service. Provision where necessary should be the keynote of the State's activity. It was not in the public interest that the State should convert the medical profession into a salaried branch of central or local government. This did not mean that salaried medical service was inappropriate to many branches of medical work. The unwillingness of general practitioners for a transition to whole-time status did not mean or imply reflection on that efficient body of men and women in the Public Health Service. The salaried method was clearly appropriate to many branches of work, and to environmental work in particular. The Public Health Service had every reason to be proud of its contribution to human welfare in the last hundred years. But, Dr. Hill suggested, it did not follow that a method applicable to administrative, environmental, and some special clinical services was necessarily the method for personal health services.

Free choice of doctor should be preserved as a basic principle of future health services; and, what was even more important, no administrative structure should be approved which did not both permit and encourage such free choice. Free choice would fade in the whole-time salaried scheme. Whatever fields the State might invade in the public interest, it should leave the doctor-patient relationship untouched. The loyalty and obligation of an individual doctor rendering personal health service to an individual patient should be to that patient and none other. There were many who believed that the ideal doctor-patient relationship based on free choice could flourish only where it was reinforced by a system of remuneration of the doctor based on the number of persons he had at risk or upon the number of items of service he rendered.

Private Practice

There would be those members of the community who, whatever the form of the future medical service, would insist on making their own arrangements. It was not for the medical profession to analyse the motives behind this attitude. There were those who seemed to believe that something you paid for direct was more valuable than something you paid for through taxation or through insurance. This belief was not confined to the wealthier classes. Freedom might be untidy.

If freedom there should be. Those who desired to make their arrangements should have available to them a range of and of doctors no less complete than that which would be available to patients under the official service. In short, who stood outside should be free to make their own arrangements on a fee-paying basis with the doctors of their choice, whether they were doctors in the service or not. The application of this principle would no doubt lead to difficulty. It might well lead to the conclusion that what was necessary to satisfy public health needs was an extension of National Health Insurance to the dependants of existing insured persons and others of like economic status and no more. Others, with their eye on Assumption B, would suggest that the 10% in the upper income group might be permitted, if they so chose, to become voluntary contributors. In any case, there should be freedom for the public to obtain medical services directly, and the doctor should be able clearly to distinguish between those who wished to avail themselves of the State service and those who did not.

Lastly, administrative structure was fundamental. The profession believed that at the centre, whether in the form of a department or a corporate body, there should be an organization concerned solely with health and administration of all the health functions of central government. Associated with it on a statutory basis there should be a medical body to advise on medical issues. As at the centre, so at the periphery: a local adminis-

trative body working over a sufficiently large area and representative of local authorities, the medical profession, and voluntary hospitals. The time had come for a statement of fundamental issues, and the British Medical Association, fully conscious of its duties and responsibilities in representing the profession, was about to place those issues before it. Whatever differences might emerge during detailed discussion the profession should now stand together on fundamentals.

Reports of Societies

STATE NURSERIES

At a recent meeting of the London Association of the Medical Women's Federation, with Dr. ANNIS GILLIE, the president, in the chair, Dr. G. J. BRODIE (Ministry of Health) opened a discussion on State nurseries. The day nurseries, residential nurseries, and nursery classes now available, she said, provided places for 3.2% of the children under 5 in the country. Premises had been chosen with an eye to convenience and pleasantness where possible, but it had often been necessary to use prefabricated huts. Physical health had been the first consideration and mental health the second. The Ministry of Food had co-operated by giving the nurseries special priorities in food. Mrs. ENTHOVEN said that the National Society for Children's Nurseries offered training courses for girls wishing to become nursery nurses, and 40% of girls leaving school wanted to work with children. County schemes of training were now in operation, and the Royal College of Nursing and the Association of Sick Children's Hospital Nurses had collaborated with the society in arranging courses for State-registered nurses who were eligible to take posts as matrons of nurseries.

Dr. MARJORIE BACK pointed out that the day nursery did not solve the problem of the women doing full-time work: the homes of such workers lapsed into squalor. After the war medical women should insist that the married woman with young children was not a suitable person to undertake full-time work. The proper place for the baby under 2 was at home, if the home was a good one. Nurseries for those aged 2 to 5 might perhaps be developed in connexion with community centres with clubs for mothers, like the Peckham Health Centre, and not as part of our educational system. Nursery-minded staff were important for the 2-5 age group, who did not need a State-registered nurse in charge of them, though the health visitor should be in daily contact with the nursery. A child from an inefficient home usually improved on entering a nursery, but a child from a good home often received a check, became fretful, and lost a little weight. The incidence of infections was high in nurseries. Thus in 166 nursery months in nurseries under her care there had been 1,678 days of quarantine—i.e., all fresh admissions had had to be stopped during a third of the time the nurseries had been open. Illnesses had included nearly all the common infections of childhood except diphtheria, against which nearly all had been immunized.

In opening the general discussion Dr. KATHERINE HIRST agreed that the child under 2 was not a candidate for any institution, for both psychological and physical reasons. Dr. HELEN MACKEY said she had been conducting an investigation which kept her for long hours in day nurseries, and she had concluded that in spite of much good will and kindness in the staffs there was apt to be a good deal of shouting from tired women and crying from fretful children, and that there was a high incidence of infection and a low incidence of happiness. Many children minded grievously the separation from their mothers; many were bored with the long hours in which they did nothing. These things might not be obvious in a short visit, but during the last three hours of the day most of the children were crying. They were separated from their mothers from 6.30 in the morning to 6.30 or 7 at night, and it was too long. The infection rate was higher than among children living at home. Of 120 children in two nurseries over a period of six months every child had been absent on the average 1 day in 4. Nearly all those under 2 had running noses and enlarged tonsillar glands. She doubted whether nurseries fulfilled the function for which they were intended.

to make woman-power available. They were expensively armed and equipped, breakages were high, and staffs had to be large. Yet the mothers whom they were supposed to ease often had to stay away from work because the children were ill. She felt that the ill effects on children were not realized by the public, and that the nurseries were squandering rather than conserving woman-power. Other speakers agreed: the communal nursery was not the place for the child under 2; and some thought these young children were better in their own homes, even when these were bad, for there the health visitor could advise and ameliorate.

Correspondence

Lung Complications after Operation

SIR.—The article in the *Journal* of June 19 (p. 754) on post-operative respiratory complications in Service cases by Bird, Lerner, and Martin draws attention to the high proportion of cases developing fever and cough with abnormal signs at the site of one or both lungs following operations for hernial repair—61 in 192 operations. In the same table 26 cases are given following 98 appendicectomies. Reporting on civilian patients, Brock,¹ Sircar and Boston,² and others³ have pointed out that while abdominal operations are responsible for the great majority of chest complications the risk is greater the nearer the operation area is to the diaphragm. Experience in our hospital—26 cases following 170 inguinal herniorrhaphies and in other Service hospitals has shown that this operation does carry a peculiar liability to chest complications.

In this recent report only 3 cases of consolidation were noted, whereas we have found some degree of lung collapse, always the base, in most of those cases showing a rise of temperature to 101°–102° F. This rise occurs typically in the afternoon the day following operation. There is a corresponding rise in pulse rate but not a markedly increased respiratory rate. There is some dyspnoea, but cyanosis is exceptional. Clinically, an impaired percussion note is the one constant sign, and auscultation is not very helpful. Some displacement of the heart beat will usually be discovered, especially if the collapse is on the right side. X-ray films taken within a few hours of onset are not always diagnostic. There may be some shifting of the heart shadow or some elevation of the dome of the diaphragm, but loss of translucency is not often evident for hours or more after onset. The temperature and pulse rate fall to normal within 3 or 4 days, although the atelectatic portion of the lung may not re-expand for many days afterwards.

Decreased movement of the diaphragm is an important factor in the development of post-operative chest complications, and a possible explanation of high incidence following inguinal herniorrhaphies lies in the operation itself. Most surgeons divide the conjoined tendon down to Poupart's ligament. This implies a certain amount of tension, more in the muscular individual, and rather more than drawing together the muscles after a muscle-splitting incision for appendicectomy. The oblique and transversalis muscles are antagonistic to the diaphragm owing to their common attachment to the lower ribs. To limit pain, therefore, diaphragmatic movement will be minimal. The diaphragm is responsible almost entirely for the ventilation of the lower lobes (Hoover), so that deficient ventilation as well as their dependent position render those portions of the lower lobe adjacent to the diaphragm more liable to atelectasis.

I do not think it possible to avoid all chest complications, but we have succeeded in lowering the incidence by routine prophylactic measures which require the co-operation of the nursing staff. Patients are discouraged from slumping into one position in the bed and are encouraged to move from side to side. Deep-breathing exercises are carried out every 2 hours for 24 hours before and 48 hours after operation. Morphine is not given post-operatively unless really necessary.

¹ *Guy's Hosp. Rep.*, 1936.

² *British Medical Journal*, 1940, 7, 82.

³ "Respiratory Excursions of the Thorax," *Oxford System of Medicine*, 1937, vol. 2, Part 1, p. 29.

As shown in this recent report there is a tendency to a high incidence during the summer months, and this may be due to dehydration, the sputum becoming more inspissated and less easily evacuated. Thick viscid mucus is more likely to give rise to the blockage of a bronchus, which is generally considered to be the direct cause of post-operative atelectasis. For this reason we have discontinued pre-operative atropine or scopolamine during the summer months, and anaesthetize hernia patients with a medium dose of pentothal, 0.5 g., followed by cyclopropane.—I am, etc.,

T. F. MILES,
Surgeon Lieutenant-Commander, R.N.

Shortened Puerperium

SIR.—I have been incited by Dr. Hope Simpson's letter (July 3, p. 20), in which he stated that most of the previous letters had been written by those without actual experience of a shortened puerperium, to record the experiences of myself and my father, the late Dr. W. F. N. Haultain, on this subject, as it would seem probable that between us more cases have been treated by a shortened puerperium than by any other observers, at any rate in this country.

My father read a paper on "A Plea for a Rational Puerperium" before the Edinburgh Obstetrical Society in July, 1909, in which he strongly advocated early rising in normal cases, and gave statistics of 100 cases. From that date, until he died twelve years later, he carried out such treatment in all his normal cases, both in hospital and in private practice, and always asserted that in his opinion nothing but good had eventuated. I myself have practised this treatment both in hospital and private practice since 1922 and can fully confirm his views.

So far as I am concerned, however, I let my patients up on the 4th or 5th night and not on the 3rd day as my father used to do, because I like to see lactation well established before allowing them to rise, as there may be some deficiency of milk if the patient is allowed up before establishment has been effected. I would therefore suggest, as is fully stated in my *Handbook*, that early rising: (1) secures better drainage and involution; (2) helps to prevent backward displacement of the uterus; (3) promotes the circulation in the lower limbs and pelvis and prevents any tendency to embolus or phlegmasia; (4) increases muscular tone, thus preventing prolapse and helping the figure; and (5) mitigates constipation.

It is most unfortunate that hospital patients at the present time, owing to lack of accommodation, have to be discharged as early as the tenth day of the puerperium, and it is to be hoped that in the medical Utopia that is promised for the future such patients will be sent to convalescent homes for mothers and babies for at least ten days after discharge from hospital. As it is at present I feel it is better that the hospital patient should be discharged home (where, in many cases, she has to do her household duties again) after she has been up and about for five days and has regained a considerable amount of her strength—if indeed she has lost much after five days in bed—than that she should be allowed up on the 8th or 9th day and be sent home in a much less fit state to be able to cope with her household duties.—I am, etc.,

Edinburgh.

W. F. THEODORE HALTAIN.

Louse-borne Typhus Fever

SIR.—In Megaw's paper (Oct. 3, 1942, p. 401) on typhus fever the opening paragraph says that "zootic" typhus fevers are of minor importance as war diseases, and that these fevers cannot give rise to epidemics such as readily occur in louse-borne typhus. Attention is drawn to a small epidemic in Palestine in 1936, details of which were published in *Trans. Roy. Soc. Trop. Med. Hyg.* and extracted later in *Trop. Dis. Bull.* of 1937, 34, No. 6, p. 476. This epidemic was proved to be a flea-borne one and lice were not found. In view of this Megaw's statement may require revision.

Contact between the soldiers and the collective farms of Palestine, in one of which the above epidemic occurred, is fairly close nowadays. Palestinian soldiers go to these farms on leave, while other soldiers visit them often. A small degree of danger may lurk here. In the second part of the same paper (Oct. 10, p. 433) under "The Other Fevers of the Typhus Group" Megaw discusses the possibility of the virus of flea-

borne typhus, after being transmitted in the first instance from rat to man by the rat flea, becoming at times capable of being transmitted from man to man by human lice, and adds that if this be occasionally possible "the resultant disease would automatically become louse-borne typhus and would have to be handled accordingly." This is a logical view, but in the epidemic mentioned above lice were absent, and, therefore, the possibility of a similar flea-borne epidemic occurring again cannot be overlooked.—I am, etc.,

No. 12 Indian Field Laboratory, M.E.F.

P. N. BARDHAN,
Major, I.M.S.

Symptomatology of Malaria

SIR.—With reference to the most interesting article by Capt. P. H. Birks (June 26, p. 784) someone has described malaria as a "protean" disease. This was very fully proved to those of us who had charge of malaria wards in the base hospitals of Salonika from 1916 onwards. So diverse were the symptoms produced by malignant tertian malaria that in the 43rd General Hospital a classification was drawn up, based on actual cases, showing how malaria may simulate many diseases or even surgical conditions. The classification was as follows:

1. CEREBRAL TYPES OF MALARIA

Diagnosis made in the Field	Type of Malaria
1. Sunstroke, heat-stroke.	Comatose type of malaria.
2. Shell-shock.	Comatose type of malaria.
3. Mental deficiency.	Maniacal type.
4. Epilepsy.	Epileptiform type.
5. Cerebrospinal fever.	Cerebral type.

2. ABDOMINAL TYPES

1. Dysentery.	Dysenteric type of malaria.
2. Cholera.	Choleric type with collapse.
3. Intestinal obstruction, and acute appendix.	Symptoms produced by plugging of capillaries by malaria parasites.

3. PULMONARY TYPES

Bronchitis, pneumonia.	Malarial pyrexia with pulmonary congestion.
------------------------	---

4. CARDIAC TYPES

D.A.H.	Cardiac distress due to haemolysis.
--------	-------------------------------------

5. INFLUENZAL TYPES

influenza, rheumatism.	Pyrexia with joint pains.
------------------------	---------------------------

6. ENTERIC TYPES

interic fever, sandfly fever, trench fever, relapsing fever.	Typhoid-like temperature, and spleno-megaly.
--	--

7. ICTERIC TYPES

jaundice.	Bilious remittent type of malaria. Coffee-ground vomit, icterus, remittent fever.
-----------	---

8. NEPHRITIC TYPES

nephritis	Nephritic type of malaria with albuminuria, haematuria, and pus cells in urine.
-----------	---

9. ANAEMIC TYPES

Pernicious anaemia, debility, phthisis.	Enlarged spleen and profound anaemia due to destruction by parasites.
---	---

All the diagnoses on the left-hand side were taken from the actual field card and are those with which the patient was limited to hospital. All the cases above were confirmed to be either malignant malaria or benign tertian. We found the above—perhaps rather rough—list very useful in putting newly arrived medical officers on their guard against the many diseases which malaria adopts.—I am, etc.,

D. M. M. FRASER.

Treatment of Blackwater Fever

SIR.—Having just read the interesting article on blackwater fever by Lieut.-Col. Felix Smith and Capt. R. Winston Evans (March 6, p. 279) I feel the following case may be of interest.

On Nov. 20, 1942, a Greek, aged about 35, was admitted to hospital from the bush with blackwater fever, which, he said, started 3 days previously. He had a large, very tender liver and his spleen was also enlarged. He was vomiting frequently and his condition was very poor. He was given an injection of 0.3 g. of atabrin immediately. The following day he still had fever and blackwater. Subsequent parasites were found in his blood and another injection of atabrin was given. On Nov. 22, when parasites were again found in the blackwater and fever were the same, it was decided to give him quinine 5 gr. by intramuscular injection: by evening the urine had cleared. On the morning of Nov. 23 blackwater returned and other injection of quinine was given. By the evening the urine was clear and it remained so thereafter. On Nov. 24 and 25 he had daily injections of quinine 5 gr. On Nov. 28 and 29 parasites were again found in his blood and he was given another injection of quinine. Thereafter quinine was administered in small increasing doses by the mouth.

The red cell count on Nov. 24 was 1,200,000; on Nov. 27, 180,000; on Dec. 2, 2,300,000; and on Dec. 9, 3,780,000. He was

given fluids *ad lib.* in the form of barley-water and glucose sodium bicarbonate. On Nov. 23 30 gr. of ferri et ammon. was started four-hourly. He was discharged from hospital on Dec. 1 and returned to his work.

We have felt for some time that blackwater fever cases are overtreated. This is partly due to the long reports which often have to be made on these cases, so that one feels that everything possible should be done. I know this was so up till 1930. These cases usually recover if given ample fluids and efficiently nursed, but malarial parasites must be eliminated. I have found that alkalis, if pushed, are inclined to start vomiting, and the patients then do well if given plain water. Anuria is the greatest danger, and I consider this the only indication for intravenous therapy, except for very severe cases of anaemia. The patients in the three fatal cases I have seen have died after several days of anuria. During the last ten years I have treated twenty-seven cases of varying severity, and have been fortunate enough to have no fatalities. I am, etc.,

City Hospital, Kano, Nigeria.

R. N. HALL.

Clinical Diagnosis of Breast Tumours

SIR.—Valuable information is obtained by placing the patient in the knee-elbow position and inspecting the breasts from the front and sides. Displacement of the nipple or indrawing of the breast in the area of the tumour often becomes apparent in this posture. I have been advised to describe this sign to several surgeons to whom it has been demonstrated.—I am, etc.,

Bournemouth. A. BASIL ROOKE, F.R.C.S.

Cancer of the Lung: A Clinical Sign

SIR.—Cancer of the lung seems to be becoming more frequent. I have been greatly helped in the diagnosis by hearing the lung sounds conducted to abnormal parts of the chest by the tumour. The heart sounds seem to be conveyed when the tumour is in contact with the heart, especially in growths starting in the mediastinum, and they are not heard when the growth begins in the upper lobe or in the outer part of the lower lobe.

In one case, referred to me as a chronic bronchopneumonia, to a persistent cough with occasional rises of temperature to 100° F. the lower two-thirds of the left back were dull and breath sound very weak. In the upper part of this area between the fourth and eighth ribs there was a patch about the size of the palm of a hand where heart sounds were quite loud, but breath sounds and vocal resonance were absent. This led me to diagnose cancer of the lung, which proved correct.

In another patient weighing 16 st., with slight haemoptysis, the hearing of heart sounds in the right third space for two inches from the sternum, where there were dullness, much diminished heart sounds, and no vocal resonance, enabled me to make the diagnosis of malignant disease.

In large tumours on the right side heart sounds can be loudly heard even as far as the anterior axillary line, breath sounds and vocal resonance being absent.—I am, etc.,

WALTER BROADBENT, M.D. Cantab., F.R.C.P.

Consulting Physician to the Royal Sussex County Hospital, Brighton

Nasal Intubation

SIR.—My article (June 5, p. 693) in no way suggested condemnation of nasal intubation in anaesthesia; it only advocated the observance of certain precautions in procedure and the realization of some contraindications, the neglect of which might bring an otherwise excellent method into disrepute because of its ill-advised application.

I agree with Dr. Clendon that complications are uncommon and only infrequently of a severe character, but many of the milder variety never come to the notice of the anaesthetist and only confront the rhinologist later on. When there is any antagonism to nasal intubation it usually comes from the rhinologist, not from any motives of jealousy, as is suggested, but because the rhinologist, from his knowledge and training in intranasal conditions, is the one best qualified to speak of the implications involved. Moreover, he is the one who usually has to deal with any sequelae; consequently his view should receive its just valuation.

Dr. Clendon's assertion that the experienced anaesthetist is able to diagnose "the nature of any obstruction" by passing a tube blindly into the nose and exploring with it is indeed an astounding one. Moreover, his analogy that "the type"

urethral obstruction" can be diagnosed by the passage of a sound or catheter in on insecure foundations; surely inspection through a urethroscope or cystoscope is necessary in most cases before any tentative diagnosis made by such means can be confirmed. Similarly, inspection of the nose by a head-light can alone reveal purulent secretions, soft polypi, or the very large casts of the nasal passage associated with atrophic rhinitis, all of which may be detached by gentle pressure, and propelled onwards towards the larynx as the tube passes down. —I am, etc.,

London, W.1.

A. R. DINGLEY.

Oedema of Extremities at Sea

SIR.—Dr. H. E. Thorn (June 5, p. 708) remarks on the occurrence of oedema of the feet and ankles in fit men during a voyage. I believe this is not an uncommon condition when on passage from temperate climates to the Tropics, and under these conditions I have observed eight or nine cases in a destroyer. I believe the cause of the condition is the heat of the sun and of the decks damaging the capillaries of the feet and ankles, which, because of their anatomical position, bear the greatest weight of blood. In my cases it was impossible to relieve the men of their duties, and *lotio plumbi* only was used, the condition clearing up in about a week. In two cases calcium lactate was given with no benefit. The rational treatment for men in a troopship would seem to be to relieve the damaged capillaries by keeping the feet up.—I am, etc.,

T. E. BARWELL,
Surgeon Lieutenant, R.N.V.R.

"Better Sight without Glasses"

SIR.—Bates's theory cannot be entirely dismissed. Orthodox orthoptic training has shown that relaxation exercises can be most efficacious when the muscles of the eyes need relaxation. Cases of low hypermetropia, where symptoms of asthenopia are present, are usually corrected with plus lenses, while deeper investigation would in all probability reveal convergence insufficiency of an exhaustion type. Orthoptic training has shown us that what is more effective than plus lenses, in many of these cases, is treatment by means of relaxation exercises, resulting in the elimination of the cause of the insufficiency, whereby the patient can overcome the small amount of hypermetropia without the aid of glasses. Apparent and *pseudo-myopia* are treated by means of orthoptic training in exactly the same manner, the spasm of accommodation being unlocked by relaxation. Bates's methods have by coincidence cured these types of cases, but his physiological basis is entirely incorrect, and to generalize, as he does, is positively harmful and gives false hope to many.

I have seen a few of Bates's "cures" and had the opportunity of examining these cases. They were invariably cases of *pseudo-myopia*, and each one had, in the first place, unfortunately obtained normal visual acuity by wearing very weak minus lenses. Bates's relaxation exercises (corresponding to orthoptic training exercises on the synoptoscope type of instrument) had unlocked the spasm of accommodational-convergence and the patient had "thrown away his glasses." —I am, etc.,

London, W.1.

MARGARET DOBSON.

Pediculus pubis in the Eyelashes

SIR.—In recent months I have seen at the Prince of Wales's General Hospital two cases of *Pediculus pubis* lodging in the eyelashes: this particular location, though recognized, must be exceedingly rare.

The first case was that of a young man; he observed something moving in his eyelashes, tried to catch it and failed: he said that it disappeared under his upper lid. He went to his doctor, told him about it, and the doctor, seeing nothing, told him he was imagining things. Fired by this taunt, he watched, waited, and caught it, and brought it in triumph to the hospital, where the pathologist, Mr. Benians, readily identified the parasite. I referred the patient to Dr. Klaber, who reported that he was a hairy man and the infestation widespread; of this the patient seemed to be unaware. The second case was that of a girl of twenty. The history is similar. She also had observed it and informed her doctor, who was equally unbelieving. She then organized a search of her eyelashes, and with the help of a friend caught one—and lost it. This

patient was brought to me by Dr. Klaber, who had found a heavy infestation in the left axilla and a lighter one in the right.

It seems probable that the parasites were carried to the eyelashes on a finger. In view of the tendency of this parasite to avoid the light, it seems unlikely that it would multiply in the eyelashes, and even its survival is not likely to be of long duration.—I am, etc.,

London, W.1.

NORMAN FLEMING.

Bran in the Diet

SIR.—There are, I am convinced, some individuals whose bowels act more satisfactorily and who feel better if to their daily food they add bran, the exact quantity differing in different persons and varying from time to time, partly in relation to the kind of food in the diet. By this simple means such individuals are generally able to avoid all other treatment for constipation. The bran seems to act by increasing the bulk of the unabsorbed contents of the large intestine rather than by its particles irritating the mucosa. Specially prepared bran (such as "All-bran") is certainly very convenient to use, but owing, I suppose, to its having been classified among "luxury" cereal instead of among "medicinal" preparations it is not now sold in London and the southern zone of England, though it is still obtainable in Liverpool and the North. Those who require it in London can, therefore, only obtain it in some way from the northern zone—for instance, from Liverpool.

They can, of course, use ordinary bran instead. Unfortunately the latter cannot be bought from bakers or ordinary provision shops, but only from millers and with the help of a special permit. By eating bran-containing bread the requisite amount of bran may doubtless be consumed, if one does not mind habitually and wastefully overloading the digestive system with superfluous—and therefore probably harmful—food which has to be swallowed in order to obtain the requisite amount of bran. The stringy cellulose of cabbage does not do equally well in many cases. I hope this at first sight insignificant question may attract the notice of doctors who are consulted by the Ministry of Food.—I am, etc.,

London, W.1.

F. PARKES WEBER.

Water for Rabbits and Guinea-pigs

SIR.—Dr. T. Hare (July 3, p. 24) says: "If Dr. E. L. Kennaway had been familiar with the literature of rabbit and guinea-pig management, a good selection of which was bequeathed by the late Henry Gray to the library of the Royal College of Veterinary Surgeons, I think he might have modified some of his statements." Perhaps Dr. Hare would point out the statements in my article which require modification. I confess at once that I was ignorant of the writings of the rabbit fanciers of the last century, and of the bequest of this literature by Dr. Henry Gray, and can only express regret that I did not refer to these authorities. But whatever may be the knowledge on this subject which is laid up in libraries, in the world outside there is widespread ignorance on this question. From the humanitarian standpoint this matter is urgent; the exact attribution of credit to earlier generations of rabbit keepers is in comparison unimportant.

We must be grateful to Dr. Hare for bringing to light the old rule that rabbits on dry food "require about one-third of a pint of milk or water daily." One-third of a pint is 190 c.cm. This provides a rather wider margin, for the largest animals, than the 160–170 c.cm. which we found to be drunk by rabbits of medium size. Dr. Hare tells us also that "the old fanciers recommended about a tablespoonful of water or milk daily" for guinea-pigs on a dry diet. This is certainly a cautious rule; some of our guinea-pigs here drink much larger amounts. Hale-White,¹ in defining a tablespoonful, says, "usually it is very nearly 15 c.cm." but some spoons of this category hold over 21 c.cm. An adult guinea-pig of 600–700 g. is about 1/4 the weight of a rabbit and might be expected to require 1/4 as much water. On the "one-third of a pint" rule for rabbits a guinea-pig should receive $\frac{190}{4} = 48$ c.cm. The older literature to which Dr. Hare refers would no doubt give the grounds upon which the "tablespoonful" rule is based.—I am, etc.,

Chester Beatty Research Institute, S.W.3.

E. L. KENNAWAY.

¹ *Materia Medica, Pharmacy, Pharmacology and Therapeutics*. 12th Ed., 1911.

A Non-electric Suction Apparatus

SIR.—Dr. N. F. Saher and Mr. R. Salt are to be congratulated on their article (June 26, p. 790) where they describe improvements in the application of the injector. Our improvements in this application of the injector (*Lancet*, June 12, 1943, p. 738) have gone even further. These are: (1) we have eliminated the "foot-hand complex" by replacing the foot control with a simple valve on the actual sucking inlet; (2) the time lag to develop high negative pressures is abolished by having available constant negative pressure without the injector working continuously. This is achieved by an automatic device regulating the positive pressure side of the injector. This device is a simple diaphragm, controlled by an inlet from the negative-pressure side, and it can be adjusted to operate through any range of negative pressure; (3) there is no limit to the capacity of the receiving bottle or bottles with our apparatus, as negative pressure is maintained all the while and does not have to develop each time the suction tips or catheters are used.—I am, etc.,

Twickenham.

NORMAN R. JAMES.

Specialists and State Service

SIR.—There are only a few points in Dr. S. Cochrane Shanks's letter (June 26, p. 802) that call for comment.

My original questionnaire was sent to the membership of the British Institute of Radiology, and only the replies from the medical members were considered for the published figures. The survey was, therefore, representative of radiologists throughout the country and not confined to a small group of "consultants." The Faculty of Radiologists is really a branch of the British Institute of Radiology and has a membership of a limited character, but practically all members of the Faculty are also members. My figures were compiled from a representative circularization of the country as recently as three weeks before publication of my letter (June 5), but is it not the case that the questionnaire sent out by the Faculty was circularized as long as two years ago? I make this observation subject to correction, but if my information is correct, surely the dangers of advising to-day on the return of a two-year-old plebiscite must be obvious, and I think this is the real answer and not that suggested by Dr. Shanks. May I suggest the Faculty organize a new questionnaire and vote and think again after this referendum. This observation also answers the second paragraph of Dr. Shanks's letter, and may further raise the question as to whether or not the B.M.A. has got a really correct impression to-day of the desires of radiologists from a questionnaire two years old?

My information about the activities of the Faculty is quite up to date irrespective of the fact I did resign my membership of that body in 1940, on the grounds of disagreement with its inadequate policy towards members and the national effort.

It is interesting to learn the Faculty do not favour full-time State medicine; but, after reading the pamphlets issued by the body, it is still difficult to discover where it rejects full-time State salaried service. It would be of great assistance to hear briefly and concisely the details of the actual form of organization for radiologists the Faculty does favour.—I am, etc.,

London, W.1.

NORMAN P. HENDERSON.

Specialist Courses for Service M.O.s

SIR.—Mr. Bevin's plan for training persons discharged from the Services having brought this problem into public consciousness one may be permitted to consider for a space the position of the younger members of our profession who at the outbreak of war had been qualified three years or thereabouts and were holding posts of the registrar type with the object of obtaining a higher qualification. Many of these young doctors joined up at, or soon after, the outbreak of war, and so lost the opportunity of working for the qualifications they desired. I think any medical man will agree that work done under Service conditions is not likely to produce success in examinations of a clinical nature. The atmosphere is difficult for the student, there are disturbances and interruptions beyond his control, and the nature of Service duties is not of great value for clinical work except for a fortunate few, and even the Service hospital cannot, by its nature, provide the necessary facilities

for the clinical study and work required, however hard student may apply himself to his reading in off-duty or slack times.

Can our teaching institutions give a thought to the salvation of this group, now into the early 30's, many in the narrow course of events married, but still hoping to be able to pick up the threads of their interrupted careers when eventually demobilized or otherwise discharged, but not wishing to return to general practice or public health work? I feel certain this question will interest many members of the 28-33 group, and a suitable scheme would result in many being sent for the clinical specialties and future hospital staffs who would otherwise be forced to take up general practice—when, do less, they would do a good job of work, but not so good as they could do—or go into public health, a branch of the profession which they would probably dislike and for which they show little aptitude.

No person can do good work if he dislikes it and feels he could do something else much better—a fact recognized by the industry by the efforts of the psychiatrists, but which seems in danger of being forgotten as applied to the various branches of our own profession. No one can deny that the surgeon, the physician, the medical administrator, and the hygienist have different types of minds, and that vocation must play a large part in selection. If the system of automatic direction of people into posts should persist in civil life, the resulting work will be mediocre even though it may be competent.

Vague and nebulous promises of "if you do your bit you won't be forgotten" cannot help the budding surgeon who has not handled a scalpel for four years to remove his appendix, nor can they—quite rightly, when dealing in civil life as we do—impress an examiner or a hospital board with a choice for an R.S.O. or R.M.O. between one who has last surgery or clinical medicine was four or five years ago, and one who has been doing such work all along by some fortunate chance. Others of your correspondents may have some views on this matter.—I am, etc.,

L. W. ALDRIDGE.

Doctors and the Future

SIR.—I would offer the following points as a brief answer to Dr. C. A. H. Franklyn's question in his letter (June 26, p. 801) asking what is considered wrong now: (1) The gravitation of doctors towards the better paying areas often away from the more densely populated districts. (2) The buying and selling of the goodwill of practices. Financial rather than medical ability determines the size of a practice. The cost of treatment is inflated by the interest paid to the moneylender. (3) Many practices are too large for the number of doctors engaged in them to give due attention to all their patients. (4) Practices are frequently ill equipped in buildings, furniture and professional appliances. The doctor does not find that the fees he can earn justify the outlay necessary for proper equipment. (5) A feeling prevalent among the poorer sections of the public that it is not getting the best possible medical service. (6) Lack of sufficient hospital accommodation, shown by long waiting lists. (7) The artificial cleavage and, at times, antagonism between curative and preventive medicine.—I am, etc.,

Bristol.

N. S. B. VINTER.

The Edinburgh Surgical Fellowship

SIR.—The Royal College of Surgeons of England is celebrating the centenary of the Fellowship on July 21, and I think it may interest the Fellows of the sister College of Edinburgh to know something of their Fellowship. The foundation of the College goes back to 1505, but it was not until 1778 that it was incorporated by Charter granted by George III as the Royal College of Surgeons of the City of Edinburgh, where its members were then called Fellows. In 1851 Queen Victoria granted another Charter and the name and title were changed to the "Royal College of Surgeons of Edinburgh," the word "City" being omitted.

The Fellowship of the College was only obtainable by examination, the production of a thesis, and the entrance to the Widows' Fund of the College. These restrictions, especially the expense incurred—some £300—formed a barrier to many

sirous of this honour. They remained in force until 1884, when the Council decreed that the thesis and entrance to the 'dows' Fund should be eliminated, but an examination of a stricter character should be exacted of all ordinary candidates, who, after passing it, should be balloted for by the Fellows, and this arrangement is being followed at the present day. It is somewhat curious to learn that although there were no ordinary Fellows until 1778 we find that an Honorary Fellowship was conferred on Sir Andrew Ramsay on Oct. 17, 1671, from thence, of course, many up to the present time—am, etc.,

C. W. DEAN, F.R.C.S.E.D.

Obituary

A veteran member of the profession, Dr. EDWARD THOMAS RICHARD, died in retirement at Hove on June 10. He studied medicine at the University and the Royal College of Surgeons in Edinburgh, and graduated M.B., C.M. in 1885, proceeding D. in 1908. Part of his life was spent in China, where he was for 7½ years the post of medical superintendent of the King Hospital and lecturer in the medical department of the Peking College. Dr. Pritchard joined the British Medical Association in 1890 and remained in active membership up to the end of 1936, by which time his sight had failed and he was unable to read.

Dr. F. E. ROWAN-ROBINSON died on June 11, aged 65. He qualified at Edinburgh University as M.B., Ch.B. in 1900, and joined the R.A.M.C. shortly afterwards. He served in the South African War, Aden Hinterland Campaign, and in the war of 1914-18. He was invalided in 1921. He returned to medical work during the present war, being a member of a London consulting board and continuing this work till progressive malignant disease compelled resignation. By his kindness and courtesy Dr. Rowan-Robinson won the affection of a large circle of friends. He leaves a widow but no family.

Dr. MALCOLM McLARTY, who died on June 12 after a short illness, had a distinguished career at Edinburgh University, where in 1895 he graduated M.B., C.M., and in 1898 B.Sc. in Public Health. Thenceforward he carried on an extensive practice in the city. He was one of the senior Fellows of the Royal College of Physicians of Edinburgh, his election dating from 1911. He had been a member of the B.M.A. for 46 years. His patients and friends Dr. McLarty was known as a man of great charm and gentleness and integrity of character, with wide general interests and a cultivated mind.

The Services

Temp. Surg. Lieut. T. M. C. Roberts, R.N.V.R., has been mentioned in dispatches for endurance and good services to the wounded on his ship, H.M.S. *Lightning*, had been sunk.

Major (Temp. Lieut.-Col.) J. S. Richardson, R.A.M.C., has been appointed a Member of the Royal Victorian Order (Fourth Class). The *London Gazette* announces the appointment to M.B.E. (Civil division) of Mrs. Margaret Henderson Thomson, M.B., Ch.B., alaya Medical Service. The announcement reads as follows:

Dr. Thomson was wounded by a bomb splinter just before leaving Singapore, when the Japanese had dive-bombed the evacuation ships, she was picked up by a lifeboat and rendered invaluable aid among the wounded. Noticing that a boat was badly undermanned, she took an axe herself and, despite her own wounds, pulled hard for four hours and did much to encourage and keep up the morale of the boat's company. For three days, while marooned on that island, with no food at all and very little water, she continued to attend wounded women and children. Later, on Senajang island, she took charge of over fifty wounded cases, and tended them day and night, in spite of a serious shortage of medical supplies and with the crudest of surgical appliances. She also assisted greatly in the safe evacuation of the most urgent cases to other island hospitals. But for her resolution and disregard of self many of the people would have died, and it was due to such sacrifice on her part that her wound turned septic and she followed her own patients to hospital, where she displayed admirable courage throughout the difficult journey across the straits.

CASUALTIES IN THE MEDICAL SERVICES

Died on Active Service.—Major J. N. Strauss, R.A.M.C.
Previously Reported Missing, now officially Reported Prisoner of War.—Lieut.-Col. (acting Col.) K. P. Mackenzie, R.A.M.C.
Prisoner of War.—Capt. G. S. Riddell, R.A.M.C.
Previously Reported Missing, now Reported Prisoner of War.—Capt. A. Farquhar, R.A.M.C.
Killed.—Temp. Lieut.-Col. A. Macdonald, R.A.M.C.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on July 1 the following medical degrees were conferred:

M.B., B.Ch.—J. A. Ritchie, *R. E. Lee.
* In absentia

UNIVERSITY OF BIRMINGHAM

At a Congregation on July 3 the following degrees were conferred:

M.D.—Prof. A. C. Frazer and Prof. J. M. Webster (ex-officio), I. J. L. Collis.
M.B., Ch.B.—J. E. A. Barker, J. V. S. Brookes, J. A. Kathleen M. Lawrence, J. R. W. Tudor, J. J. N. Wilson, L. E. Arundell, Ursula M. Baines, Helen J. Bayliss, E. R. Bickerstaff, R. L. Bashon, P. Brown, Kathleen M. Chipperfield, G. I. Clarke, M. A. Cooke, F. Cullis, P. Dawson-Edwards, C. B. Eccles-Smith, Jean Edmonds, C. G. Edwards, H. J. H. Evans, K. W. Forber, J. Hallam, A. H. Hamed, J. G. Hoult, A. Jarrett, L. Joseph, Beatrice Kaelin, A. R. Kenderdine, Eileen M. MacShane, Julia M. Neal, Margaret Newton, K. I. Price, Joan Stanton, L. J. Totham, J. Tregillus, L. W. Waters, T. A. White, J. Yvonne J. Williams, Barbara D. Wright.

The following scholarships, medals, and prizes have been awarded:

Queen's Scholarship (third year), K. D. Roberts; (fourth year), J. N. Omond; (fifth year), Theresa Lazar; (final year), V. S. Brookes. *Ingleby Scholarships*, V. S. Brookes, Kathleen M. Lawrence. *Forwell Memorial Medal*, J. N. Wilson. *Garnett Memorial Medal*, R. W. Tudor. *Pringley Smith Prize in Ophthalmology*, V. S. Brookes. *Battersworth Prize*, V. S. Brookes. *Leith-Newman Prizes in Pathology* (fourth year): Medical, J. L. Stafford; Dental, D. H. Goose. *Thompson Prize in Anatomy* (third year), K. D. Roberts. *Russell Memorial Prize*, J. G. Hoult, R. A. F. Jack. *Humphreys Memorial Prize*, E. A. Marsland. *Windle Prize in Anatomy*, G. A. Readitt.

1 First-class honours. 2 Second-class honours. 3 Distinction in medicine. 4 Distinction in midwifery. 5 Distinction in surgery.

UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated:

M.D.—By thesis: T. E. Barlow, I. B. Finkleman, I. I. Harvey Flack, I. W. H. Shapley. By examination: G. Bridge.
Final M.B., Ch.B.—J. P. Mackay, J. S. B. Rampling, J. A. F. Robinson, J. R. Tepper, J. S. Battersby, D. C. A. Bevis, D. H. Blakey, H. M. Blaquiere, D. L. Boardman, H. L. Brusk, C. P. Brown, O. O. Cowpe, Frances G. Danson, C. J. Denhurst, P. R. Dutton, B. I. Einhorn, Nora F. M. Falk (Mrs. Wilkinson), F. Fletcher, J. W. Fletcher, J. Margaret Garrett, J. Grayson, G. Harveys, J. C. Howarth, Mary W. P. Huddart, F. Jackson, Marjorie T. Lee, Mary P. McGlade, E. B. N. Marchant, Doreen Mitchell, J. G. Oddy, S. Portnoy, Ruth J. Prausnitz (née Whitley), P. T. Quinlan, P. H. Renton, R. H. Sewell, J. H. Shelswell, K. H. Smith, H. Sosnowick, J. L. Taylor, L. S. L. Turner, P. Vulsions, J. E. G. Wade, Margaret Wardle, T. A. Yates. Part I (*Forensic Medicine and Hygiene and Preventive Medicine*): H. W. Ashworth, W. G. Astley, F. Bailey, D. G. Berry, R. B. Broughton, R. W. Burling, J. H. Dargie, Constance M. Dudge, Doreen M. M. Dutton, G. V. Feldman, I. L. Gregory, Margaret Hedley, J. D. Heppleston, J. Hewer, R. Hierons, Marion E. Jepson, F. Latham, Margaret M. Lawton, Marion D. T. McIntosh, H. McIntyre, H. B. Marsden, T. M. Martin, Joan A. Mettam, B. Nicholson, T. A. Nowell, Nancy B. Penney, L. Rose, P. W. E. Sheldon, J. A. Shrigley, L. Shuck, H. Tabuss, A. E. Thomas, Elizabeth Travers, G. S. Turpin, W. V. Wadsworth, G. H. Watson, B. Wilkins, P. O. Yates, J. Sharp.

1 With commendation. 2 Awarded second-class honours. 3 Distinction in medicine. 4 Distinction in surgery.

UNIVERSITY OF ST. ANDREWS

The following medical degrees were conferred on June 25:

M.D.—G. H. Robertson (with honours for thesis), D. M. McGillivray, M.B., Ch.B.—J. G. Lawson, J. A. L. Webster, J. W. F. Spraggour, J. W. F. Mills, J. D. Stephen, J. W. L. MacD. Perry, J. W. Eadie, J. W. M. Walker, J. A. Hershell, J. Constance F. Drysdale, J. Violet Auld, J. M. Asken, Sheena M. Allardice, G. M. Ashurst, Ann B. Austin, Ann E. Bruce, J. M. Brunton, Mary E. Bryson, W. E. A. Buchanan, W. Christie, Sheila G. F. Conacher, Frances R. T. Broadbent (for Cruickshank), W. Davidson, D. A. E. Dewar, J. G. Fisher, J. L. Fyfe, A. C. Hay, Frances C. Kerr, J. A. R. Lawson, Margaret P. Laxton, Joan I. McCracken, I. C. R. Macdonald, R. A. Murray, B. A. Marshall, Doris C. Morgan, R. M. Manro, Sheila M. Ore, Evelyn J. Rounthwaite, Daphne M. Scott (for Rusforth), S. N. P. Stobie, R. Summers, I. M. C. Troop.

1 With distinction. 2 With commendation.

The following prizes were presented:

Price Memorial Prize (Surgery): L. Fraim-Bell and A. G. Watson. *Capt. W. A. Low Prize and Medal in Medicine for the most distinguished graduate*: J. G. Lawson. *MacEwan Prize (Surgery)*: A. L. Webster. *Robert Davies Roys Prize (Medicine and Pathology)*: J. W. F. Spraggour.

NATIONAL UNIVERSITY OF IRELAND

At the summer examinations held at University College, Cork, the following candidates for higher medical degrees were approved:

M.D.—E. J. Caniffon, T. Creedon, Nora A. Hayes, D. J. O'Callaghan, M.Ch.—M. D. Hickey, R. F. O'Driscoll, M.A.O.—J. B. Kearney.

QUEEN'S UNIVERSITY, BELFAST

The following candidates have been approved at the examination indicated:

M.B., B.Ch., B.A.O.—Una B. Byrne, J. Cully, Ethel A. Fisher, H. N. Glancy, B. Gorkulke, W. J. B. Higson, E. D. Lindsay, C. W. McKee, R. A. McKee, Una McGilgan, R. Millar, W. J. Moffett, Hilda A. Reade, J. C. S. Ritchie, Zdenek Steiner, Kathleen H. Stewart.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following medical degrees were conferred on June 30:

M.D.—D. T. Bardon, M. C. Drough, A. F. J. Delany, M. H. Fridjhon, C. P. Clancy-Gore, S. Seivitt.
M.B., B.Ch., B.A.O.—M. T. S. Conradian, C. S. Cummins, Lorna R. J. d'Abreu, A. P. Dignan, A. J. H. Donnell, Margaret E. Eccles, D. F. S. Flood, E. F. B. Forster, J. M. Garvin, P. G. Harris, R. T. John, P. J. Keane, Mona M. F. Kelly, D. K. Kiersey, T. C. Kirkpatrick, G. M. C. McBrien, T. J. Macdougald, C. R. F. McDowell, J. A. O. Mulcahy, Elizabeth A. Robinson, M. S. C. Rooney, A. O. Sasegbon, E. B. Stephens, T. N. Strong, A. H. E. Thomas, D. D. Towle, T. J. C. Warriner, C. B. Wilson, J. S. Wood.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

New Regulations for the Fellowship

The Council of the College has revised the regulations for the Fellowship, and the Primary Examination beginning on Nov. 29 next will be the last to be conducted under the present regulations.

New regulations approved by the Council will become effective after the end of 1943. These regulations embody the following changes: (1) the Primary Examination cannot be taken by undergraduates, but will be open only to Members of the College, or to graduates in medicine and surgery of the Universities and Medical Colleges recognized by the Council for the purpose, who are able to comply with the conditions; (2) the subject of the Primary Examination will be (a) anatomy (including normal histology), and (b) applied physiology and the principles of pathology. A synopsis indicating the general scope and spirit of the examination in applied physiology and the principles of pathology is published in the new Regulations.

With regard to the Final Examination, no candidate will be admissible without producing evidence of having been engaged in the acquirement of professional knowledge for not less than two years after obtaining the Membership of the College or some other recognized qualification (see 1 above).

The dates of the examination have been rearranged so that it will be possible for candidates who pass the Primary to proceed immediately to the Final Examination, if they are eligible. During 1944 the examinations will begin on the following dates: Primary, April 24 and Oct. 23; Final, May 4 and Nov. 2.

Copies of the new Regulations and full particulars may be obtained post free from the Director of Examinations, Examination Hall, Queen Square, London, W.C.1.

Medical Notes in Parliament

Medical Examination of Home Guard

On June 22 Mr. E. P. SMITH asked the Secretary of State for War if his attention had been called to the coroner's verdict at the inquest on Mr. Arthur Chudney of West Wickham, Kent, to the effect that death was occasioned by heart failure due to and following strain while engaged on military Home Guard duties, and whether, in the light of this fact, he would consider his recent refusal to institute medical examination of the Home Guard. Mr. ARTHUR HENDERSON said he understood that before the exercise it was explained to the men that they should fall out who felt they were not equal to it or found the course of it that the training was too hard. Much as he deplored the death of this Home Guard, he did not consider that the facts of the case showed that the arrangements outlined in the answer given by the Secretary of State for War on June 1 should be modified. Mr. SMITH asked, now that the Home Guard were qualified for military death and disability pensions, what logical alternative there was to giving them proper and periodical medical examinations, together with grading for duties. Mr. HENDERSON said it would be extremely difficult to carry this out, having regard to the number of the Home Guard and the number of doctors available.

The Medical Register

On June 29 Sir E. GRAHAM-LITTLE asked the cost to the Exchequer of the production of the *Medical Register* and the average annual sale of the volume; and whether Sir John Anderson would take steps to improve the preparation of the *Medical Register*, for the printing and publication of which the General Medical Council was responsible. Sir Ernest asserted that its record of addresses and medical qualifications of doctors was less accurate than the *Medical Directory*, which was produced by private enterprise. Sir JOHN ANDERSON replied that the production of the *Medical Register* involved no charge on public funds, its cost being defrayed from the resources of the General Medical Council. The average annual sale in the three years immediately before the war was 785 copies, and in

the years 1940-2 475 copies. The *Register* was not primarily intended to serve the purposes of a directory, but, as was stated in the preamble to the Medical Act, 1858, which provided for the keeping of the *Register*, to enable persons requiring medical aid to distinguish qualified from unqualified practitioners. Owing to pressure on their reduced staff and to the difficulties under war conditions of ascertaining whether the registered addresses of many practitioners in the *Register* remained correct, the G.M.C. had found it impracticable to maintain a normal procedure of periodically verifying addresses by written inquiry. He had no doubt, however, that this procedure would be resumed as soon as normal conditions were restored. Section 30 of the Medical Act, 1858, enabled but did not oblige practitioners to have inserted in the *Register* certain additional qualifications to those by virtue of which they were registered. Legislation would be required to make the *Register* a complete record of additional qualifications of such standing as to deserve recognition in it.

Medical Services and Staffs of Government Departments

Replying to Sir Percy Hurd on June 29, the Financial Secretary to the Treasury stated that the following Departments provided medical services for their staffs, the numbers of medical and associated personnel and the estimated cost being as stated:

Department	Personnel	Cost £
Admiralty	99	43,000
Ministry of Supply	765	210,000
Customs and Excise	2	1,265
Inland Revenue	1	750
Ordnance Survey	4	250
Post Office	25	12,272

In addition; about £65,000 was expended by the Post Office in respect of similar services to some 2,600 local medical advisers.

The following Departments had medical services for the purpose of fulfilling their administrative functions, the numbers of medical and associated personnel and the estimated cost being as stated:

Department	Personnel	Cost £
Broadmoor Criminal Lunatic Asylum	25	10,100
Prison Service, England and Wales	141	56,820
Supreme Court of Judicature	2	3,300
Prison Service, Scotland	14	3,340
Board of Control	427	104,000
Ministry of Pensions	1,276	305,883
Board of Education	8	8,140
Scottish Education Department	1	1,100
Ministry of War Transport	2	1,700
Ministry of Health	162	138,580
Welsh Board of Health	9	10,370
Department of Health for Scotland	39	34,266
Ministry of Labour and National Service	14	14,032
India Office	3	1,750
Colonial Office	2	2,350
Ministry of Fuel and Power	10	9,000

It was not possible to say how these services might be affected by the Beveridge proposals.

Diploma in Public Health

Sir FRANCIS FREMANTLE asked on June 30 if steps were taken to reconsider the courses and examination for the Diploma in Public Health in accordance with modern requirements, for which the present regulations were insufficient out of date. Sir JOHN ANDERSON answered that the present Resolutions and Rules of the General Medical Council Diplomas in Public Health came into force in October, 1938-9 a visitation of examination for such diplomas made by the Council. The general report of the Public Health Committee of the Council on the visitation, which was published in May, 1940, criticized the examinations in detail did not appear to support the suggestion that the Resolutions and Rules were insufficient and out of date. In any case war conditions would make any general revision of the curriculum for such diplomas inopportune.

Tuberculous Infection in Nurses

On July 1 Mr. BROWN told Mr. Messer that there were figures showing the number and percentage of nurses employed in general hospitals who contracted pulmonary tuberculosis. In the report of the M.R.C. Committee on Tuberculosis in Wartime, published in Oct. last, it had been stated that even from other countries and expert opinion in our own suggestion that the risk of contracting tuberculosis from nursing tuberculous patients in sanatoria was no greater than that involved in general hospital nursing. The Registrar-General's supplement of 1931 regarding occupational mortality observed that mortality statistics provided no evidence of special occupational risk of tuberculous infection in the nursing profession.

Soldier's Death in Detention Barracks

On July 6 Sir ARCHIBALD SOUTHBY asked the Secretary of State for War what action was being taken about the military orders who failed to ascertain the true medical condition of late Rifleman Clayton, whose death occurred recently in military detention barracks. Sir JAMES GRIGG, replying to and several other questions, said that the Government had decided that an independent inquiry should be held into conditions at Navy and Army detention barracks generally, and he had shortly to announce who would conduct the inquiry. It would, of course, be for the inquiry itself to determine the manner in which it would conduct its proceedings. In the meantime the Military Court of Inquiry on the special case of late Rifleman Clayton was sitting, and in accordance with the usual practice this inquiry would not be open to the public. Sir RHYD DAVIES asked if inquiry would be made into the responsibility of the doctor who certified Rifleman Clayton as fit for duty. Sir JAMES GRIGG replied that he had had the report of an inquiry into that particular aspect, but he had not time to study it and was not in a position to say anything at present. Sir ARCHIBALD SOUTHBY asked if the Secretary of State would see that the terms of reference of the Court of Inquiry laid particular stress on inquiry into the action of the doctor who failed in his duty and did not see that the man was unfit for duty. Sir JAMES GRIGG said he would give any terms of reference to the court which would seek to prejudice any action in advance. The terms of reference would certainly cover medical arrangements.

Sir A. CUNNINGHAM-REID asked the names of the doctors who had seen the late Rifleman Clayton, who was suffering from eczema, as fit for the Army. Mr. GEORGE TOMLINSON, replying, said that the whole of the circumstances of this case were at present the subject of inquiry by the Secretary of State for War, and the Minister of Labour was not prepared to give partial information in advance of the results of the inquiry with regard to particular aspects of the case. Sir SUMMERSKILL asked if Mr. Tomlinson was aware that many doctors who had read this case had said of themselves: "There, for the grace of God, go I"?

Commissioned Rank for Masseuses

On July 6 Sir FRANCIS FREMANTLE asked the Secretary of State for War why the same prospect of advance to commissioned rank given to nurses and to physiotherapists in overseas theatres was refused to women specially trained as masseuses, and to other physiotherapists; and whether he would receive deputation from the Chartered Society on the subject. Mr. ARTHUR HENDERSON replied that masseuses were employed in the War Department as civilians under conditions of employment accepted by the Chartered Society of Massage and Medical Gymnastics. This arrangement was working satisfactorily, and he was not satisfied that the adoption of Sir Francis Fremantle's suggestion would improve the present service of masseuses. He would gladly see a deputation on the subject. Sir FRANCIS FREMANTLE asked if it was not true that the Chartered Society entirely disagreed with that statement. Mr. HENDERSON replied that the Chartered Society were very anxious to have commissioned rank, which was the same thing as being employed as civilians from outside the Army. Mr. HENDERSON said that the deputation would be an opportunity of conveying those views.

Appeal Tribunals: Bill Held Over

When the House of Commons went into Committee on the Pensions Appeal Tribunals Bill, on July 1, Mr. QUINN HOGG moved the first of a series of amendments designed among other things to remove from the Bill the provisions limiting the appeal concerning grants. After vigorous debate Mr. EDEN emerged as Leader of the House to move to report progress and suspend consideration of the Bill. He said it was natural that the House should prefer to look at the matter again when it knew what proposals the Government was going to bring forward affecting the Royal Warrant on pensions. He was willing that the Bill should stand over till the Government's final proposals were made available to the House. Sir WALTER WOMERSLEY said that anything contained in an amended Royal Warrant would be binding on the tribunals. Progress was then reported.

Medical Board Rejections

On July 6 Mr. HEWLETT asked the Minister of Labour if he could ensure that when doctors discovered on medical examination any latent disease of which a called-up man might be aware he was in all cases told the exact reason for his rejection so that he might take private advice. Mr. TOMLINSON replied that it was formerly the practice to do this, but the results were found to be unsatisfactory for various reasons. It was now the practice in such cases for the Medical Board to advise the man to consult his own doctor.

Propaganda, Bad and Good.—On June 24 Viscount HITCHING-BROOKE asked whether Mr. Brown knew that the National Anti-Vaccination League circulated literature to expectant and nursing mothers advocating a course of action with regard to vaccination and diphtheria immunization contrary to the declared policy of his Department. Mr. BROWN said he knew of this and was of opinion that it was best countered by effective and positive action. The Ministry and local authorities were therefore continuing propaganda to advise parents to have their children protected by methods supported by the best medical opinion.

Certification Panel at Burnley.—Answering Mr. Burke on June 10, Mr. BEVIN said that on their own initiative medical practitioners of Burnley had formed a panel, meeting once a week at Burnley employment exchange, before which, for the convenience of all concerned, workers appeared who were seeking release from employment for health reasons. This arrangement did not require his approval, except that the use of the employment exchange building had been allowed owing to the absence of other suitable premises. His Department did not compel workers to attend before this panel nor did it refuse to consider medical certificates from other doctors.

Home Guard M.O.s in Northern Ireland.—On July 6 Mr. MESSER asked the Secretary of State for War why medical officers in the Home Guard in Northern Ireland were granted only honorary rank while those in England were granted commissions. Mr. ARTHUR HENDERSON replied that for administrative convenience the Ulster Home Guard formed part of the Ulster Special Constabulary, and no question of granting commissions in the Army could arise until such time as that force was mustered, when it became an integral part of the armed Forces of the Crown.

Tuberculosis in Scotland.—The number of cases of tuberculosis notified in Scotland during 1938, 1941, and 1942 were:

	Pulmonary	Non-pulmonary	Total
1938	4,793	2,772	7,565
1941	5,739	2,555	8,294
1942	6,207	2,824	9,031

Mr. Johnston states that, comparing 1938 and 1942, all age groups show increases in varying degrees, the most marked increase being in the 15-25 age group.

Medical News

A course of six lectures on industrial health has been arranged by the Socialist Medical Association, and will be held at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Wednesdays, from July 21 to Aug. 25, at 6 p.m. The lecturers are Drs. T. O. Garland, Donald Stewart, E. L. Middleton, Hugh Faulkner, R. S. F. Schilling, and Joan McMichael.

A conference on hospital meals has been arranged by the Food Education Society for Tuesday, July 20, at 3 p.m., at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C. The Minister of Health will take the chair and among the speakers will be Lord Horder and Sir Alfred Webb-Johnson, P.R.C.S. A film illustrating the dietetic treatment of rheumatism will be shown.

As a follow-up of the United Nations' Conference on Food and Agriculture, held at Hot Springs, U.S.A., the London International Assembly is holding a conference on post-war world food problems at the Livingstone Hall (opposite St. James's Park Tube Station) on Monday, July 19, at 2.30 p.m., with Viscount Cecil in the chair.

It is proposed to promote a Memorial Fund to the memory of the late Brigadier W. James Eastwood, who died at the age of 49 while holding the position of consulting orthopaedic surgeon in the Middle East. Those wishing to contribute to the fund should send donations to Mr. T. P. McMurray, Medical Institution, Liverpool, 3.

The Medical Section of VOKS, the U.S.S.R. Society for Cultural Relations with Other Countries, has issued a few numbers of a "Medical Chronicle." A limited number of stencilled copies of the fourth issue of this periodical (December, 1942) is available at 6d. a copy, post free, from the Anglo-Soviet Medical Council, c/o the Royal Society of Medicine, 1, Wimpole Street, London, W.1. This issue comprises nine typed foolscap pages, and there are brief reviews of such subjects as the "naphthalan" treatment of wounds, experience of naval physicians, utilization of the raw-material resources of the U.S.S.R., and reactions to air-raid alarms.

Dr. Angus A. Cameron is officially reported interned in Singapore. Official information has been received that Drs. C. C. B. Gilmour, O.B.E., D. M. McSwan, M.C., Hugh Smith, E. A. Struthers, and William Young (Kuala Lumpur) are interned in Changi Camp, Singapore.

In 21 years the Hospital Saving Association has raised £10,000,000 for the hospitals. Besides this routine work by which it helps contributors to avoid hospital bills, the Association has raised a special fund of £10,000 which will be used to provide scholarships for hospital nurses.

The Board of Education has issued to local education authorities Administrative Memorandum No. 468 (July 1, 1943) on the subject of school meals, laying down the procedure for the supply of kitchens, sculleries, and canteens by the Ministry of Works, together with a set of standard plans and a set of schedules of equipment.

Surgeon General Thomas Parran reports that since the outbreak of war the U.S. Public Health Service has given x-ray examinations for tuberculosis to nearly 250,000 people, and he foresees the possibility that with 20 portable x-ray units now in full operation 2,000,000 chest examinations would be completed during 1943. The U.S. Public Health Service has carefully studied the increase in tuberculosis mortality in Great Britain as a result of wartime conditions. In the United States slightly more than one in every 100 persons examined have significant tuberculosis of the lungs. Of these, between 55 and 60% are in the early stages most amenable to treatment, usually without sanatorium care. From 35 to 45% of the cases discovered by the Public Health Service are moderately advanced, and only 3 to 4% far advanced. The x-ray units employ portable 35-mm. photofluorographic equipment. Each is staffed by a medical officer, a technician, and a clerk, and has complete equipment for exposing and processing from 300 to 500 x-ray films per eight-hour day. Special attention is being given to shipyards, ordnance plants, air depots, and other essential establishments where no facilities for chest x-ray examinations are available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales notifications of measles and of dysentery fell by 698 and 57 respectively, but those of diphtheria and whooping-cough rose by 42 and 412.

The county totals of scarlet fever changed but little, and 6 fewer cases were notified for the whole country than in the preceding week. In the South and in London there was, however, a slight increase on the previous week; conversely, for diphtheria the increase was contributed by the North. The rise in the notifications of whooping-cough was general, the largest of the local increases being 91 in Lancashire and 33 in Staffordshire. Measles pursued an up-and-down course—down by 200 in Kent, by 97 in Essex, and by 79 in Suffolk; and (outstandingly) up by 89 in Buckinghamshire.

No fresh outbreak of dysentery was reported, and the number of cases declined by one-third during the week. In Lincolnshire, Scunthorpe M.B., notifications rose from 6 to 10; in Gloucestershire, Bristol C.B., from 8 to 14; and in London from 10 to 16. Dysentery has now persisted in Bristol for thirteen weeks, and a total of 121 cases has been recorded.

In Scotland notifications of dysentery rose from 56 to 108, and those of measles fell by 110. The rise in dysentery was general, the chief centres of infection being Edinburgh 30, Stirling county 17, Glasgow 15, Aberdeen 11. Fewer cases of measles are still being recorded: two-thirds of the notifications were from Glasgow 189, and Paisley 41.

In Eire the higher figure for whooping-cough resulted from outbreak in Westmeath, Coole R.D., where there were 19 cases. Of the 11 cases of typhoid 7 were reported from Cavan, Cavan R.D.

Statistics of Infancy

The statistics for the 126 large towns and for London separately for the first 26 weeks of this year indicate that the birth rate has risen and the infant mortality and stillbirth rates have decreased from those of the first half of 1942. The figures are:

	First 26 Weeks of Year			
	London		126 Large Towns	
	1942	1943	1942	1943
No. of live births	15,949	20,365	150,858	169,924
No. of stillbirths	595	568	5,997	5,932
Deaths age 0-1	1,083	1,221	9,449	10,110
Infant mortality	68	60	63	59
Deaths from diarrhoea under 2 years	130	219	933	1,253

The deaths from diarrhoea have risen by 34%, whereas the birth rate increased by only 13%.

The Week Ending July 3

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,984, whooping-cough 2,249, diphtheria 608, measles 4,165, acute pneumonia 530, cerebrospinal fever 49, dysentery 120, paratyphoid fever 10, typhoid fever 8.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 26, 1943.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included, London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease for: (a) The 126 great towns in England and Wales (including London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notified; a blank space denotes no return available.

Disease	1943									
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	64	4	28	2		108	7	29	4	
Deaths ..		3	1							
Diphtheria ..	582	30	148	79	33	719	36	162	35	5
Deaths ..	14	2	2	1		12		3		
Dysentery ..	107	16	108			151	9	41		
Deaths ..										
Encephalitis lethargica, acute ..	3	1				6		2		
Deaths ..		1								
Erysipelas ..			38	9				37	9	
Deaths ..										
Infective enteritis, or diarrhoea under 2 years ..	46	13	10	33	8	31	6	12	6	
Deaths ..										
Measles ..	5,774	331	322	18	16	6,375	745	607	49	3
Deaths ..	2		1			7	1	3		
Ophthalmia neonatorum ..	85	5	16			94	94	14		
Deaths ..										
Paratyphoid fever ..	11	1	1			8		3	3	
Deaths ..										
Pneumonia, influenza* ..	553	24	2	1	3	655	35	3	10	
Deaths (from influenza) ..	8			2		6		2		
Pneumonia, primary ..		15	184	16	8		22	216	18	8
Deaths ..			7							
Polio-encephalitis, acute ..						1				
Deaths ..										
Polio-myelitis, acute ..	5	1	3			12		1		
Deaths ..										
Puerperal fever ..		1	13		1		4	14	4	
Deaths ..										
Puerperal pyrexia† ..	157	17	17	2	1	184	8	17		
Deaths ..		1								
Relapsing fever ..										
Deaths ..										
Scarlet fever ..	1,680	156	244	46	60	1,320	64	211	45	
Deaths ..										
Small-pox ..						2		2		
Deaths ..										
Typhoid fever ..	11		6	11	1	6		6	7	
Deaths ..										
Typhus fever ..										
Deaths ..										
Whooping-cough ..	2,330	119	240	50	47	1,394	112	34	48	2
Deaths ..	13	3	6	1	1	8		1		
Deaths (0-1 year) ..	290	44	72	43	24	288	38	58	25	
Infant mortality rate (per 1,000 live births) ..										
Deaths (excluding stillbirths) ..	3,967	587	559	206	132	1,886	566	552	187	
Annual death rate (per 1,000 persons living) ..										
Live births ..	7,030	857	992	394	292	5,976	656	952	464	
Annual rate per 1,000 persons living ..										
Stillbirths ..	236	24	30			239	17	33		
Rate per 1,000 total births (including stillborn) ..										
			25					34		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary is stated.

Those desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proof. Authors are requested to indicate on MSS. if reprints are required, and proofs are not sent abroad.

VERTICES should be addressed to the Advertisement Manager (Hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be sent to the Secretary.

PHONE NO.—B.M.A. and B.M.J.: EUSTON 2111.

GRAPHIC ADDRESSES.—EDITOR, *Antiology* Westcent, London; SECRETARY, *McIntosh* Westcent, London.

I.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

B Vitamins and Yeast

Q.—Current teaching seems to be that single vitamin deficiencies only occur. Where, for example, symptoms indicate a deficiency of one of the B vitamins, treatment should apparently consist in administration of the whole B complex and not the one vitamin lack which appears to give rise to the symptoms. Are all the B vitamins present in yeast? What is their concentration in, say, a yeast tablet supplied by the chemist? How many grains by weight should be prescribed in a suspected case of B hypovitaminosis? Any harm likely to arise through the continued use of yeast tablets? I have, for example, in his 1942 "Manual of Pharmacology," refers to the degeneration of rat testes produced by a yeast-containing diet.

A.—Some at any rate of the disappointment with vitamin therapy due to inadequate dosage. It is probably true that the individual members of the vitamin B complex work better when they are in association with each other, but at the same time it is difficult to get a therapeutic dose of vitamin B₁₂ without using a concentrate. At conclusion seems inescapable if we approach the problem on nutritive lines. All the B vitamins are present in dried yeast. *Charach* (*Food*, 1940, 9, 110) gives the following values per gramme dried yeast: vitamin B₁ (aneurin hydrochloride) 15 to 120 µg., nicotinic acid 550 to 650 µg., riboflavin 20 to 40 µg. The figure for riboflavin is given elsewhere as 65 µg. A 5-grain yeast tablet would contain a third of these values. *Bacharach* estimates the amount of dried yeast necessary to supply the normal daily requirement of vitamin B₁₂ at 1/4 to 7 oz. a day. It is therefore not really practicable to give even a maintenance dose of yeast in tablet form, and it is better given as brewers' yeast, bakers' yeast, or food yeast (*Torula* *lily*). Amounts up to 14 oz., equivalent to 120 5-grain tablets, can be given in this way, though anything above a teaspoonful t.d.s., as given in beef-tea or meat extract, is an effort. Dried yeast is a concentrated source of nitrogen and phosphorus as well as of vitamins. Disturbances of nutrition have occurred in growing pigs on as little as 4% of the daily ration consisted of yeast, though larger amounts than this can be tolerated if extra calcium is supplied. These and other grounds one would suggest that the safe upper limit of dosage of dried yeast in adult man was approximately 3 oz. a day. Therapeutic doses of vitamins are much larger than the maintenance requirements. *Brown* (*Proc. Mayo Clin.*, 1940, 15, 215) is the daily therapeutic dose of vitamin B₁₂ at 20 to 100 mg. orally, which is equivalent to 5 to 25 oz. of dried yeast a day! It would seem, therefore, that it would be neither practicable nor safe to treat hypovitaminosis B₁₂ by dried yeast alone. It would be wiser to try to get the best of both worlds by using a reasonable dose of dried yeast, not more than 1/2 oz. a day, plus a large dose of the pure aneurin hydrochloride.

Congenital Heart Disease

Q.—A healthy mother, now aged 29, has had three children: the first, born four years ago, was apparently a healthy female child, east-fed, but at 6 months old was found dead in her pram, having mitted her last feed. She had been left for only a few minutes. The second child, born three years ago, was a male and is in robust health. Two years ago the mother had a tubal pregnancy, which was removed at operation. The third child, a female, was born 8 months ago and has congenital heart disease; she gets periodic attacks of mitting after feeds, and at such times collapses and appears about to die. The question arises—Did the first female child suffer from detected congenital heart disease, and, if so, is it probable that the children will be liable to have the same abnormality?

A.—The data are not sufficient for any other than a tentative answer to be given. It is unlikely that the first child had undetected congenital heart disease, because it had had no symptoms before sudden death. It is unusual for more than one child in a family to have a congenital heart lesion. It is probable that patent ductus arteriosus is inherited and possible that other forms of con-

genital heart disease are hereditary, but little work has been done on the subject. The question is complicated by the fact that malformations of the heart are associated with arachnodactyly (incompletely dominant), transposition of the viscera (recessive), mongolism, and other defects.

Two Cases of Epilepsy

Q.—Can any suggestions be given for two patients approaching the menopause who have suffered for years from attacks of petit mal, associated with voidance of urine, causing naturally much annoyance and inconvenience? None of the usual remedies—phenobarbitone, "prominal," "epanutin," and "rational"—has relieved this distressing symptom.

A.—It is unusual to find epileptics in middle life who have attacks consisting only of a momentary disturbance with incontinence of urine and who have not responded to any of the phenobarbital or hydantoin group of drugs. The occurrence in two patients raises the possibility that the condition is not simply epileptic, since petit mal is usually fairly well controlled by adequate doses of these drugs. If there is no doubt at all as to the diagnosis, phenobarbital can be pushed to 2 or 3 grains a day, or can be combined with epanutin or a bromide mixture; but it must be remembered that the hydantoins do not control minor attacks so well as major ones. A simple bromide mixture with belladonna may well be more efficacious, and many chronic epileptics are well controlled by the following mixture given 3 times daily: sod. brom. gr. 7, sod. biborat. gr. 10, liq. arsen. m 3, and tinct. belladonnae m 5. As these two patients have already reached the stage of using the more expensive brands of phenobarbital it is likely that the more usual measures have been tried. It would consequently be advisable to make sure that no local defect of bladder control is present, either in the bladder itself, the urethra, or in an occult spina bifida. It is really very unlikely that if the incontinence is entirely due to epilepsy it will not respond to increasing doses of the anticonvulsants.

Pruritus in Pregnancy

Q.—I have a patient, 8 months pregnant, quite well and normal in every respect except for an intense generalized pruritus. The weight of the trouble falls on the hands and feet, which swell up and become warm and covered with an urticarial blush. So far I have tried various antipruritic lotions, calcium cum vitamin D injections i.m., and cool baths with sodium bicarbonate, without much success.

A.—Large doses of vitamin B₁₂ are most likely to be of help in this case, unless, of course, there has been some irritating factor apart from the pregnancy to account for the condition—e.g., if this patient has been doing a good deal of gardening it would be advisable to go carefully into the possibility of sensitivity to something handled there. If this source of urticarial reaction can be excluded, then the case would appear to be one of pruritus of pregnancy. I would suggest giving a basal sedative such as luminal gr. 1 once or twice a day, and an injection of vitamin B₁₂ 2 mg. daily. In spite of this the condition does not improve and is a source of sufficient distress to the patient it would be wise to induce labour. The condition should rapidly clear in the puerperium, probably within the first few days.

Sore Tongue

Q.—A single lady of 60 has suffered for six months from soreness of the tip of the tongue. There is very slight surface thickening there, but nothing else abnormal. The condition is getting no worse. She has applied lanoline without effect. She wears complete dentures; they are not irritant. What can be done?

A.—Soreness of the tongue in the absence of any local signs is sometimes related to a general condition—e.g., a severe anaemia. But in many instances no local or general cause can be found. These latter cases can be very troublesome and tend to occur particularly in older patients. The character of the pain is such as to suggest an ascending neuritis in the nerve supply—possibly arising from some long-forgotten and transient superficial inflammation. The slight surface thickening in the case under consideration may indicate this pathology. Some of the cases probably have a deficiency of vitamin B₁₂, so that it would be as well to provide all the B fractions, if necessary by injection. Nor should it be overlooked that the condition may be a neurosis underlying which is a cancerophobia. This not uncommon type is unfortunately often the outcome of anti-cancer propaganda campaigns. These cases should be reassured by examination at intervals, but in all cases local applications should be avoided as much as possible.

Ulcer on Lip

Q.—A man aged 60 has an ulcer on the left lateral portion of his lower lip, of two years' duration. The ulcer is oval in shape, with the long axis parallel to the lip—3/4 in. long by 1/4 in. broad, and situated entirely on the mucous membrane about 1/4 in. from the mucocutaneous junction. The ulcer is shallow, only the mucous membrane being deficient. The edges of the ulcer are regular; there is no induration at either the base or the edges. The base is of a

Mr. J. S. BATCHELOR (London, S.W.1) writes: The reply to question concerning the treatment of Morton's metatarsalgia (J 26, p. 808) makes no reference to the fact that certain and secure is provided only by operative treatment. So-called Morton's metatarsalgia is a condition in which acute lancinating pain, usually brought on by walking, occurs in the toes, commonly in the adjacent surfaces of the 3rd and 4th, of a foot which presents no special orthopaedic abnormalities. The number of therapeutic measures recommended in the answer is an indication of the characteristic ineffectiveness of such treatment. In practically every case Morton's metatarsalgia is caused by a neuroma of one of the digital plantar nerves of the foot, commonly the 4th. A simple operation for removal of the neuroma gives immediate relief. A full description of this condition, with an account of the operative treatment, is given by Betts (*Med. J. Austral.*, April 13, 1940, p. 514). It has been personally operated on a small number of cases with extremely satisfactory results.

NUTRITIONAL IRON DEFICIENCY ANAEMIA IN WARTIME

PART II

THE HAEMOGLOBIN LEVELS OF 3,338 PERSONS FROM BIRTH TO 55 YEARS OF AGE

BY

L. S. P. DAVIDSON, M.D., F.R.C.P.Ed.&Lond. G. M. M. DONALDSON, M.B., Ch.B.
S. T. LINDSAY, B.Sc. J. G. MCSORLEY, M.B., B.Ch., B.A.O.

(From the Department of Medicine, University of Edinburgh)

In a previous communication (Davidson *et al.*, 1942) we reported on Part I of this investigation—the haemoglobin levels of 442 infants and pre-school children (birth to 4 years) and 389 school children (5 to 12 years). We now submit data from a more extensive survey. All the haemoglobin examinations were made under standard conditions of technique and lighting by one member of the team who as had a very wide experience and whose ability to match colours is particularly good.

Since the publication of our previous paper a correction factor for the pipette, dilution tube, and colour tube of the Ialdane haemoglobinometer used has been supplied by the National Physical Laboratory. This correction factor varies with the haemoglobin readings—e.g., between the ranges 53 and 87% our instrument gives readings approximately 2% low. The correction factors have been applied to all the Edinburgh figures in the present communication.

This paper is concerned solely with the incidence of iron-deficiency anaemia. Investigations into the aetiological factors concerned in its production, and therapeutic trials for its correction, will be reported in a separate communication.

Infants and Pre-school Children (from Birth to 4 Years)

An additional group of 121 infants and pre-school children has been investigated, making a total of 563. The data obtained have provided no reason for materially altering the conclusions reached in the previous paper, that the Edinburgh series (1942) shows an improvement over the Aberdeen series (1935) (Davidson and Campbell, 1935; Davidson and Fullerton, 1938).

School Children (5 to 12 Years)

The number of school children investigated has now been raised from 389 originally reported to 1,022. Of these children 17 were examined at Edinburgh Education Authority primary schools, and came mainly from working-class families, while 105 were attending private schools and came from a much higher social and economic stratum of the population. The increase in the number investigated and the result of applying the correction factor necessitate a reconsideration of this group. Table I gives the average haemoglobin levels according to age and social status in Edinburgh school children, and Table II

TABLE I.—The Haemoglobin Averages of School Children according to Age and Social Status

		Age (Years)							
		5	6	7	8	9	10	11	12
Edinburgh:									
Municipal primary-school children	917	81.3% (61)	81.7% (118)	83.1% (118)	81.0% (139)	83.9% (143)	83.4% (155)	82.8% (116)	84.3% (67)
Private-school children	105	—	85.0% (8)	86.0% (10)	90.5% (4)	90.4% (18)	93.7% (17)	93.5% (22)	94.0% (25)

TABLE II.—Comparison of Anaemia in 3 Groups of School Children (5 to 12 Years)

Hb:		Percentage of Children in Different Haemoglobin Ranges			
		< 71%	71-80%	81-90%	> 90%
Edinburgh, 1942:					
Municipal primary schools	917	3.8	35.5	45.0	15.7
		39.3	—	60.7	—
Edinburgh, 1943:					
Private schools	105	—	4.7	38.1	57.2
		4.7	—	—	—
London: (Mackay <i>et al.</i> , 1942)	128	—	42.0	95.3	58.0
Aberdeen (Davidson and Campbell, 1935)	67	0	—	100.0	—

a comparison of the haemoglobin ranges of school children in Edinburgh (1942), London (1942) (Mackay *et al.*, 1942), and Aberdeen (1935) (Davidson and Campbell, 1935; Davidson and Fullerton, 1938).

Our previous acceptance of a haemoglobin level of 95±5 as the normal standard for the age group 5 to 12 years is supported by our finding that the average haemoglobin percentage of 105 children attending private schools was 91.7, and that 57% of these children had haemoglobin figures of 90 to 110%. The term "clinical anaemia" has been arbitrarily employed by us to connote a haemoglobin level of 80% or less in school children. On this basis 39% of municipal primary-school children and less than 5% of private-school children were anaemic. The conclusion reached in the previous paper that the haemoglobin level in children of working-class families of the age period 5 to 12 years is decidedly lower in Edinburgh (1942) than in Aberdeen (1935) still holds good. The average difference of 10% haemoglobin as reported in our previous article is now, however, reduced to 8%, when the correction factor for the haemoglobinometer is applied.

It will be noted in Tables I and II that a marked difference in the haemoglobin levels and ranges is found when the 917 children drawn mainly from working-class families are compared with the 105 children from the well-to-do classes. Accordingly the conclusion in our previous paper that economic status was no longer the principal factor influencing the nutrition of the individual must be reconsidered.

We have now repeated the haemoglobin estimations of children at two municipal primary schools examined in 1942, and it is of interest to note that the haemoglobin levels have improved during the past 12 months. Further investigations into this finding are being undertaken.

Haemoglobin Ranges of Adolescent and Adult Males and Females of Various Occupations

Table III shows the haemoglobin ranges of 1,753 individuals grouped according to occupation. The table is arranged in this way rather than according to age groups because of the wide variation in haemoglobin ranges found in persons of the same age group working and living under different conditions.

The schoolboys and schoolgirls (13 to 18 years) were attending private schools used by people of the well-to-do classes. The male and female students, the nurses, and the maids were all working in a large voluntary teaching hospital. The female factory-workers were employed in three different establishments. The 62 individuals in factory A were employed in a foundry, necessitating very heavy physical work. We

the factory medical officer as regards the particular need for iron, and the groups whose haemoglobin values are displayed in Table III represent an unselected cross-section of these employees.

Factory C consisted of a laundry in which 48 women were employed. Of the 123 male factory-workers working in factory B 85 had received no iron and 38 had had the supply

TABLE III.—Haemoglobin Ranges according to Occupation

	No.	<60%	61-70%	71-80%	81-85%	86-90%	91-100%	101-110%	>110%	Av. Hb.
Schoolboys (13-18 years)	159	—	—	—	0.6% (1)	4.4% (7)	52.2% (83)	41.5% (66)	1.3% (2)	99.5%
Schoolgirls (13-18 years)	121	—	—	6.6% (8)	10.7% (13)	17.4% (21)	51.2% (62)	14.1% (17)	—	93.2%
Female students	100	—	—	1.0% (1)	11.0% (11)	17.0% (17)	53.0% (53)	18.0% (18)	—	93.8%
Nurses	100	—	—	1.0% (1)	18.0% (18)	15.0% (15)	57.0% (57)	9.0% (9)	—	92.3%
Maids	59	1.7% (1)	1.7% (1)	10.1% (6)	11.9% (7)	16.9% (10)	50.9% (30)	6.8% (4)	—	90.3%
Female factory-workers (A), nulliparous	62	—	1.6% (1)	3.2% (2)	14.5% (9)	11.3% (7)	53.2% (33)	16.2% (10)	—	93.1%
Female factory-workers (B) (no iron), nulliparous	65	—	7.7% (5)	13.8% (9)	13.8% (9)	29.3% (19)	32.3% (21)	3.1% (2)	—	87.3%
Female factory-workers (B) (on iron), nulliparous	201	—	5.4% (11)	10.0% (20)	11.9% (24)	22.4% (45)	46.8% (94)	3.5% (7)	—	89.3%
Female factory-workers (C), nulliparous	48	—	—	6.2% (3)	2.1% (1)	39.6% (19)	41.7% (20)	10.4% (5)	—	91.8%
Multiparous women	45	—	6.7% (3)	8.9% (4)	6.7% (3)	20.0% (9)	51.0% (23)	6.7% (3)	—	90.9%
Pregnant women	570	6.3% (36)	17.7% (101)	48.3% (275)	16.5% (94)	7.0% (40)	4.2% (24)	—	—	75.8%
Male students	100	—	—	—	—	—	13.0% (13)	71.0% (71)	16.0% (16)	105.7%
Male factory-workers (B)	123	—	—	0.8% (1)	0.8% (1)	5.7% (7)	39.0% (48)	49.6% (61)	4.1% (5)	100.5%

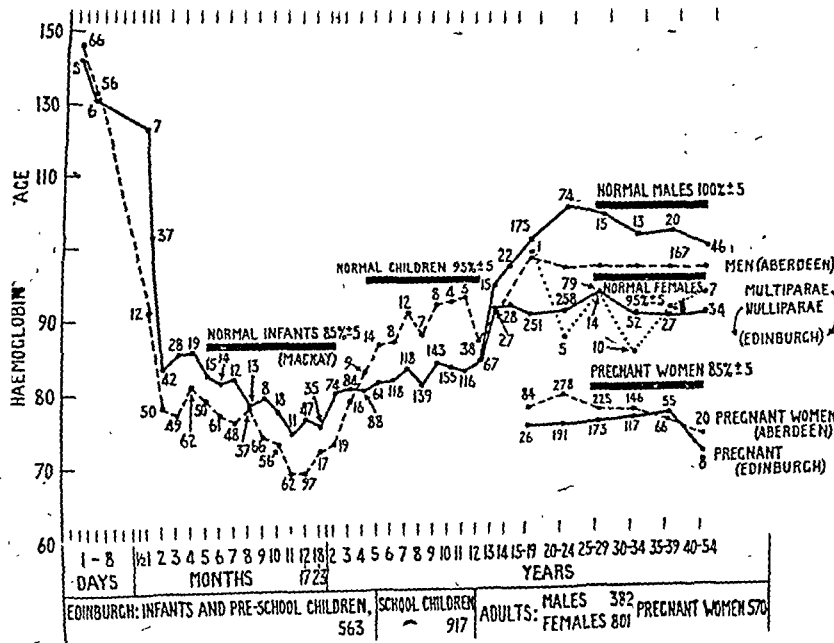
were informed that the incidence of anaemia in this group was high, but, as will be seen from Table III, less than 5% were suffering from clinical anaemia (below 80% haemoglobin). The pallor of their faces, which was so noticeable, was apparently due to fatigue and not to anaemia. It should be noted that the majority of these workers had been employed in the foundry for only a few weeks before examination, and this might account for the wide difference in the incidence of anaemia in factories A and B.

ment of iron. As no significant difference in the haemoglobin levels in these two groups of males was found it was considered necessary to give the groups separately in the table. No beneficial effects would be expected from the iron supplement, since clinical anaemia was present to an insignificant degree. The haemoglobin levels of 45 multiparous women examined at factories A and B and at welfare centre are shown separately in Table III. The 570 pregnant women were examined at four separate ante-natal clinics in Edinburgh

in order to get a cross-section of the population. Their haemoglobin levels according to age are shown in Graph I and according to month of pregnancy in Graph II.

Incidence of Clinical Anaemia

In a leading article in the *British Medical Journal* (1943, 1, 449) doubt was expressed as to whether Price-Jones' (1931) figures of 98% for a female at 105% for a male should be accepted as normal standards of haemoglobin for the population as a whole. The figures which we have accepted as average normal, but not necessarily optimum standards are for females 95% \pm 5, and for males 100% \pm 5. We believe that the evidence afforded by this paper supports the contention that such standards can be maintained even under wartime conditions, since 50 to 70% of the females in the different groups examined have figures of 90% and higher, the average haemoglobin of 382 m was slightly over 100%. If haemoglobin levels of this magnitude are found at nearly four years of war with its concomitant dietary restrictions and difficult working conditions, then there is reason

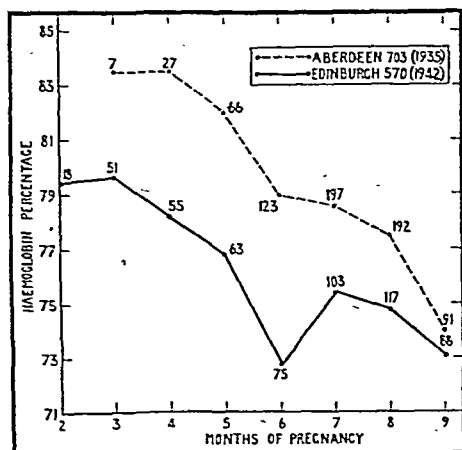


GRAPH I.—Average haemoglobin levels from birth to 54 years in Edinburgh (1942-3) and Aberdeen (1935).

After arrangements had been completed for examining the haemoglobin levels of workers in factory B it was discovered that the factory medical officer had offered 10 gr. of Bland's pill daily to any worker who wished it. It was found that about 75% of the employees had been taking the iron supplement for at least three months before the haemoglobin levels were estimated. No selection of employees had been made by

to believe that average haemoglobin levels even higher than the proposed by Price-Jones might obtain in days of peace. In the same leading article it was also suggested that the term "anaemia in females" should be restricted to haemoglobin levels below 80%—a figure 15% below the standard accepted by us for normal women. We accept this definition as a basis for discussion although we realize that the level chosen is far

arbitrary. We would suggest on the same basis that a figure of 85% haemoglobin or less be accepted as the level of "clinical anaemia" in males. The haemoglobin levels lying between these figures and the normal standards suggested above would then be considered as subnormal. Although we are not aware of any evidence that such subnormal haemoglobin levels have any proved adverse influence on the well-being of men and women, we consider on general principles that it is unwise to be satisfied with figures below the accepted standards of normality.



GRAPH II.—Haemoglobin levels of pregnant women according to month of pregnancy.

With regard to what should be accepted as normal haemoglobin levels for pregnant women marked difference of opinion exists because of the influence of the varying physiological dilution of the blood which occurs with advancing pregnancy. According to Diekmann and Wegner (1934), a 5%, 10%, and 15% dilution of the blood takes place during the first, second, and third trimesters of pregnancy respectively. If a group of pregnant women in which approximately equal numbers are in the different trimesters be examined, then a deduction of 10% of the haemoglobin level should be made. On this basis "clinical anaemia" due to pregnancy may be said to exist when the haemoglobin level falls below 70%—i.e., 10% below the level of "clinical anaemia" in non-pregnant women.

Applying the above standards to the figures given in Table III, the incidence of "clinical anaemia" is found to be insignificant in female students and nurses, and varies from 6.6% in schoolgirls (13 to 18 years) to 21% in female factory-workers. The incidence of anaemia in 360 adolescent females (13 to 19 years) and 450 adult females (20 to 54 years) was 12% and 7% respectively. Approximately 60% of the total had a haemoglobin value greater than 90%. The incidence of "clinical anaemia" in 212 adolescent males and 170 adult males was less than 1%, and of these 95% had a haemoglobin level exceeding 90%. The incidence of "clinical anaemia" in 570 pregnant women was 24%.

Although it will be seen that a considerable degree of "clinical anaemia," as defined above, was present in school children and in certain groups of females, both pregnant and non-pregnant, it should be noted that the great majority of such persons made no complaint of ill-health and were apparently carrying out their work in the school, factory, or home in a satisfactory manner.

Comparison of Incidence of Anaemia in Edinburgh (1942) and Aberdeen (1935)

In assessing the effects of war conditions on the incidence of anaemia in the population at large it would be of great advantage to compare the findings of the Edinburgh survey (1942) with similar pre-war investigations. For accuracy in such comparisons it would be necessary to use a standard technique and to have the pipette and graduation and colour tubes calibrated and checked according to some accepted

standard, as was done in the present survey. It is most desirable that this principle should be generally accepted from now onwards. An attempt was made to obtain the instrument used in Aberdeen in 1935 in order to have it checked by the National Physical Laboratory, but unfortunately only the Haldane colour tube was available for testing. The correction figure supplied by the National Physical Laboratory shows that it gave readings approximately 2% too high. It is impossible to say whether this error can be accounted for by a slight fading of the colour tube during the past eight years or whether it was present in 1935. Since the pipette and dilution tube are not available for checking, it is impossible to assess the accuracy of the figures obtained in 1935. An extensive experience with the instrument concerned showed that haemoglobin figures of 100 ± 5 and 95 ± 5 for average normal males and females respectively were regularly obtained, together with a colour index of unity. Accordingly we believe that the instrument was in fact reasonably accurate. Hence we feel justified in making the following comparisons, provided the limitations discussed above are kept in mind. The Aberdeen figures shown on Graph I are the original uncorrected ones.

(a) The haemoglobin levels of infants and pre-school children in Edinburgh (1942) are slightly higher than those found in a similar age group in Aberdeen (1935).

(b) The incidence of "clinical anaemia" in municipal primary-school children in Edinburgh (1942) is considerably higher than in Aberdeen (1935).

(c) The incidence of "clinical anaemia" in adolescent and adult males in Edinburgh (1942) and Aberdeen (1935) is insignificant, but the haemoglobin levels are somewhat higher in the Edinburgh series.

(d) No significant change was observed in the haemoglobin levels of adolescent and adult females examined in Edinburgh (1942) and in Aberdeen (1935). Thus a haemoglobin level of less than 85% was found in 23% of 306 adolescent females and 18% of 450 adult nulliparae in Edinburgh, as compared with 18% of 450 adolescent females and 25% of 50 adult nulliparae in Aberdeen.

(e) The haemoglobin levels of pregnant women examined in Edinburgh (1942) are slightly lower than those of a similar group examined in Aberdeen (1935).

Summary

The haemoglobin levels of 3,338 individuals examined in Edinburgh in 1942-3 are reported. These comprise: 563 infants and pre-school children (birth to 4 years); 917 municipal primary-school children (5 to 12 years); 105 private-school children (5 to 12 years); 518 adolescent males and females (13 to 19 years); 620 adult males and females (20 to 54 years); 45 multiparous women; 570 pregnant women.

The pipette, dilution tube, and colour tube of the Haldane haemoglobinometer used in this investigation were examined by the National Physical Laboratory and a combined correction factor was supplied. This factor has been applied to all the haemoglobin figures of the Edinburgh series shown in the tables and graphs of the present communication.

Standards of normality of haemoglobin levels for individuals according to age and sex are discussed and defined, and arbitrary figures below which clinical anaemia may be said to be present have been selected.

"Clinical anaemia" was found to be present in 39% of municipal primary-school children; approximately 5% of private-school children; 12% of adolescent females; 7% of adult females; 24% of pregnant women; and less than 1% of adolescent and adult males.

We wish to express thanks to our medical colleagues, to the Medical Officer of Health for Edinburgh and his staff, and to the head masters and staffs of schools for the facilities and help afforded during this investigation.

REFERENCES

- Davidson, L. S. P., et al. (1942). *British Medical Journal*, 2, 505.
- and Campbell, R. M. (1935). *Ibid.*, 2, 195.
- and Fullerton, H. W. (1938). *Edinb. med. J.*, 45, 1.
- Diekmann, W. J., and Wegner, C. R. (1934). *Arch. intern. Med.*, 53, 71, 153.
- Mackay, H. M. M., et al. (1942). *Lancet*, 2, 32.
- Price-Jones, C. (1931). *J. Path. Bact.*, 34, 179.

A new edition, the 4th, of the *Register of Orthopaths* has now been published by the Board of Registration of Medical Auxiliaries. A copy can be obtained free on application to the acting secretary of the Board, B.M.A. House, Tavistock Square, W.C.1.

CHILDHOOD INFECTION AND ITS RELATION TO ADOLESCENT AND ADULT PULMONARY TUBERCULOSIS

A RECORD OF THE WORK OF THE BROMPTON HOSPITAL
RESEARCH DEPARTMENT DURING THE LAST 14 YEARS

PREPARED BY

A. MARGARET C. MACPHERSON, M.D., M.R.C.P.
Halley Stewart Fellow, Research Department, Brompton Hospital

[Drs. G. E. Beaumont, Dorothy Cooper (née Dow), Maurice Davidson, J. L. Livingstone, W. Ernest Lloyd, A. Margaret C. Macpherson, R. C. Wingfield, and F. H. Young have from time to time been responsible for or associated with the various investigations of the Brompton Hospital Research Department during the past fourteen years. They may be regarded, therefore, as signatories of this paper, but cannot hold themselves accountable, each and severally, for all the views expressed and for all the conclusions reached in this collected record.]

On March 21, 1928, the Medical Committee of the Brompton Hospital decided to promote and encourage research at the hospital by (1) the organization of a research department, and (2) the institution of a research fund. The Research Department accordingly came into being. Apart from the other activities covered by its constitution, it was felt that the problem forming the title of this paper was one which should be studied. A subcommittee of the staff (whose personnel has changed from time to time) was therefore appointed; suitable assistance was obtained with the help of the Research Fund, and the investigation was started. To the generous contributors to the research fund our thanks are due, but in particular to the Sir Halley Stewart Trust, all of whose contributions have been devoted to this special piece of work. The investigation is not yet finished; it may be years, if ever, before it is, but it is felt that enough has already been done to justify (1) a summary of the results from the various reports published to date; (2) an indication of the lines on which the investigation is proceeding at the present time.

Childhood tuberculosis was the subject studied for the most part when the department was first opened, and we believe that our findings have to some extent helped to build up the picture of this condition as it exists to-day. This aspect of tuberculosis is still prominent in the work of the department, and observation of the children continues. The number of children seen up to the present is 2,482. At the same time, during the fourteen years attention was constantly focused on the disturbing problem of tuberculosis in young adults—a problem of such importance at the present day, and promising to become of increasing urgency in the near future, that it calls for immediate recognition, and the need for more definite observations on the subject, we set ourselves to investigate certain of its aspects. These investigations have brought to light some interesting facts and have led to our present study of treatment of symptomless pulmonary tuberculosis in young adults. Although as yet we cannot provide any definite results of treatment, we consider the matter to be of sufficient immediate interest to justify the publication of the way in which we are tackling the question.

The first task undertaken by the Research Department was the elucidation of some of the problems of childhood tuberculosis which at that time were still obscure. No appreciable amount of work on this subject had been carried out in this country. Among the established facts about childhood tuberculosis were the figures of the mortality rates, which showed a great fall during the present century. It was decided to analyse the figures for this period, and this formed the substance of Report I.

Report I (1930): "Tuberculosis Mortality in Children" (Lloyd and Dow, 1932a)

Analysis of the mortality rates from tuberculosis in children for the period 1898 to 1927 in England and Wales brought out the following interesting facts:

1. The decline in the mortality rate was greatest for children under 5 years old.
2. The rate of fall due to abdominal tuberculosis was greater than the rate of fall due to other forms, and in 1927 meningitis was by far the most fatal form of tuberculosis.
3. Although the mortality rate due to tuberculosis was greater in infancy than in later childhood, when taken in relation to the mortality rate from all causes tuberculosis is a much less frequent cause of death in young children than in those approaching adult life.
4. Before 1914 the 0-5 years age group had the highest tuberculosis mortality rate; since 1914 the tuberculosis mortality rate has been consistently higher in young adult life and middle age than in the 0-5 years group.
5. With the decrease in the mortality rate due to tuberculosis in the 0-5 years group the mortality peak in adult life changed from the 40-50 years group to the 20-25 years group.
6. The importance of exposure to tuberculous infection was demonstrated clearly by the fact that among the families attending Brompton Hospital there was a definitely increased death liability from tuberculosis in children aged 0-5 years who were brought up in contact with open cases of tuberculosis.

This report, while emphasizing the improved position of tuberculosis in childhood, underlined the continuing and relatively increasing menace of young adult tuberculosis. This was a problem that was continually demanding recognition and suggested further investigations, which were begun at this time but were reported at a later date.

In the meantime, the connexion between exposure to tuberculous infection and mortality due to the disease in infancy was an important finding which could with benefit be investigated still further and which might lead to solutions of practical value. If deaths from tuberculosis in childhood were related to exposure to infection, what was the relation between contact history and tuberculous morbidity in the living child. In other countries extensive tuberculin-testing had been carried out in the childhood populations. The results of these tests showed that, although the actual figures varied considerably in different countries and localities, the number of positive reactions to tuberculin was high in children exposed to infection when compared with those with no known contact infection. It was thought that a similar investigation carried out in this country might be of value, and this was the piece of work undertaken by the department.

Report II (1931): "The Incidence of Tuberculous Infection and its Relation to Contagion in Children under 15" (Lloyd and Dow, 1931, 1932b)

During 1930 and 1931 1,220 children attending the out-patient department at the Brompton Hospital were subjected to a tuberculin test. A comparison was first made between the two methods in vogue in Europe, Scandinavia, and the U.S.A.—namely the Pirquet test and the Mantoux intradermal test. The results showed that the Mantoux was the more accurate, and that the Pirquet about equivalent to the Mantoux using 1 in 10,000 dilution of tuberculin.

The results among this group of the population corresponded with those of observers in other countries and demonstrated certain important facts. Taking the children

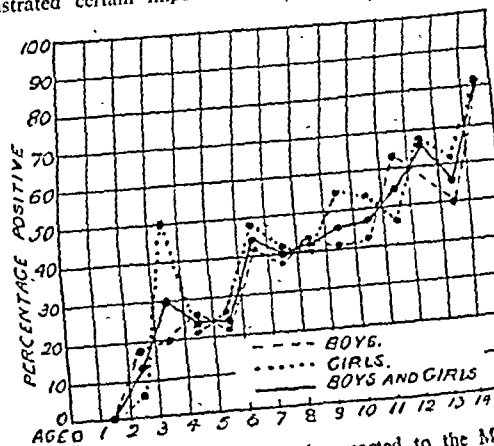


FIG. 1.—Percentage of children who reacted to the Mantoux test, arranged according to age and sex groups.

whole, there was a steady increase in tuberculous infection from birth to 15 years of age (see Fig. 1). If, however, the children who had a history of exposure to an open case of tuberculosis were separated from those with no known contact the results were very different. It was found that the number of positive reactors was almost doubled in the contact group taken as a whole compared with the non-contact group. The difference was still more marked in younger children, the number of positive reactors being five times greater in children under 5 years old in the contact group than in the non-contact group (see Fig. 2).

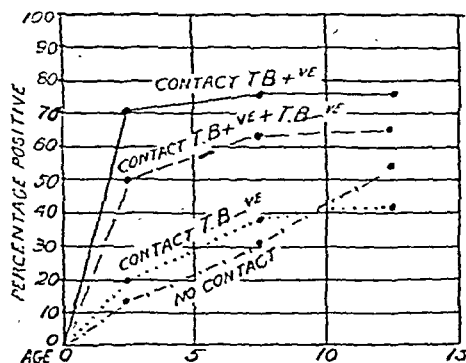


FIG. 2.—Percentage of contact and non-contact children who reacted to the Mantoux test, arranged in age groups.

The significance of direct contact with the tubercle bacillus was further stressed by the fact that the results of tuberculin-testing a group of children with no history of contact scarcely differed from the results obtained in a group of children with a history of contact with a closed case of tuberculosis (Fig. 2).

Although these facts had been established in other countries the results in this report were among the earliest published in England to show the importance of the connexion between contact with open cases of tuberculosis and tuberculous morbidity in children. The findings underlined the importance of contact history; the previous report had shown its importance in relation to tuberculosis mortality, and this later investigation its importance in relation to tuberculous morbidity in the living. The tuberculin test had provided us with valuable evidence of tuberculous infection in the living, and apparently healthy, child: was there any means of demonstrating, and possibly resting, the tuberculous lesion resulting from this infection? The low rate of mortality in childhood compared with the higher rate of morbidity gave little hope of help from clinical findings, but x-ray investigation might bring to light valuable information. Such investigations in the U.S.A. were creating much interest, and it was decided to make a systematic examination of tuberculin tests and x-ray findings in the children in the out-patient department at the Brompton Hospital.

Report III (1932): "A Comparative Study of X-ray and Mantoux Reactions in Children" (Lloyd and Dow, 1932c, 1932d)

During 1930 and 1931 500 children under 15 years of age were examined clinically and radiologically and had a tuberculin test. In order to assess the value of the radiographs without prejudice, the chest was examined and reported on without previous reference to the Mantoux reaction. This investigation made manifest the difficulties of interpretation of radiographs in children, and the conclusion was reached:

"that in attempting to localize the lesions in children who are shown to be tuberculous by a positive Mantoux reaction, the chest radiograph is not so helpful as might have been supposed. . . . While the chest radiograph is of great clinical value . . . its interpretation in the 'Mantoux-positive' child needs the greatest care."

Although the interpretation of these radiographs was difficult, it was evident that typical lesions of the adult type of pulmonary tuberculosis were comparatively uncommon in children under 15 years of age.

In order to keep in touch with this large group of interesting children a "follow-up" department had been by this time established, and it was possible during the ensuing years to

augment the findings of these last reports. There are now 989 children who have attended the follow-up clinic for a period of from 2 to 13 years; of these 756 are "contact" children, and the rest continue to attend either as controls or because they have evidence of tuberculous lesions. While the children are still in contact with cases of tuberculosis they come for examination at least once in every three months. After contact with infection has ceased and there is no evidence of any active tuberculous lesion the attendances are extended to once in six months.

Report IV (1933): "Reinvestigation of Mantoux-positive Children" (Lloyd and Macpherson, 1933a, 1933b)

After an interval of 1½ to 2 years 700 of the children included in Report II were subjected again to the Mantoux test. It was found that the great majority (96%) of the positive reactors in 1930 remained positive in 1½ to 2 years' time. There was, however, a change during this period in the degree of sensitivity: those who at the first testing reacted only to the stronger doses tended to become more sensitive. The figures also showed that a high degree of sensitivity was reached at an early age in contact children, whereas in the majority of non-contact children this degree of sensitivity was not reached at any age during childhood.

Throughout this and the subsequent investigations very few cases of active pulmonary tuberculosis were met with, and, in fact, obvious clinical tuberculosis among the children was conspicuously low throughout our observations.

In Report III the difficulties encountered in the interpretation of chest radiographs in children were described, and these, together with many diagnostic problems which made their appearance while observing the children in the "follow-up" department, showed the necessity for a more detailed study of the course of childhood tuberculosis. Between 1930 and 1939 considerable material had become available in the department, and by means of serial radiographs over a period of years it was possible to solve some of the problems which had presented themselves at the beginning and to build up a picture of the primary tuberculous lesion in childhood.

Report VII (1939): "Primary Tuberculosis of the Lungs in Childhood" (Macpherson, 1939a, 1939b)

This report contained a description of the primary tuberculous lesion of the lung and its subsequent course as it appeared among the children in the follow-up department. It was noted that the normal course of the primary lesion was usually uneventful and was unattended by clinical symptoms or signs, and in most cases was evident only in the x-ray film. Attention was drawn to the fact that the process of healing occupied more than one year and that throughout this period the focus was a potential source of dissemination. It was stressed that during this time it was advisable to facilitate healing by procuring a suitable environment for the child and to keep a close watch on the progress of the lesion.

Another characteristic of the primary complex was the relative unimportance of the lesion in the lung tissue compared with the lesions in the lymph nodes. It was these infected lymphatic glands which were more likely than the lung lesions to produce complications and to give rise to clinical evidence of disease. The relation between the glandular involvement and subsequent atelectasis and bronchiectasis was discussed. In only one case—that of a girl infected between the ages of 13 and 15 years—was the primary lesion seen to spread and to give rise to fibro-caseous disease of the adult type. The pulmonary lesions otherwise tended to heal by fibrosis or calcification.

So far the work carried out on childhood tuberculosis had demonstrated clearly that:

1. Primary infection by tubercle bacilli usually is uneventful clinically and the lesion formed heals satisfactorily in most cases.
2. Certain immediate and later complications may, however, arise, as a rule secondarily to the involvement of lymphatic glands in the primary complex.
3. Tuberculous meningitis has been, and still is, a serious outcome of tuberculous infection.
4. Tuberculous morbidity and mortality in childhood are markedly influenced by exposure to infection.
5. The "adult type" of tuberculosis does not present a serious problem in childhood.
6. Relatively to pulmonary tuberculosis in childhood, and even to tuberculous meningitis in childhood, pulmonary tuber-

culosis in adolescence and early adult life is a greater menace to the population.

The mortality rate from pulmonary tuberculosis among young adults showed little evidence of decreasing, and the matter continued to cause great concern. Here, then, was a subject bristling with problems for further elucidation and asking for a direct and immediate attack. Obviously it would be of immense value to establish a definite aetiological connexion between childhood infection and tuberculous disease in later life, but such an undertaking would require much material and occupy many years before there was any hope of providing a full and definite answer. However, the large numbers of observations we had been able to make in the follow-up department supplied us with some interesting evidence which to a certain extent indicated the relation between childhood infection and adolescent pulmonary tuberculosis. As some of those under observation passed from childhood to adolescence, adult types of lesions began to appear, usually between the ages of 15 and 19.

These lesions were as a rule localized to the upper third of the lung. In the majority of cases they were not accompanied by any clinical disturbances or by loss of weight, and in some instances there was not even an increase in the sedimentation rate. If left untreated the lesion showed a "pendulum" action, alternating between a spread of the lesion and healing, but nearly always with a tendency to spread and seldom healing spontaneously. The period of time between the first appearance of the lesion in the x-ray film and the first symptoms varied between three and five years.

These observations led us to a closer study of pulmonary tuberculosis in the young adult, and the next report dealt with the problem of contact history in pulmonary tuberculosis of young adults.

Report VI (1937): "Pulmonary Tuberculosis in Young Adults: The Significance of Contact History" (Lloyd and Macpherson, 1936, 1937)

Report VI contained an analysis of the family histories of 1,000 patients at the Brompton Hospital who had developed pulmonary tuberculosis between the ages of 15 and 25. The fact that there was a history of contact with tuberculosis before the onset of the disease in 40% of the cases was significant. Among those with a family history of tuberculosis, contact with a tuberculous brother or sister was found to be as frequent as contact with a tuberculous parent. Four out of five of the patients who gave a history of contact developed the disease within five years of the exposure to the last known contact with infection. This report again stressed the importance of contact history, and the conclusions also suggested that reinfection in adolescence or early adult life might play an important part in the onset of young adult lesions.

Another aspect was constantly making itself apparent: the advanced stage of tuberculosis reached before treatment was begun or was even sought by the young adult. To quote from the introduction to Report V: "Too many patients do not seek treatment until their disease is well entrenched. This is no doubt a fact is the reason why our tuberculosis service spends most of its energies, time, and money in endeavouring to patch up hopelessly damaged individuals by preventing further activity and inroad of the disease."

Those entrusted with the care and treatment of these young adults were repeatedly putting forth pleas for earlier diagnosis. But the fact remained that examination immediately after the first symptoms of early pulmonary tuberculosis were detected often showed considerable lesions in the x-ray films.

A hypothesis was formed "that perhaps the extensive lesions of adult disease are really in many cases deposited during adolescence with the accompaniment of slight or, at any rate, unexplained constitutional disturbance: that these lesions are carried unrecognized, perhaps extending slowly and without symptoms, until they make their presence known in adult life, either by reason of their spread past a definite point or because some environmental cause has allowed of their reactivation"; and our hitherto unpublished observations from the follow-up department on the symptomless lesions of adolescence (see above) tended to strengthen this hypothesis.

The testing of the hypothesis involved the radiological exami-

Report V (1936): "Latent Adolescent Pulmonary Tuberculosis" (Wingfield and Macpherson, 1936a, 1936b)

During 1934 and 1935 such an investigation was undertaken on 2,381 young people between 14 and 21 years old, healthy at the time, who were examined and the first record of mass radiography of a sample of the English population was published in 1936.

The results of this investigation showed that there was an incidence of pulmonary tuberculosis in 0.65% and a possible incidence in 1.08% of our sample of the adolescent population. A comparison between these figures and the calculated incidence of pulmonary tuberculosis in the population (0.4 to 0.75%) supported the hypothesis set forth above. Here, then, was evidence of detecting at a really early stage adolescent lesions which would give rise to clinical disease, and a means of providing clinicians with material at a stage in which treatment should be easy compared with well-established lesions which they can do little but only to arrest.

It was not overstating the case when it was remarked in Report V: "The significance and implications are tremendous." The report ended with a plea for further more extensive investigations.

This was in 1936. It has taken much education and propaganda, directed during the ensuing years to the medical profession and the lay public alike, to bring about the development and application of the suggestion put forward at that time. Mass radiography is a necessary weapon for the detection of pulmonary tuberculosis at a stage in which treatment, from the patient's point of view, could be of real value and, from the point of view of the State, far more economical than later. It has been encouraging to find that recent examination by mass radiography with more accurate apparatus and in more satisfactory conditions have produced results very similar to ours.

Since this report on latent adolescent primary tuberculosis and following on the observations, to which reference has already been made, on the development of these lesions those attending the follow-up department, attention has been constantly focused on the problem of treatment of those patients without symptoms but with radiological evidence of disease. Recognizing that this would become a major problem should mass radiography be adopted, it was obviously necessary to examine the possibilities of adequate treatment from the point of view of healing the lesion and from the economic standpoint.

A healthy youth, working and playing hard, with no symptoms, is suddenly singled out from his companions and found that he has evidence of pulmonary tuberculosis. The first and very real difficulty is to persuade the boy or girl that investigations are necessary. Fortunately, as a result of propaganda on the value of radiological examinations, becoming easier, but it is often more difficult to persuade the patient's doctor to take the matter seriously. These difficulties overcome, the patient is usually admitted into hospital for investigation. It is not uncommon that, apart from the x-ray graphs, every finding is normal; there may be no abnormal physical signs, no pyrexia, a normal blood sedimentation rate and normal gain in weight.

According to the hypothesis propounded in Report V, adolescents are the very people who eventually will develop manifest disease. It is therefore folly to continue observation without treatment in the hope that the case in point is the exception which proves the rule. This course is desperately advocated by the boy or girl and the parent, unfortunately is too often adopted by the doctor in consultation. In some cases on our records the patient won the battle; treatment was postponed until symptoms appeared, with the result that only a "patching-up" of the individual was possible. The value of the early x-ray examination had been entirely lost. Healing, surely, and not just temporary arrest, should be the aim, and should be the aim when these early lesions are under consideration.

Some form of treatment, therefore, is called for, and at an early stage the economic factor comes into prominence and influences the course followed. At the present time such cases when detected, are handled in one of the four following ways: (1) they are either ignored or are merely observed for a period; (2) they are kept under careful observation, with impro-

their home environment; (3) they are sent to a sanatorium; they are, in only a few instances, treated by artificial pneumothorax.

Treatment of Symptomless Adolescent Pulmonary Tuberculosis

For those who can afford the time and treatment it is probable that with rest at home, followed by gradually increasing activity and then by years of sheltered life, healing may take place. It is, however, only a favoured few who can afford this; for the majority a more rapid return to work is necessary. Moreover, it is unusual to find any person who, while apparently in good health, will submit to this treatment and at the same time retain a healthy outlook on his "illness," or the capacity to return to a normal life at the end of it.

For the majority, therefore, some other course is advised. Sanatorium treatment is the usual one adopted for these patients. Owing to the healthy condition of the patient on admission to the sanatorium and the constant urge to get home and back to work, it is usually impossible to keep him or her at the institution long enough to hope to effect a cure. There may be a temporary improvement in a few cases, but in the majority there is no material change in the x-ray picture, and the expected spread of the disease comes sooner or later at a variable interval.

It seems that artificial pneumothorax provides a more satisfactory prospect; we believe that this is the correct treatment in these cases, and it is the one which has been adopted. These symptomless patients should be ideal subjects for such treatment. As they have no constitutional disturbance it does not matter that they require prolonged bodily rest at hospital or sanatorium. Some measure of local rest to the lung is produced by a pneumothorax, and it is not necessary to attempt complete collapse of the lung: a shallow pneumothorax sufficient to control and immobilize the diseased lung, partially or completely, is what is required, and it is suggested that the pneumothorax be maintained for not longer than two or three years, by which time, on the analogy of the tuberculous joints, the hoped lesion will have healed. A shallow pneumothorax for a slight lesion of the lung is unlikely to give rise to complications, and causes no discomfort or subjective incapacity.

Once the collapse is established daily supervision is not necessary, and, provided that the home conditions are good, the patient need only stay in hospital for a short period. Where the home is unsatisfactory, or the patient's general condition below normal, a period in a sanatorium may be necessary. A number of our patients have returned to work or school without any ill effects a short time after the induction of the pneumothorax. If the infiltration is bilateral the position is altered and the treatment is the same. A shallow bilateral artificial pneumothorax is tolerated as easily as a unilateral one, and in the case with a unilateral artificial pneumothorax there should be no hesitation in inducing a bilateral artificial pneumothorax should a tuberculous deposit appear in the other lung.

Regular supervision is ensured by the weekly attendance refills; and this is important, because without such a tie the young people will naturally tend to become less and less frequent in their attendance over a period of years.

Here, then, is a form of treatment which offers a reasonable prospect of cure without prolonged exile from normal life and work. We would emphasize that, as yet, it is impossible to assess its value, but we suggest it as a reasonable alternative to other methods in use which, in our experience, are unsatisfactory in their final results or are impracticable for the majority of patients.

REFERENCES

- Ed, W. E., and Dow, Dorothy, J. (1931). *British Medical Journal*, 2, 183.
 — (1932a). *Bromp. Hosp. Rep.*, 1, 20.
 — (1932b). *Ibid.*, p. 57.
 — (1932c). *British Medical Journal*, 1, 701.
 — (1932d). *Bromp. Hosp. Rep.*, 1, 61.
 — and Macpherson, A. Margaret C. (1933a). *British Medical Journal*, 1, 518.
 — (1933b). *Bromp. Hosp. Rep.*, 2, 99.
 — (1936). *British Medical Journal*, 2, 1131.
 — (1937). *Bromp. Hosp. Rep.*, 6, 31.
 — and Macpherson, A. Margaret C. (1939a). *Brit. J. Tuberc.*, 33, 79.
 — (1939b). *Bromp. Hosp. Rep.*, 8, 30.
 — and Macpherson, A. Margaret C. (1936a). *British Medical Journal*, 1, 741.
 — (1936b). *Bromp. Hosp. Rep.*, 5, 10.

PERIPHERAL ARTERIAL EMBOLISM

BY

H. AGAR, F.R.C.S.

Major, R.A.M.C.; Surgical Specialist

The surgical treatment of embolic occlusion of a peripheral artery has been developing over a long time. In 1907 both Sampson Handley and Moynihan attempted to relieve the condition by operation. In this country little attention was paid to their efforts, but the Scandinavian surgeons, led by Einar Key, developed a satisfactory operative technique, and in 1925 Jefferson performed the first successful embolectomy in England.

The incidence of embolic occlusion it is impossible to assess, but, although the condition is not common, I believe many cases are missed. Griffiths (1938) reports 8 cases in a three-year period in Manchester; and in St. James's Hospital, Leeds, from 1936 to 1939, with approximately 28,000 admissions, there were 7 cases in 5 patients, all of which came under my care.

The embolus may arise from the pulmonary veins, a vegetation on the mitral valve, a mural thrombus of the left auricle, or an atheromatous plaque of the aorta; or from a systemic vein in the presence of a patent foramen ovale. The cardiac origin is by far the commonest, and is often associated with auricular fibrillation. It was the focus in all my cases. Emboli usually become impacted at the bifurcation of an artery, for it is here that the lumen is most suddenly reduced in size. Of 382 Swedish cases (quoted by Riddell, 1937) the embolus was located in the common femoral in 54%, in the common iliac in 17%, in the popliteal in 11%, in the upper limb in 12%, and in the aorta in 4.5%. The few cases operated on in England suggest about the same percentages, and in my series four of the emboli were impacted at the bifurcation of the common femoral artery, two in the popliteal, and one at the bifurcation of the aorta.

Diagnosis

Diagnosis is usually easy, and depends on pain, pallor, paralysis, and loss of arterial pulsation in a limb. It is reported that immediately the artery is occluded the patient complains of sudden severe pain, often located over the site of the embolus. This description is inaccurate, for although pain may be severe it may also be absent. None of my patients complained of severe pain and only four of slight pain. In the case of occlusion of the bifurcation of the aorta the operative findings indicated that most probably the blockage had been sudden and complete; for there was no secondary thrombus, and yet the patient did not complain of real pain but only of abdominal discomfort. Deitch (1936) speaks of "agonizing colicky pain," and Riddell of "intense agonizing pain." The intensity or absence of the pain therefore must not influence the diagnosis.

All my patients did complain of numbness and loss of use in the affected limb. In five in whom the incident occurred while they were in hospital undergoing treatment for auricular fibrillation it was the first complaint to be made to the ward sister. The circulation was probably impaired for a few minutes before nerve symptoms appeared. In a case of occlusion at the bifurcation of the common carotid Griffiths (1938) reports sudden contralateral hemiplegia. A general pallor with some blotchy cyanosis was observed in all the affected limbs and was present within a short time of the first complaint by the patient. The limbs felt colder than the normal, and the area of anaesthesia was of the stocking type but not reaching as high as the site of impaction.

There is always loss of arterial pulsation beyond the blockage, but this may be misleading in the case of obstruction at the bifurcation of the common femoral artery. The common femoral artery is 1½ in. long, and, to the unwary, palpable pulsation below Poupart's ligament may give the impression that the femoral arteries are patent and that the blockage is in the popliteal. I found that if a sphygmomanometer cuff was applied round the mid-thigh no oscillations in the mercury column were visible at any pressure in cases of femoral blockage, but that they were easily seen in cases of popliteal

blockage. A more accurate instrument is the Pachon oscillograph, but it is rarely available.

Whether this group of signs and symptoms occurs rapidly or slowly should not affect the diagnosis, which it is important to make as early as possible.

Leriche, Fontaine, and Frich in 1933 urged the use of thorotrast in diagnosis and in localization of the embolus, but although this method may be very accurate I feel that it should be rarely necessary.

Treatment

Opinion regarding the best treatment varies from non-operative conservation to removal of the affected part of the artery. Leaving the patient may result in spontaneous recovery, or by chance the embolus moves into a side branch of the artery, but it is more likely that he will die rapidly or after the onset of gangrene. Murray (1936) has experience of 13 cases which were not operated upon; 8 of these patients died before the onset of gangrene, and the others afterwards.

Embolectomy is not universally favoured, the dissenters claiming that it does not restore circulation in a sufficiently large proportion of cases and that too many patients fail to survive. Strömbeck (1935) reviewed 327 operations and found that 63% of the patients died in hospital and only 12% survived for five years. In spite of the failures many cases are outstandingly successful. It is accepted that patients rarely die from the operative intervention; all my cases were suffering from auricular fibrillation, yet there was no operative mortality. The patient with aortic occlusion stood the operation surprisingly well; the circulation in his leg recovered, and he survived for several months. Another patient on whom I performed a femoral embolectomy was doing her full housework one year later. Embolectomy is rarely contraindicated by the poor condition of the patient, and if performed within six hours there is a reasonable chance of success, but if after twelve there is practically none. Surgeons are therefore very largely dependent upon the general practitioner and physician for the successful treatment of the condition.

Anaesthesia was induced by spinal percaine 1/200 for all except the aortic case, for which it seemed better to use the 1/1500 solution so as to make the Trendelenburg position safer. Local anaesthesia is efficient and safe, and is of particular value when operating on the brachial and subclavian arteries. A special advantage is that the patient can describe subjective sensations, which are useful in assessing any recovery of circulation during the operation.

Operative Technique

The affected artery is approached through one of the usual incisions, and I stress that the bifurcation of the femoral is more distal than often imagined. Recent opinion has been that an aortic embolus should be milked down from the bifurcation after retroperitoneal exposure and removed through a femoral artery previously prepared but temporarily closed distally by a rubber band. I approached the aorta transperitoneally and found no difficulty. There was no unusual distension of the gut, and the patient withstood the operation extremely well. This is, I believe, the tenth successful aortic embolectomy, and of these cases four have been approached transperitoneally.

The site of the embolus is located by the cessation of pulsation. A sling of rubber tubing is placed both proximal and distal to the embolus. The proximal one is rendered taut and an incision made in the artery over the embolus. This is gently lifted out, and it usually brings with it a length of secondary thrombus; in one femoral case 8 in. of thrombus was removed. If the distal band is made taut before this stage the secondary thrombus may be broken and part of it pass along to block the artery more distally; this I believe is an important point in technique. For the same reason I think an artery which is being opened distal to the embolus—for example, a femoral in a case of aortic occlusion—should not be lifted by the slings until it is seen to be free from secondary thrombus. I found suction applied through a Eustachian catheter passed into the artery useful in removing distal thrombus. If completely cleared there should be some bleeding from the distal end.

The distal sling is then lifted and the proximal one released, the blood pressure is usually sufficient to clear this part

of any remaining fragments. Then both slings are lifted, the wound is bathed in sodium citrate 3%, and the artery was quickly sutured with waxed Chinese silk size 0, the stitches passing down to but not through the intima. It is surprising how few stitches are required.

This was the technique followed in my cases, including the aortic, in which the slings were placed around the aorta and common iliacs while the incision was made just above the bifurcation.

If the distal circulation shows no signs of recovery within one hour a more distal exploration of the artery must be considered, but it should be remembered that circulation may improve without recovery of peripheral pulsation.

Other operations described for the relief include ligation of the artery above and below the incision after removal of the embolus, the intention being to prevent post-operative thrombosis. A more radical device is the excision of the affected part of the artery, it being maintained that complete section of the artery prevents spasms and tends to open up the collateral circulation.

I have no experience of the post-operative use of heparin but it seems probable that this may prevent post-operative thrombosis in the affected vessel. The dosage recommended is 10 units of heparin to 1 c.cm. of saline given by intravenous drip at the rate of 25 to 30 drops a minute, or 1,500 in four-hourly if given intermittently.

Summary of Cases

Case 1.—Man aged 57, admitted Dec. 18, 1936, with auricular fibrillation and mild cardiac incompetence. Cardiac condition improved but fibrillation persisted. On March 6, 1937, there was sudden onset of numbness without pain in right leg. Five hours later, when first seen by me, the signs of occlusion of the popliteal artery were typical. Under spinal anaesthesia an embolus was removed through the popliteal artery from the level of the adductor hiatus. No thrombus could be extracted from the distal point. The circulation did not recover and amputation became necessary. There may have been a more distal embolus or the thrombus may have broken away during the exposure of the artery. It might have been better to excise the affected portion of the artery, but chance of recovery must have been remote.

Case 2.—Man aged 64, admitted Nov. 30, 1938, with auricular fibrillation, palpable liver, and basal pulmonary congestion. Dec. 5 he developed a typical occlusion of the left femoral artery without any pain. The embolus with three inches of thrombus was removed under spinal anaesthesia three hours later, and the circulation of the limb recovered completely. On Dec. 9 the popliteal artery became blocked and an embolus was removed. The circulation did not recover, and the next day he developed a paralysis of the right arm, followed in twelve hours by a hemiplegia and he died. The terminal signs were probably due to a block with spreading thrombosis in the cerebral circulation. No necropsy was granted.

Case 3.—Woman aged 53; she had several transient attacks of pain and loss of use in the left leg and arm and right leg. Admitted Feb. 5, 1939, fourteen hours after the onset of pain and loss of use in right leg. Auricular fibrillation was present, but the evidence of failure was albuminuria. A diagnosis of femoral embolism was made and an embolus was removed, but no thrombus could be extracted and there was no bleeding from the distal end. Gangrene developed, necessitating amputation. The cardiac condition improved and she went home on April 6. On April 12 she was readmitted with a right femoral blockage of six hours' duration. The embolus with four inches of thrombus was removed. The circulation was almost normal after twelve hours, but became deteriorated again, with the development of gangrene. A rapidly increasing bacterial endocarditis appeared, and the patient died on May 4. Necropsy was granted, but I think a secondary thrombosis may have caused the failure in the second embolectomy.

Case 4.—Man aged 28, admitted April 5, 1939, because of dyspnoea, cough with blood-stained sputum, and oedema of the legs. A diagnosis of auricular fibrillation with failure was made. He was given digoxin 0.25 mg. t.d.s., and his pulse, though still irregular, improved. On April 13 he suddenly complained of numbness of both legs and a little abdominal discomfort. When seen on April 14 there was a blotchy discoloration below the knees, with loss of both legs and anaesthesia of stocking type reaching above the knees, and no femoral pulsation. A diagnosis of occlusion of the bifurcation of the aorta was made. He was operated on under spinal percaine anaesthesia. The embolus was removed through a transperitoneal approach. The patient's condition remained good after operative shock and the patient's condition remained good

reculation had recovered completely after two hours—i.e., four hours after the blockage—and full use of the legs was regained. His renal condition did not improve and he developed a subacute bacterial endocarditis, but he was lost sight of at the time of the second hospital evacuation in Sept., 1939.

Case 5.—Woman aged 36, admitted April 12, 1939, with auricular fibrillation and slight cardiac failure. She was given small doses of gitalin, and on May 5 developed a right femoral occlusion with the typical signs and slight pain. She was operated on within four hours under spinal anaesthesia, and an embolus together with 8 in. thrombus was removed. The circulation recovered perfectly and dilatation of the posterior tibial artery at the ankle could be felt after few hours. She left hospital, and although still fibrillating was doing most of her housework one year later.

I wish to thank Dr. J. Dick, medical superintendent, St. James's Hospital, Leeds, at which hospital I was working, for permission to publish these cases.

REFERENCES

- itch, H. I. (1936). *Lancet*, 1, 475.
 Griffiths, D. L. (1935). *Ibid.*, 2, 1339.
 Audley, W. Sampson (1907). *British Medical Journal*, 2, 712.
 Pearson, G. (1925). *Ibid.*, 2, 955.
 Ritchie, R., Fontaine, R., and Frisch, P. (1933). *Bull. Soc. nat. Chir.*, 59, 356.
 Cornish, B. G. A. (1937). *British Medical Journal*, 2, 526.
 Murray, D. W. G. (1936). *Canad. med. Ass. J.*, 35, 61.
 Siddell, V. H. (1937). *Proc. roy. Soc. Med.*, 30, 684.
 Röhmbeck, J. P. (1935). *Acta chir. scand.*, 77, 229.

GLOBIN-ZINC-INSULIN: SOME EXPERIMENTS

BY

R. D. LAWRENCE, M.D., F.R.C.P.

(From the Diabetic Department, King's College Hospital)

he above new delayed-action insulin—a compound of ox globin, insulin, and a trace of zinc—is already on the market in America, where several articles (see Bibliography) have been published on its action on animals and use in diabetics. These reports seem to have been thought so favourable by the British manufacturers and authorities that I gather it is already licensed and may soon appear for sale. It has received no proper clinical trial in this country (not easy in wartime); but even were it proved to be more useful than protamine-zinc-insulin, seems doubtful wisdom to introduce another new type of epot insulin without withdrawing the old, as this is sure to confuse clinical practice. Moreover, any real new merit in lobin insulin is not apparent to me either from the published works or from the following trials of a supply kindly provided by the courtesy of Burroughs Wellcome and Co.

It is generally agreed that soluble insulin is strong but too short-lived in action, and P.Z.I. weak but prolonged and apt to cause serious hypoglycaemia at night if too large doses are given in an attempt to stop glycosuria after meals. It is hoped that G.Z.I. will be intermediate in action and, with one injection before breakfast, will act strongly and control sugar by day,

lished shows many irregularities and contradictions, and, when one discounts the bias in favour of something new, little real difference. I have substituted 20 to 40 units of G.Z.I. for P.Z.I. in 6 mild cases under hospital control, and my colleague Dr. Wilfrid Oakley has tried other cases, without being able to appreciate any difference on blood and urine tests. I have not compared a series of severe cases in this way, as the results from day to day on any depot insulin are so irregular as to make such a study valueless. But the accompanying table shows the results of what is probably the least erroneous clinical method—the effect of equal doses of different insulins on the fasting blood sugar of a severe diabetic followed for 24 hours without carbohydrate food.

A diabetic man aged 35, on insulin five years, feeble-minded but otherwise organically normal, was the subject. His insulin had varied from 40 to 50 units a day, and was kept at 20 and 16 units during the experimental period. Once a week the evening dose was omitted so that the patient was thoroughly diabetic next morning, and after two fasting blood-sugar estimations at 7 and 8 a.m. (a wise precaution) the same test dose, 32 units, of the different insulins was given. The effect on the blood and urine was followed two-hourly, later three-hourly, for 24 hours, during which time no carbohydrate food was given, but some protein—meat, bacon, etc.—was allowed, which I always find does not affect the blood sugar although it probably increases ketosis. The table shows the blood-sugar results and the ketonuria by Rothera's test—more informative than the glycosuria, which ran strictly parallel. The fasting blood sugars are at a fairly uniform level and the comparisons on the whole satisfactory, although some tests (the blood sugars mostly in duplicate) were lost. Perhaps the contrast would have been clearer with a larger test dose; but any risk of hypoglycaemia had to be avoided, as quite small restorative doses of sugar may raise the blood sugar considerably in such protamine experiments and completely spoil the curves.

It is clear that soluble insulin is much the most active, that neither G.Z.I. nor P.Z.I. gives any very active liberation of insulin during the 24 hours, and that there is no practical difference between the general trend of their action. G.Z.I. seems to come into action more quickly (4 to 6 hours after injection), but its maximum effect is shown at 15 to 18 hours—no different from P.Z.I., and still making the night the most likely time of hypoglycaemia.

There are other points against the present introduction of globin insulin which are more obvious from the clinical than from the laboratory angle. It is clear that its action is weak and that it will have to be supplemented, like P.Z.I., in many cases with soluble insulin. At present a large number of cases are treated with a mixed injection of P.Z.I. and soluble insulin, and we know that some of the soluble is converted by the excess of protamine. We do not know if G.Z.I. contains an excess of globin nor what is the result of mixing G.Z.I. and soluble; but this is of great practical importance, and now is the stage when the initial mistake made with P.Z.I. might be

Time in Hours	Globin Insulin at								P.Z. Insulin		Soluble Insulin			
	I		II		III		IV		V		VI		VII	
	32 Units Globin	32 Units Globin	32 Units Globin	32 Units Globin	32 Units Globin	32 Units Globin	32 Units Globin	32 Units Globin	32 Units P.Z.I.	32 Units P.Z.I.	32 Units Soluble	32 Units Soluble	20 Units Soluble	20 Units Soluble
	Blood Sugar (mg. %)	Urine Ketosis Rothera	Blood Sugar (mg. %)	Urine Ketosis Rothera	Blood Sugar (mg. %)	Urine Ketosis Rothera	Blood Sugar (mg. %)	Urine Ketosis Rothera	Blood Sugar (mg. %)	Urine Ketosis Rothera	Blood Sugar (mg. %)	Urine Ketosis Rothera	Blood Sugar (mg. %)	Urine Ketosis Rothera
7 a.m.	164	0	255	+++	263	+++	282	+++	233	++	278	+++	256	++
8 a.m.	260	Sl. tr.	Lost	---	278	---	267	---	233	++	255	---	241	---
9 a.m.	250	---	260	---	285	---	260	---	256	++	252	---	235	---
10 a.m.	260	++	215	---	217	---	263	---	256	---	267	---	180	---
4 "	202	---	190	---	210	---	244	---	250	---	263	---	137	---
8 "	210	---	210	---	Lost	---	210	---	256	---	266	---	91	---
12 "	206	---	183	---	210	---	227	---	244	---	278	---	90	---
15 "	167	Trace	167	---	241	---	215	---	217	---	218	---	133	---
18 "	194	---	194	---	241	---	169	---	170	---	190	---	---	---
21 "	190	---	213	---	244	---	177	---	187	---	193	---	---	---
24 "	Not done	---	213	---	238	---	220	---	230	---	200	---	---	---

especially in the afternoon, but will tail off and avoid hypoglycaemia at night, though retaining enough action to prevent a serious diabetic relapse before breakfast—a worthy ambition but a tall order for any one preparation. On the whole the publications and opinions expressed in America suggest that G.Z.I. has more action in lowering blood sugar from 4 to 12 hours after injection and less from 12 to 24 hours than P.Z.I. But a close study of the few detailed protocols pub-

avoided. The manufacturers must know the problem of mixed injections, because I have urged them for years to try to produce a P.Z.I. without an excess of protamine (I gather it contains twice as much protamine as is necessary to precipitate the insulin) so that varying mixtures of P.Z.I. and soluble could be injected with more predictable results. Again, the fact that P.Z.I. is cloudy and soluble insulin clear is a great safeguard against mistakes between delayed-action and quick-

acting insulins; but the new G.Z.I. is a water-clear solution—to my mind, a serious disadvantage. Mistakes between insulins are all too common at present, and I foresee far more if another depot insulin appears on the market, especially if indistinguishable from soluble except for its label. It is difficult for me to understand how a new preparation of such a potent drug as insulin can reach the stage of marketing without serious trial by, and consultation with, the clinicians who will use it. If there is no administrative mechanism for judging and controlling the marketing of new products by their value in practical treatment it ought to be created.

BIBLIOGRAPHY

- Andrews, G. B., Groat, W. A., Wood, A. V., and Jones, M. L. (1940). *N.Y. St. J. Med.*, 40, 913.
 Bailey, C. C., and Marble, A. (1942). *J. Amer. med. Ass.*, 118, 683.
 Bauman, L. (1939a). *Proc. Soc. exp. Biol.*, N.Y., 40, 170.
 — (1939b). *Amer. J. med. Sci.*, 198, 475.
 Duncan, G. G., and Barnes, C. E. (1941). *Ibid.*, 202, 553.
 Levitt, A., and Schaus, J. P. (1942). *Med. Times and Long Island med. J.*, 70, 187.
 Marks, H. E. (1940). *Med. Clin. N. Amer.*, 24, 649.
 Reiner, L., Searle, D. S., and Lang, E. H. (1939a). *Proc. Soc. exp. Biol.*, N.Y., 40, 171.
 — (1939b). *J. Pharmacol.*, 67, 330.

FAUCIAL AND LABIAL DIPHTHERIA

BY

MANUEL ANDERSON, M.D.

Resident Medical Officer, Sheriff Hill Isolation Hospital, Gateshead

Diphtheritic membrane is rarely observed externally on the lip, and the following case, which presents this unusual feature, is deemed worthy of record.

A girl aged 10 was admitted to hospital on Dec. 23, 1942. On the morning of Dec. 21 she had complained of a sore throat and malaise. During the evening of the same day, while chewing a piece of toffee, she inadvertently bit her lower lip. She had no recollection of her lip bleeding. On the morning of the 22nd Dr. Jamieson—her family doctor—was called in. Finding clinical evidence of faucial diphtheria, he took a throat swab, which was reported K.L.B.—



positive next day, when she was sent to hospital. At the time of this examination Dr. Jamieson saw no evidence of labial membrane.

On admission the girl, who was rather undernourished and pale, was moderately ill. There were flea-bites and a few septic spots over her limbs and trunk. Immediately to the left of the midline on her lower lip was a patch of diphtheritic membrane. On eversion of the lip this appeared to be mainly on the upper and internal surfaces. It was quite discrete, oval in shape, and measured about 3/4 in. by 1/2 in. The membrane had a faint yellowish tinge and glistened. It was

thicker in the middle than at the edges. There was a moderate amount of oedema of the lip, with marked injection of the area (see photograph). The tonsils were moderately enlarged and inflamed. Covering the right tonsil was a patch of membrane about 1/2 in. in diameter and a smaller patch was seen on the left tonsil. There was no appreciable fever, and only moderate bilateral cervical lymphadenitis. An enlarged, slightly tender lymph gland was present in the submental triangle. Examination of the circulatory, respiratory, and central nervous systems revealed nothing abnormal. The left knee joint was the seat of long-standing tuberculous disease.

Treatment.—50,000 units of diphtheria antitoxin were administered intramuscularly after a serum-sensitivity test which proved negative. Swabs were taken from both lip and throat; from each of these was isolated "gravis" type diphtheria bacilli. The accompanying photograph was taken shortly after her admission to hospital.

Subsequent Progress.—The day following admission the membrane seemed rather thicker, while the edges began to curl away from the lip surface, so that it appeared even more discrete than previously. After this the process of separation continued by a gradual thinning of the membrane as if its surface were being slowly rubbed away and at the same time by the separation of tiny flakes from the edges, so that the membrane appeared to shrink in extent and thickness simultaneously. That portion of the lip exposed after separation of the membrane was almost "red-raw," and at times a little blood oozed from the surface.

By Dec. 27 separation of faucial membrane was complete, but the labial membrane was still present, although only half its original size. On the 28th a small thin flake of membrane remained on the lower lip, and only slight local oedema was present. On the 31st there was no appreciable diminution in the size of this flake, and it did not disappear entirely until Jan. 2, 1943. The area of the lip exposed showed no evidence of injury after complete separation of the membrane. At this time the only abnormalities revealed on clinical examination were occasional extrasystoles. The patient was allowed up on Jan. 12, and was discharged on the 26th.

Comment

In the literature one can find very little reference to labial membrane, apart from direct extension in cases of late severe faucial diphtheria. An authority of such wide experience as Goodall (1928) says: "The writer has twice seen membrane on the tongue, three times on the lips, twice on the floor of the mouth, and once on the gums." Reiche (1914 (M.R.C., 1923) recorded 49 instances of lesions of the lips among 7,314 fatal cases of diphtheria in Hamburg.

There can be no doubt that in our case the deciding factor was trauma to the lip in the presence of an existing faucial infection. Yet it is evident that, in view of the girl's story, the wound did not bleed; the trauma could only have been slight. It would appear, then, that relatively slight damage to labial mucosa facilitates the inoculation of the bacilli, and it is therefore surprising that labial membrane is not more frequently seen. Carrying the analogy to the fauces, it seems not unreasonable to suppose that Klebs-Löffler bacilli may gain entry to the tonsil epithelium by virtue of minute traumata—possibly as a result of swallowing solid foods. This supposition may be further borne out by the experience that diphtheria is not often seen in tonsillectomized subjects or even in people with very small tonsils, in whom the lack of prominent tonsils would be associated with less possibility of trauma.

Summary

A case of faucial and labial diphtheria is described in which the formation of labial membrane followed slight injury to the lip. The subsequent progress was recorded. It is suggested, from a consideration of this case, that slight trauma to a tissue may readily facilitate the introduction of Klebs-Löffler bacilli.

I would like to express my gratitude to Detective McHugh of the Gateshead Police for the excellent photograph reproduced herewith to the bacteriology department of the City Hospital for Infectious Diseases, Newcastle, for "typing" of the causative organisms; and to Dr. James Grant (medical superintendent of this hospital) for granting me permission to publish this case.

REFERENCES

- Goodall, E. W. (1928). *Infectious Diseases*, 3rd ed., p. 168, London.
 M.R.C. (1923). *Diphtheria: Its Bacteriology, Pathology, and Immunity*, p. 229, London.

SUCCESSFUL TREATMENT OF A CHRONIC PARATYPHOID CARRIER WITH SULPHAGUANIDINE

BY

H. LOEWENTHAL, M.D., Ph.D.
Pathologist, E.M.S.

AND

W. F. CORFIELD, M.D., D.P.H.
Medical Officer of Health for Colchester

It is generally recognized that human beings are the only source of the causative organisms of the enteric fever group and that carriers play an important part in spreading these diseases. One would probably be justified in saying that most of the outbreaks of paratyphoid fever in this country during the last few years had their origin in carriers. Medical treatment of the carrier condition has been found of no avail, and nothing had arisen up to the outbreak of war to alter the conclusion reached by Browning (1933) and his colleagues that cholecystectomy or other surgical measures directed towards the gall-bladder alone hold any respect of cure.

While sulphanilamide itself and its earlier derivatives had been found to have little therapeutic action on intestinal infections, the introduction by Marshall and his collaborators (1940) of sulphaguanidine with its high bacteriostatic activity and low absorption from the intestinal tract seemed to offer good chemotherapeutic possibilities. Very soon favourable results were reported in the treatment of bacillary dysentery, and it was the favourable impression one of us (H. L.) gained in the treatment of some minor outbreaks of Sonne dysentery that induced us to try its drug in a paratyphoid carrier in spite of the fact that sulphaguanidine had failed to cure dysentery carriers. The paratyphoid carrier, whose cure had been reported by Levi and Allen (1941) was not a chronic carrier, and it is impossible to say whether sulphaguanidine played any part in it.

Case Record

Our patient, Mrs. F., aged 24, a wartime nurse in the E.M.S., contracted the disease while nursing a case of paratyphoid fever in the febrile period of the disease, which lasted for rather more than a month, started on Sept. 3, 1941. She made an uneventful recovery, it continued to excrete *Bact. paratyphosum* B in the stools. Cholecystectomy was performed on Jan. 2, 1942, but the result of this surgical intervention was disappointing, for the carrier state continued unabated.

In July, 1942, Mrs. F. moved into the area served by this laboratory, and after an examination of her faeces had shown profuse growth of *Bact. paratyphosum* B it was decided to try treatment with sulphaguanidine. The first course, which was begun on Aug. 3, consisted of 1.5 g. three times a day for three days, followed by 1.5 g. twice a day for two days—19.5 g. in all; the patient was ambulatory during treatment. It might be mentioned that owing to a misunderstanding the amount of sulphaguanidine received by the patient in the first course was only half that intended.

Several bacteriological examinations from Aug. 10 onwards proved entirely negative for paratyphoid bacilli until Aug. 27, when they started to reappear. At first their number was small and growth could be obtained only after enrichment in tetrathionate broth; but they gradually became more numerous, until finally *Bact. paratyphosum* B was again the prevailing organism on MacConkey and selenite-F agar plates sown directly with the faeces.

Though the result of this first attempt fell short of our expectations, the temporary disappearance of the infective organism, which had not previously been observed in this carrier, was so striking that we could only attribute it to the administration of the drug. Hoping that continued treatment might exercise a cumulative effect, the patient underwent a further course of sulphaguanidine treatment, which began on Sept. 22. On this occasion the patient, whose weight was approximately 9 st., received 50 g. in seven days. This time complete suppression of the paratyphoid bacilli did not occur, but their number was greatly reduced. A third course was started on Nov. 24, the same dose again being given.

Though all subsequent examinations proved negative for paratyphoid bacilli the patient was given a similar and final course in Jan., 1943. *Bact. paratyphosum* B was never again recovered in

six further examinations (Jan. 14, Feb. 2, 16, March 5, April 9, and May 8), and the patient has been clear now for about six months.

Discussion

Can her carrier condition be considered cured? It is a well-known fact that carriers sometimes cease to excrete the infective organisms for periods of several months, and the failure to recover *Bact. paratyphosum* B from this patient's stools for six months would not by itself justify the conclusion that she has been cured. But we have been fortunate in having the collaboration of Dr. A. Felix of the Emergency Public Health Laboratory Service, whose investigations offer strong evidence of the cure of our patient's carrier state.

According to recent unpublished work by Felix a Vi agglutination test, similar to that employed in the examination of chronic typhoid carriers (Felix, 1938), is often an aid to the detection of chronic carriers of *Bact. paratyphosum* B. A steady or rising B Vi titre is suggestive of a probable chronic carrier state, whereas a decreasing B Vi titre in a carrier would indicate that the carrier state was only temporary. With Dr. Felix's consent we reproduce his findings and conclusions:

"The following readings were obtained in the various agglutination tests:

	9/9/42	15/3/43
<i>B. paratyphosum</i> B Vi ..	1:40 ±	1:20 ±
" O ..	1:200 ±	1:100 ±
" H sp. ..	1:200 ±	1:100 ±
<i>Salmonella</i> H group ..	1:100 ±	1:50 ±

"I think that this result indicates that Mrs. F. no longer harbours paratyphoid B bacilli—that is to say, her carrier condition has been cured."

In the summer of 1942, when we decided to give sulphaguanidine a trial in the treatment of our paratyphoid carrier, the recent American literature on the subject was not available in this country. Had we seen it, it is unlikely that we would have tried sulphaguanidine, as the result of a number of well-conducted trials in enteric carriers (Cutting and Robson, 1942; Watt and Peterson, 1942; Saphir, Baer, and Plotke, 1942) had been unconvincing. Those reported successes were restricted to a very few cases, and either the patients treated were not chronic carriers or the data published were not sufficient to allow of a decision on this important point (Hoagland, 1942). We know now also, from personal communications, that previous trials in this country were no more successful.

Before we try to find an explanation for the discrepancy between our own experience and the recent American findings we have to consider the effect of cholecystectomy on the carrier condition. It is known that the infective organisms can persist in the faeces for weeks or even months after the removal of the gall-bladder (Browning, 1933). Though there seems to be general agreement that the onset of the beneficial effect of this operation is not usually delayed beyond three months, Browning (1933) describes the case of a paratyphoid carrier who continued to excrete the specific bacilli for a period of 14 months after cholecystectomy before finally ceasing. Thus, in order to assess the part of sulphaguanidine treatment in the cure of our carrier we have to keep in mind that this occurred approximately nine months after cholecystectomy. But we think we have better evidence for the efficacy of the drug in our case.

As described above, the drug had an immediate and striking effect on the number of *Bact. paratyphosum* B excreted. It would seem unreasonable to suppose that this disappearance of the infective organism from the stools, which had never before been observed in this patient, was solely a late effect of cholecystectomy. Furthermore, after the first course of treatment the paratyphoid bacilli reappeared, to become just as numerous as before; only after two additional courses did they disappear definitely. And here our findings are in agreement with those of Cutting and Robson (1942), who also found a diminution and a temporary disappearance of *Bact. paratyphosum* in the faeces of a carrier after a course of sulphaguanidine.

We feel, therefore, that the success in the treatment of our chronic paratyphoid carrier was due to the cumulative effect of repeated courses of sulphaguanidine, and publish this case in the hope that others may succeed in reproducing our experience.

THE ARIBOFLAVINOSIS SYNDROME

It is now four and a half years since Sebrell and Butler¹ first described the facial lesions of a new syndrome associated with ariboflavinosis, or riboflavin deficiency. They described the bilateral transverse fissures in the angles of the mouth (the perlèche of previous writers), the red shiny lips, and the fine scaly, greasy desquamation around the nasolabial folds, said to be characteristic of the condition. Sebrell and Butler produced these manifestations in women in an institution given a diet complete in all respects but lacking riboflavin. When this was administered later the lesions cleared up. The existence of ariboflavinosis was confirmed in China by Hou² and in America by Jolliffe,³ Spies,⁴ and Sydenstricker.⁵ To the appearances described by Sebrell and Butler, Kruse and his colleagues^{6, 7, 8} added a specific type of glossitis and characteristic ocular manifestations. The tongue was described as clean, the papillae flattened and mushroom-shaped, and the colour purplish red or magenta in comparison with the scarlet tongue seen in some pellagrins. The ocular lesion ascribed to riboflavin deficiency was a superficial vascularizing keratitis, characterized on slit-lamp examination by circumcorneal injection, invasion of the cornea by capillaries from the limbic plexus, and superficial corneal opacities, the lesion being manifested subjectively by dimness of vision, photophobia, lacrimation, and burning of the eyes. Later Métivier⁹ described further ocular lesions, which she thought were due to riboflavin deficiency because they responded to treatment with this vitamin. One she calls tropical nutritional amblyopia, which appears to be the nutritional retrobulbar neuritis of other writers, and the other essential corneal epithelial dystrophy. Métivier claims that this is a new eye disease characterized by a faint greyish-white disturbance in the corneal epithelium, made up of fine points like dots and commas, and staining with fluorescein. She also describes a form of conjunctival injection which she calls "rosy eyes," characterized by an apple-pink injection of the ocular conjunctiva exposed in the intrapalpebral area.

Later investigations have shown that certain of the manifestations originally stated to occur in the ariboflavinosis syndrome are not always associated with riboflavin deficiency; at all events they do not invariably respond to treatment with riboflavin. Thus cheilosis may occur independently of ariboflavinosis. Ill-fitting dentures, resulting malocclusion, have been reported by Ellenberg and Black¹⁰ as a factor in its causation. The cases described by these authors failed to clear up when given riboflavin, but did so when the malocclusion was corrected. This observation appears to be valid and has been reported by others.¹¹ Cheilosis has been observed in a case of post-encephalitic Parkinsonism receiving a normal diet; the salivation may have been responsible here. There is also some evidence that cheilosis may be associated with such diverse conditions as hypochromic anaemia¹² and sensitivity to lipstick and chewing-gum. Machella and McDonald¹³ have failed to cure a number of cases of cheilosis with riboflavin. Some responded to nicotinic acid, pyridoxine, and the entire vitamin B complex. There are cases which resist vitamin therapy of any type. Some

of the other lesions attributed to riboflavin deficiency are also apparently non-specific. Thus Smith¹⁴ states that the seborrhoeic facial lesions described by Sebrell and Butler do not yield to riboflavin therapy, but respond to nicotinic acid slowly and to yeast rapidly. Machella and McDonald¹⁵ have also failed to improve patients with the tongue lesions said to be characteristic of ariboflavinosis by administering riboflavin, though pyridoxine and yeast were curative in some cases. The corneal vascularization described by Kruse and his colleagues,^{6, 7} and employed by him in survey work as pathognomonic of ariboflavinosis,¹⁵ has been shown by Sandstead¹⁶ to be quite non-specific and present in from 80% to 95% of children, youths, and adults examined, and without any other signs of ariboflavinosis. Sydenstricker and Kruse⁷ also described circumcorneal injection as an early sign of ariboflavinosis, but Scarborough¹⁷ has shown that this is also non-specific, because it occurred in some 30% of unselected hospital out-patients seen by him and with no other signs or history of ariboflavinosis. Boehrer and his co-workers¹⁸ placed three volunteers on a diet low in riboflavin (0.471 mg. daily) but adequate in other essentials, and failed to observe any signs of corneal vascularization after five weeks. Yet this appeared in a control subject receiving 3.5 mg. of riboflavin daily. The vascularization persisted even after three weeks on a "normal" diet and a further fortnight's treatment with 9 mg. of riboflavin daily.

Our conception of ariboflavinosis may need considerable modification when the results of investigations being carried out in this country and America are known. Experimental studies indicate that there is an individual variation in the requirement of riboflavin, independent of body weight and other known factors. Lack of balance in a diet may also produce manifestations of ariboflavinosis even on a high intake. Some other factor or factors may also be essential for the proper utilization of riboflavin. Thus Spies and his co-workers¹⁹ have emphasized the roles of pyridoxine and pantothenic acid in its mobilization and utilization. It may be that a deficiency of other factors of the vitamin B complex, such as choline, inositol, and adenylic acid, complicates the so-called ariboflavinosis syndrome. It must also be borne in mind that the staple diet of the cases described in America was maize; in this country, where ariboflavinosis is rarely described, it is wheat. Does deficiency of an essential amino-acid play a part? These problems await solution.

NERVOUS SHOCK

That powerful emotions are associated with physiological changes and widespread bodily sensations is a commonplace. That these, though ordinarily transient and trivial, may be lasting and severe is a phenomenon dimly recognized in popular speech—in such familiar phrases as "he nearly died of fright" or "she fainted for joy." The qualifying adverb is, however, rarely omitted. Historical instances abound, but here the pathology must be interpreted with caution. Scientific support for the fatal effects of emotion is rarely forthcoming. Particular interest therefore attaches to a case reported recently by Stürup.²⁰ A woman of 35 was admitted to the psychiatric clinic in Copenhagen in a state of stupor. There was a history of earlier paranoid symptoms, and, although the diagnosis made was that of a psychogenic paranoid psychosis, the history suggests schizophrenia. She was treated with insulin

¹ *Publ. Hlth. Rep.*, Wash., 1938, 53, 2282; 1939, 54, 2121.

² *Chinese med. J.*, 1940, 58, 616; 1941, 59, 314; *J. clin. Invest.*, Shanghai, 1941, 6, 19.

³ *New Engl. J. Med.*, 1939, 221, 921.

⁴ *J. Amer. med. Ass.*, 1939, 113, 931.

⁵ *Ibid.*, p. 1698.

⁶ *Publ. Hlth. Rep.*, Wash., 1940, 55, 157.

⁷ *J. Amer. med. Ass.*, 1940, 114, 2437.

⁸ *South. med. J.*, 1941, 34, 165.

⁹ *Amer. J. Ophthalm.*, 1941, 24, 1265.

¹⁰ *J. Amer. med. Ass.*, 1942, 119, 790.

¹¹ *Med. Clin. N. Amer.*, 1943, 27, 405.

¹² *Medicine*, 1937, 16, 267.

¹³ *Amer. J. med. Sci.*, 1942, 203, 114; 1943, 205, 214.

¹⁴ *J. Invest. Dermat.*, 1941, 4, 23.

¹⁵ *Milbank Mem. Fund Quart.*, 1941, 18, 241.

¹⁶ *Publ. Hlth. Rep.*, Wash., 1942, 57, 1821.

¹⁷ *British Medical Journal*, 1942, 2, 601.

¹⁸ *Amer. J. med. Sci.*, 1943, 205, 544.

¹⁹ *J. Amer. med. Ass.*, 1940, 115, 523.

²⁰ *Klin. Wschr.*, 1942, 21, 245.

without success. Cardiazol was impracticable as the veins were difficult of access. After a few months this drug was given, but without avail. The patient was then still in stupor interrupted by accesses of rage. Five minutes after witnessing a violent outburst of rage by another patient she became short of breath, poured forth a flood of speech, said she had had a "shock," and could not be pacified. She showed the clinical signs of shock, with imperceptible pulse, chilly extremities, and a rising rectal temperature. Six hours later a blood transfusion was attempted, but failed because a vein could not be found in the cubital fossa. The patient was analgesic; no bleeding took place from the severed skin, and even section of the radial artery yielded only one drop of blood. It was impossible even under pressure to inject any fluid into the distal portion of the artery. A later attempt on the femoral vein showed it to be about the thickness of a knitting needle and whitish. Fluid was, however, injected with transitory improvement in the patient's condition; the analgesia disappeared, but 16 hours after the onset of the shock symptoms the patient died. Necropsy revealed much oedema of the lungs with stasis and haemorrhages and scattered bronchopneumonic patches. There were fragmentation of the myocardium, stasis in the kidneys and liver, and evidence of cerebral oedema but no stasis in the cerebral vessels.

Stürup discusses earlier work of his concerning the effect of painful stimuli on limb volume. He reached the conclusion that such stimuli induced peripheral vasoconstriction by creating a state of increased alertness to danger, and explained the subsidence of the reaction noted on repetition of the stimulus as due to loss of its "alarm character." He thinks this state may be the nervous precursor of Cannon's "emergency reaction," which appears when real danger threatens. He believes it justifiable on the basis of this work to assume a similar mechanism in the patient described, terror leading to peripheral vasoconstriction with diminished loss of heat and hence raised internal temperature. He alludes to the febrile episodes in psychotics which occur notably after hallucinations of strongly anxious character, and stresses the initial signs of terror in his patient. He has observed similar states in puerperal confusions, and mentions the value of insulin in suitable doses as a life-saving measure in these cases. He believes that several of the cases reported by Scheid some years ago belong to this group. Stürup considers that such states as that described can occur in mentally normal people in response to violent emotions where an over-sensitivity of the vegetative nervous system can be postulated. He also thinks that so-called "surgical shock" may arise in a similar way in cases in which fear and loss of blood have produced the necessary sensitivity of the vegetative nervous system, and indicates the necessity for prompt treatment. Be that as it may, such states of "shock" are by no means uncommon in schizophrenics, and for this an adequate explanation is still awaited. It might also be expected that in these days such states as Stürup describes would be seen with some frequency, but so far they do not appear to have been recorded.

TREATMENT OF EYES INJURED BY MUSTARD GAS

We are indebted to Mr. A. F. MacCallan for recalling that in Sept., 1918, at a French military hospital in France Dr. G. Bonnefon,¹ the only ophthalmic surgeon there, without medical assistance and without specially trained medical orderlies, had to treat 1,800 men in whom both eyes had been affected during a mustard-gas attack. These were

treated at the rate of 200 eyes an hour according to the method to be described and contrary to the official instructions of the Service de Santé. The principle of the treatment consists in osmotic drainage of the affected mucous membrane by means of an eye-bath filled with hypertonic solution.

The clinical picture of the eye injured by mustard gas has three distinct phases: phase of impregnation, acute phase, and phase of recovery. The phase of onset is without symptoms, the eye exposed to blister gas allowing itself to become impregnated without manifesting any pain or discomfort. This lasts from one to three hours. The acute phase begins suddenly with hypersecretion of the conjunctival and lacrimal glands. Stabbing pain accompanied by photophobia begins, and in a few minutes the clinical picture is completed by such oedema of the eyelids as to close the palpebral fissure. The eye is now almost exactly like that of an infant with gonococcal ophthalmia neonatorum, except that there is no purulent discharge. When it is possible to open the palpebral fissure a yellowish blistering fluid spurts out. This phase lasts from two to five days, but may be shortened by judicious treatment. The phase of recovery is characterized by a progressive diminution of the palpebral oedema, but the lacrimal secretion and photophobia persist, with marked dilatation of the submucous capillary network. This phase may last for weeks or months in severe cases. Sometimes secondary infections of the conjunctiva or cornea occur, but these have no direct relation to the blistering action of the gas, which has long disappeared. Further skilled treatment by an ophthalmic surgeon may shorten or prevent this phase of sequelae.

The mildness of the ocular lesions caused by blistering gases as compared with their destructive effect on other parts of the body is indisputable. In contact with the tissues mustard gas (dichlorethyl sulphide) undergoes hydration with formation of hydrochloric acid. Severe pain is experienced and the defensive mechanism of the body is brought into play. No organ is more exposed or better protected than the eye. There are the reflex flow of tears, which clears away the acid from the conjunctival fornices and from the ducts of the meibomian glands: osmotic action, which fills up the subepithelial lymph spaces: dialysis of fluid from the submucous capillaries. This superficial and deep lavage prevents any eruption of blisters. In 1917 Bonnefon saw, in the narrow valley of Belrupt near Verdun, a battery of horse artillery which had been shelled with mustard gas the day before. A number of the horses exhibited absolutely opaque corneae as a result of the gas, while none of the gunners had to be sent to hospital, though some of them had not been wearing their masks. He observes that the horse and the rabbit have no lacrimal secretion or periorcular lymphatic defences which in man render the eyes less liable to damage by gas. It is therefore reasonable to conclude that, since the natural defences of the ocular adnexa suffice to protect human eyes when slightly damaged by gas, in severe cases the aim should be to reinforce the natural mechanism. Bonnefon carried this out after another heavier gas attack, as soon as the casualties arrived at the first-aid post, by cleaning up the eyelashes and applying an eye-bath filled with a warm hypertonic lotion. This consisted of saturated solution of sodium sulphate 800 grammes (about 1½ pints) and syrupus simplex 200 grammes (about 1/3 pint). However great may be the palpebral oedema, this solution enters the palpebral fissure and penetrates to the fornices and osmotic drainage occurs. After ten minutes of immersion the fluid in the eye-bath becomes acid, proving the efficacy of the treatment. With 200 eye-baths and four first-aid assistants, 1,500 eyes were bathed twice a day. This osmotic treatment should be continued not only during

¹ "L'Œil syphilité: Son Traitement." *Gaz. hebdomadaire de Sci. Méd.*, 1939, 60, 168, 179.

the acute stage, but also so long as there is any photophobia and lacrimation. When an analgesic is needed Bonnefon recommends the instillation of a 2% solution of dionine (ethyl morphine).

The treatment for gassed eye given in the official *Medical Manual of Chemical Warfare*, 1943, pp. 16 and 19, envisages the flushing of the conjunctival sac with water if this can be done within five minutes, the instillation of atropine as a mydriatic and of albucid soluble 2.5% as an antiseptic. If the discharge is excessive the conjunctival sac may be washed out with normal saline solution twice a day. Cocaine must never be used as an analgesic as it will cause damage to the corneal epithelium. Liquid paraffin and oily drops must never be used while there is a possibility of any dichlorethyl sulphide remaining in the conjunctival sac, because they are solvents thereof and further damage may be done. Mr. MacCallan's criticism of this treatment is that if atropine is used as a routine for slight casualties the recipient will be out of action for a week or longer, while in a case of only moderate severity one cannot introduce a satisfactory amount of irrigation fluid into the conjunctival sac on account of the tight closure of the lids.

ALCOHOL AND THE BRAIN

From the dawn of history man has used the depressant action of alcohol on the cerebral cortex and its effect in releasing the lower centres as an aid to conviviality in social intercourse, and as an escape from the tension and drabness of his everyday life. Alcohol depresses those parts of the brain the functions of which are chiefly inhibitory, so that the power of restraining the emotions is impaired. What happens to the alcohol that has loosened the tongue of the after-dinner speaker or has produced oblivion in the habitual toper? Little is known of the way in which it disappears from the brain. It was always thought to be metabolized in the tissues and not in the central nervous system, which was supposed to metabolize carbohydrate only. Enough evidence has now accumulated to show that alcohol is oxidized by the cells of the central nervous system. Alcoholized brain tissue takes up more oxygen than normally respiring brain tissue,¹ and as the respiratory quotient of the tissue shifts towards that of alcohol it may be assumed that the increased oxygen consumption is concerned with the metabolism of the alcohol.² However, in acute alcoholism there is a diminution in the cerebral oxygen consumption, due to the depressant action of large quantities of the drug.³ The presence of an alcohol-oxidizing enzyme system in the brain of several species has now been demonstrated by Dewan⁴ of Ontario, and it may be assumed that a similar mechanism exists in the brain of man. Two members of the vitamin B complex—namely, nicotinic acid and riboflavin—are components of this system. As this catalyses the consumption of alcohol in the brain, and as alcohol is known to depress the functioning of the latter, Dewan suggests that this enzyme system probably acts as a detoxicating or protective device after excessive alcoholic indulgence. It is well known that alcoholics eat sparingly and suffer from vitamin deficiencies, particularly of the vitamin B complex. Owing to the relative deficiency of nicotinic acid and riboflavin in such persons alcohol may reach a high concentration and remain for a long period unmetabolized in their central nervous system. It would therefore appear essential to increase the intake of nicotinic acid and riboflavin not only in the chronic alcoholic but also in the heavy drinker,

to ensure efficient removal of alcohol from system. As Dewan points out, the fact that equipped to metabolize alcohol indicates that nervous system is more versatile chemical thought.

PLANNING OF ACCIDENT SERVICES

Fractures may be the most important of the countered in accident departments, and the variations for rehabilitation coming forward in have had fractures chiefly in view. But an a vice must also embrace the treatment of injury tissue, infections of the hand, burns, tendon injuries, and indeed all injuries of the locomotor many of which are no less incapacitating than and in total outnumber fractures in the proportion of ten to one. This point of view is urged in a memorandum on accident services published by the British Orthopaedic Association. It is pointed out that many hospitals now have special fracture departments, but special accident departments, always excepting developments as those at Birmingham and Oxford, have not. Great attention has been given to the organization of accident services. "Too often," says the memorandum, "the most junior resident is given the responsibility of wounds, lacerations, and soft-tissue injuries, unaided by senior members of the visiting staff. The planning of casualty departments to meet the needs of accident services is suggested. Near the entrance to the accident department many cubicles should be provided where patients can be prepared, examined, and treated in case of shock. There must be immediate access to the radiology department and from this to emergency theatre. Hospital beds must be available so that "minor" injuries can be treated under ideal conditions. In every department an orderly, nurse, or masseuse should concentrate on rehabilitation. Continuity of treatment must be maintained from the phase of emergency operation to in-patient treatment and out-patient supervision and rehabilitation and after-care. The memorandum also suggests that orthopaedic surgery, which is the surgery of the locomotor system and concentrates on function, is not a specialty. It requires men who have been trained in every branch of the subject—"traumatic surgeons" but surgeons experienced in the locomotor system. Suggestions are made for the organization of an accident department of a general hospital, and a point is also made that in rehabilitation there should be groups of cases to be differentiated—namely, those of sedentary and light industrial workers, who can be rehabilitated, as a rule, within the precincts of the hospital, and the injuries of heavy industrial workers who may need special centres in country situations, with provision for residence.

Dr. C. M. Wenyon, F.R.S., will retire shortly from the position of director-in-chief of the Research Institution and director of the Wellcome Scientific Research. He has been associated for over 20 years with the research laboratories founded by the late Sir Walter Wellcome. Dr. Charles H. Kellaway, F.R.S., director of the Walter and Eliza Hall Institute for Medical Research, will take over the directorship-in-chief of the Wellcome Foundation's other research laboratories as far as possible. Dr. Wenyon has agreed to postpone his departure until Dr. Kellaway reaches this country. Dr. N. Fairley, F.R.S., now serving with the rank of Colonel as director of medicine to the Australian Army in London, will eventually take over the directorship of the

¹ Arch. Neurol. Psychiat., Chicago, 1935, 33, 1022.
² J. Amer. med. Ass., 1933, 100, 651.

MILK AND ITS PROBLEMS

A NUTRITION SOCIETY DISCUSSION

For the second time the Nutrition Society has held a joint meeting with the Food Group of the Society of Chemical Industry—this time on "milk," under the chairmanship of Prof. H. D. KAY, Director of the National Institute for Research in Dairying. Dr. Kay reminded the audience that the future of both nutrition and farming in Britain was bound up with the supply of milk, a key foodstuff. Special wartime problems of milk supply had interested three separate Ministries, and it was desirable that this collaboration should continue into the post-war years. A regular 10% yearly increase in the consumption of milk could then be hoped for, although it was necessary to remember the effect of the steadily changing age distribution of our population on any future expansion. Dr. Kay also insisted on the importance of adequate training of technical personnel engaged in milk production and distribution, and he welcomed the recent formation of the Society of Dairy Technologists.

Some Facts about Dairy Production

Mr. J. L. DAVIES, an officer of the Milk Marketing Board, gave an important factual survey of dairy production in this country. When his paper appears in full in the *Proceedings of the Nutrition Society* it will be interesting to study the figures of the distribution of farm sizes and herd sizes in Great Britain, and the number of producer-retailers in the country. Mr. Davies concludes that about half the farmers in the country are concerned in milk production, and that efficiency is possible with herds of from 15 to 100, provided conditions are suitably adjusted. He pointed out certain pitfalls in finding a true "average" figure for the annual milk yield of cows in this country; in his view it was legitimate to aim at a figure of from 600 to 650 gallons under good dairy-farming conditions. He made it clear, however, that these are often far from proper, and like other speakers he deplored the drudgery experienced by operatives working in bad conditions, and insisted on the importance of securing for dairy-farm workers at worst a six-day week and equipment enabling them to put into practice the universally accepted views of nutritionists and other health authorities. In Mr. Davies's view, half the dairy-farms in the country need extensive improvements, and one-third need complete rebuilding; the capital cost of such changes would be about £100 million. If plans are made now, it should be possible to secure the changes within ten years of the end of the war. A ten-year plan would also be needed to eliminate disease from our herds. If all the necessary steps were taken we could expect to produce enough milk to allow for an average daily consumption of at least three-quarters of a pint; in May of this year it actually reached the figure of 0.65 pint, compared with 0.37 just before the war. It is impossible here to do justice to the value and extent of the detailed figures supplied by Mr. Davies.

Pasteurization: Milk Nutrients

Dr. A. T. R. MATTICK of the National Institute for Research in Dairying read a paper in which many technical aspects of pasteurization were considered—including both the holder and the high-temperature-short-time (H.T.S.T.) methods. He spoke of the importance of pasteurization for stock feeding, as well as for the production of liquid milk intended to be drunk by human beings. Besides describing different methods of heat sterilization and the effects of these on various types of organism likely to be present in milk, whether from the infected udder, the farm-hand, the dairy water-supply, or the atmosphere to which the milk is afterwards exposed, Dr. Mattick condemned the view that "any old milk" could be pasteurized. Two of the practical proposals made by him are: first, an official ban on feeding farm animals with infected milk, and, secondly, the legal enforcement of a pre-pasteurization maximum bacterial count, if only in the interests of the producers themselves. Dr. Mattick also called attention to the importance of plant design management in the post-pasteurization handling of milk, particularly the bottling stage.

Dr. S. K. KON, also of the Institute, led a whirlwind tour through the land of milk nutrients, illustrated by some admirably summarized tables and diagrams. Speaking as a

nutritionist, he gave most of his figures in terms of 1 pint of milk as the desirable daily consumption, thereby confirming the urgent plea of Mr. A. L. Bacharach, during the later discussion, that we should certainly not accept Mr. Davies's modest three-quarters of a pint as the ultimate goal of dietary sufficiency. Dr. Kon emphasized the importance of milk protein, not only because of its own high biological value but because of its supplementary effect on the cereal proteins with which it was habitually consumed. The traditional combination of bread and cheese is justified by amino-acid analysis. Dr. Kon also emphasized—an emphasis unfortunately more necessary to those absent from the meeting than to those present—that the effect of pasteurization, drying, condensing, and evaporating on the nutritive value of milk is negligible and of no consequence compared with the enhanced safety given by such processing. Dr. Kon made the point that separated milk, liquid or dried, is for adolescents and adults almost every bit as valuable as full-cream milk. In particular the supplementary value of milk protein applies to separated as much as to whole milk.

The figures given by Dr. Kon made it clear that the various nutrients in milk show a considerable range. He stated the problem—reiterated by the chairman in his closing remarks—of turning from considerations solely of quantitative milk production to nutritive value. It should be possible both to feed and to breed with the object of producing cows that will yield milk having not only constant but maximal amounts of its essential nutrients. During the discussion Prof. A. W. ASHBY expressed scepticism about figures that had been put forward to illustrate the extent to which this loss could be avoided. Prof. Ashby's views were obviously not accepted by Dr. W. R. Wooldridge.

Pasteurization Again

Some of those present thought that Prof. G. S. WILSON painted too black a picture of the present milk position. But there was no pessimism about his view that almost if not entirely all the present troubles arising from the distribution of unsafe milk could be most expeditiously and safely met by compulsory pasteurization. He devoted a little consideration to the "arguments," as they are sometimes called, of those who oppose pasteurization in general, and compulsory pasteurization in particular. There is, for instance, the tragic idea that immunity can be purchased by the hit-and-miss method of distributing tuberculous milk unsystematically, and at the cost of 1,500 to 2,000 young lives annually. One speaker suggested that those using this argument should be invited, on the basis of their own advocacy, to insist that all milk should be injected with a small immunizing dose of live tubercle bacilli. Prof. Wilson said that pasteurization was needed not only for the elimination of the bovine tubercle bacillus but also for eradicating *Brucella abortus* infection, post-secretory contamination from carriers of diphtheria bacilli, haemolytic streptococcus, and other pathogens.

In conclusion Prof. KAY stressed the connexion between a healthy food policy and a healthy agriculture in Britain, and insisted that pasteurization of raw milk supplies was a condition precedent to the nutritionally desirable increase of milk supply and consumption that had been so much in the foreground in the day's discussion. He also urged that research and practice should concentrate on reducing the variability of milk, and that we should aim at a standard of nutritive value below which it should be illegal to sell milk for consumption.

ALLOCATION OF MEDICAL MAN-POWER IN
NORTHERN IRELAND

On Jan. 12, 1942, the Minister of Home Affairs appointed a Medical Personnel (Priority) Committee to consider the most economical allocation of the available medical manpower in Northern Ireland and to promote measures for securing the maximum co-operation to meet civil and Service needs in the area and the elimination of overlapping. This committee has since presented two interim reports, the main conclusions of which and the action taken on them being as follows:

(a) Figures supplied by the Central Medical War Committee show that of the total number of doctors whose names appear

in the Northern Ireland Section of the National Register of Members 20.6% are now serving with H.M. Forces. This figure is largely due to the good response which has been made by recent graduates; of the men who have qualified since 1938 60% have joined the Forces, the highest percentage in any one year being 72; and, if women graduates are included, the respective figures are 53 and 66. These figures, though relating to a system of purely voluntary enlistment, are nevertheless reasonably close to those applicable to the rest of the United Kingdom. It should also be borne in mind that a substantial number of Northern Ireland medical men have been recruited into the Forces elsewhere than in Northern Ireland.

(b) That the right of entry into panel practice should be restricted during the emergency with a view to protecting the practices of doctors in the Forces and to encouraging others to join. The Ministry of Labour has given effect to this recommendation by a Regulation made under the Emergency Powers.

(c) If conscription were to be applied to the medical profession in Northern Ireland it is unlikely that any further contribution would be possible from amongst the consultants and specialists, doctors holding hospital appointments, or those engaged in the public health, teaching, or research services.

(d) A substantial contribution would, however, be called for from among general practitioners. In the opinion of the committee it would be possible to maintain an efficient medical service for the civilian population under war conditions and at the same time to release for service in H.M. Forces a considerable number of doctors now engaging in private practice as principals (probably about fifty), and also a small number of assistants. The committee realizes the practical difficulties in the way of achieving this result on a voluntary basis.

Reports of Societies

INJURIES OF THE SPINAL CORD

At a recent meeting at Glasgow of the British Orthopaedic Association, under the presidency of Mr. G. R. GIRDLESTONE, there was a discussion on injuries of the spinal cord.

Mr. R. C. MURRAY, in an analysis of 21 patients admitted to an E.M.S. hospital, stated that the neurological lesion could usually be accounted for by a study of the radiographs, but that where no adequate cause was shown there might be a protrusion of bone from the back of the vertebral body which must be considered as a possible indication for early laminectomy. His series supported the view that in cord lesions with complete loss of function lasting 24 hours no recovery could be expected in segments below the lesion. Recovery was most possible in cervical lesions and in those below the first lumbar vertebra. There was no limit to the time of recovery of motor fibres in the roots and cauda equina. Reduction should be carried out in all cases, for even in complete cord lesions this might lead to the recovery of some roots and add two or even three useful segments. Reduction should be followed by fixation; in the cervical region by continuous skeletal traction; after operative reduction by a hyperextension plaster jacket; and in cauda lesions by a plaster bed and turning case. The greatest difficulty, on account of pressure sores, was in dorsal lesions for which a complete combined plaster jacket and double spica were advised, so as to distribute pressure evenly and also facilitate turning and relieve pain and spasm. For treatment of the bladder tidal drainage was recommended. Finally, few cases should be regarded as hopeless, for even with a complete lesion at the level of the conus a patient might learn to walk.

Mr. ROLAND BARNES, reporting on a similar group of patients, stressed the importance of accurate sensory testing in assessing the degree and the prognosis of the spinal cord injury. It was more valuable, he said, than knowledge of the extent of motor paralysis. He had found that the prognosis was worse in lesions at the level of the twelfth thoracic vertebra than in those of the first lumbar. Laminectomy was never indicated

as an immediate operation, but should be done when there was an incomplete paraplegia not showing spontaneous recovery, if there was evidence of increasing pressure upon the cord, or for severe and intractable root pains. He agreed that reduction of vertebral displacement should always be attempted, particularly if the paraplegia was incomplete. Radiographs of the highest quality were essential. Fracture-dislocations with locked facets were commoner than was generally realized. For this injury an open operation was indicated; the excision of articular processes should be avoided so as to maintain the stability of reduction, which usually should be further assured by internal fixation. For such operative cases he preferred a plaster bed and turning case.

Phosphatase in Bone Diseases

Prof. NOAH MORRIS, in a review of the present state of knowledge of phosphatase in diseases of bone, said that this enzyme, the function of which was to accelerate the conversion of organic into inorganic phosphate, was widely distributed in the tissues. If jaundice was excluded, increase of plasma alkaline phosphatase was pathognomonic of the presence of bone disorder. Of itself, however, it was of little value in the differential diagnosis of osseous lesions, but taken in conjunction with clinical, radiological, and other biochemical findings it was often of considerable assistance. The cause of the increase in plasma phosphatase was of some importance not only theoretically but also from the standpoint of the clinician. Destruction of bone *per se* was not accompanied by any marked increase of plasma phosphatase unless new bone or osteoid tissue was being formed. In the healthy individual the plasma phosphatase increased during periods of growth. Acceleration in rate of growth was associated with increased activity of osteoblasts. The factors regulating osteoblastic activity almost certainly included the rate of deposition of calcium salts. A reasonable hypothesis might be that if ossification was not maintained at a rate sufficient to meet the degree of cellular activity on which phosphatase formation depended, excess of ferment passed over into the plasma. If this hypothesis was correct an increase of plasma phosphatase might be expected as a result of: (a) increase in bone cell activity at such a rate that it could not be satisfied by the available calcium, or (b) insufficient intake of calcium and/or vitamin D.

With Mr. Matthew White he had been able to follow the course of the plasma phosphatase in a child with healed rickets during a period of calcium starvation and ammonium chloride administration. Here with the defective supply of calcium the plasma phosphatase showed considerable increase. The findings of Woodward and his co-workers with primary and metastatic tumours of the bone showed that with primary tumours an increase of plasma phosphatase occurred only when the tumour cells were producing phosphatase at a rate very much higher than that of normal bone tissue, and that a fall of plasma phosphatase after surgical removal or irradiation therapy was due to the withdrawal or inactivation of the phosphatase-forming cells. In bone metastases the increase of plasma phosphatase appeared to be due to a defence reaction manifested as increased bone formation adjacent to the tumour cells. Only when the reaction was osteoplastic did the serum phosphatase increase. In osteolytic lesions little change was observed.

It was clear that in many pathological conditions of bone such as rickets, osteomalacia, Paget's disease, and others, the variations of plasma phosphatase afforded a valuable guide to the course of the disease, the prognosis, and the effect of any therapeutic measure. Acid phosphatase was seen in many tissues, but if an increase was found in the plasma it almost invariably derived from prostatic glandular epithelium. Normally very little prostatic phosphatase appeared in the plasma, and it was abnormally high only when the blood and lymph vessels were invaded by tumour cells derived from the prostate. Of special value were serial determinations of plasma acid phosphatase in assessing the results of castration or oestrogen therapy.

Infection in Burns

In a paper on the control of infection in burns Dr. LEONARD COLEBROOK divided such infections into two groups: (1) the coccal infections of the first week, which were the most threatening to life and to rapid recovery but the control of which was well within sight; (2) the bacillary infection occurring when sloughs were separating, and which were largely responsible for the patient's anaemia and low state. The control of these might be expected only when much more trouble was taken in the prevention of hospital infection—especially from dust—and when a chemotherapeutic agent was available which was as effective against them as penicillin was.

against the cocci. In 310 cases of burns admitted to the special unit of the Royal Infirmary, Glasgow, the methods used to obtain improved results included: strict aseptic precautions during the first few hours following admission, among them the use of sterilized blankets; an attempt to sterilize the burned surface by means of C.T.A.B. solution (without anaesthesia); the application of a bacteriostatic dressing which could be left undisturbed for 7 to 10 days (sulphanilamide or sulphathiazole in lanette wax SX and castor oil base—10% for most cases, 3% for extensive burns); prompt elimination by means of penicillin or propamide of haemolytic streptococci from burns already infected, and various measures for reducing cross-infection—e.g., strict "no-touch" dressing technique; elimination of dust; masks, etc.

Mr. JAMES PATRICK, in a paper on supination and pronation in forearm fractures, stated that when a fracture had been well reduced it was found that limitation of movement was only to be feared in severe fractures of the head of the radius and fractures lower down in either bone which involved the attachment of the interosseous membrane by fibrosis, ossification, or shortening. It was important to realize that the axis of radial rotation was exactly along the interosseous ridge of the ulna. He emphasized the importance of lesions of the triangular fibrocartilage at the inferior radio-ulnar joint, not only in Colles' fracture but also in fractures of the head of the radius. For the latter cases he recommended early active rotation movements after the head had been excised. In fractures of the shafts of the radius and ulna operation should be avoided so far as possible; where necessary only the radius should be exposed and its interosseous aspect should not be encroached upon. Where cross-union occurred in the lower third of the forearm, excision of a segment of the ulna, including the fracture, gave good results. For permanently severe loss of rotation after Colles' fracture excision of the lower inch and the articular portion of the ulna also was good. Late angulation of fractures of both forearm bones was shown to be due to wasting of the brachio-radialis muscle, which allowed sagging of the fracture within the plaster case. Adequate support in the middle of the forearm mitigated this complication.

Other Papers

Mr. I. S. SMILLIE, in a paper on the regeneration of the menisci of the knee-joint in man, described the fibrous structure, which partially replaces an excised meniscus. It was densely adherent to the synovial membrane at its periphery, it was thinner and narrower than the normal structure, and was whiter because it was composed of fibrous tissue only. Five cases were described in which regenerated "cartilages" had been torn—a circumstance which was rare unless factors producing gross instability were present within the joint. Dr. G. W. ARMSTRONG of the Canadian Orthopaedic Unit, with a cinematograph film, described his method of internal fixation by screws in carefully selected cases of oblique fractures of the tibia. Mr. ARTHUR PARKES read a paper upon traumatic ischaemia of peripheral nerves occurring in a group of patients in whom a severe injury to the leg, with or without fracture, had been followed by gross swelling of the limb and anaesthesia of gradual onset spreading centripetally from the great toe over the foot and ankle. Later, objectively, paralysis with the reaction of degeneration was observed in all the intrinsic muscles of the foot with sensory loss in the distribution of all the deep nerves. Recovery was very slow. The condition was thought to be due to tension under the deep fascia from extravasation of blood and tissue fluids, causing ischaemia of the nerve trunks by pressure. For treatment it was suggested that early operation was indicated even when the peripheral pulse was present. Incisions through the deep fascia would relieve tension and prevent the development of an extremely disabling condition.

Clinical demonstrations were given at the Glasgow Royal Infirmary and at the Philliphill Orthopaedic Hospital. At the latter Dr. A. K. BOWMAN, introduced by Mr. JAMES RUSSELL, gave an account of the influence of Glasgow in the development of orthopaedics, particularly in relation to the work of the Hunters, of Lister, and of Macewen.

The British Council has received a report from the Institute of Natural Science in Yenan, N.W. China, that Dr. Arow, a Soviet medical man, seeing the shortage in sources and the high price of cotton-wool, and the great demand for medical cotton-wool in surgical work, collected a great deal of spirogyra from the Yen River, dried it in the sunlight, wrapped it in gauze, disinfected it, and used it as pads to absorb pus and blood. According to practical clinical experiments, the absorbing capacity of spirogyra is five times that of gauze and seven times that of cotton-wool. The doctors in Yenan intend to use it on an extensive scale.

Correspondence

The Diet in Diabetes

SIR.—Dr. G. R. W. LUNTZ (July 3, p. 21) agrees with Prof. R. H. MICKS (May 15, p. 598) in thinking that it is sufficient to treat a diabetic patient with insulin and an unrestricted diet. However, he thinks that this is undesirable for elderly obese patients and says that these should be strictly dieted. I agree with him that this type of patient should be carefully dieted, and that many of them will cease to pass sugar and have a normal blood sugar if the carbohydrate is restricted to about 100 g. carbohydrate. It may be necessary to give insulin as well for a time, though in this type of case it can often be given up. There is another large group, in whom I believe, as does Prof. Micks, that it is possible to control the glycosuria with great benefit to the patient. The great majority of patients of all ages who have an acute onset of diabetes are very easily controlled, whether the diet contains 150 to 250 or even 300 g. of carbohydrate, depending on the age and activities of the patient, together with 60 to 80 g. of protein and 70 to 100 g. of fat per day for an adult. While these patients are being stabilized and while they are improving under treatment they may have mild attacks of hypoglycaemia, but if care is taken these are rarely severe. Under these conditions the dose of insulin will often decrease from, say, 50 units to 20 or 10 units a day, and may in some cases be discontinued altogether for short or long periods. Patients are always pleased when the dose of insulin can be decreased and much prefer taking small doses to large ones; they are also pleased when the urine contains no sugar at all. If a patient fails to improve sufficiently to be able to give up insulin, Prof. Micks allows his patients to have an unrestricted diet. I, on the other hand, having with the help of dietitians trained the patients during this period how to vary their diet so as to make it palatable, find that the great majority of them maintain their diets carefully and vary their own dose of insulin. These patients keep well and lead very active lives.

A few patients are difficult to control from the beginning of the illness and are liable to frequent overdoses: others may develop this tiresome complication after the lapse of from one to nineteen years, and it is especially dangerous when the patient ceases to recognize the symptoms of hypoglycaemia. I agree with Prof. Micks and Dr. Luntz that these patients must be allowed to have a high blood sugar after meals, though this will not prevent all the attacks, as the hyperglycaemia may change so quickly to hypoglycaemia. Some of these patients are then uncomfortable and suffer from thirst and polyuria and lack of energy because the blood sugar is so high, though others do not have any such symptoms. Neither Prof. Micks nor Dr. Luntz gives any idea of the height of the blood sugar of his patients. I wonder whether they would disapprove of a blood sugar of 540 mg. per 100 c.c.m. which I recently found in a girl of 14 who had just been discharged from a clinic which believes in unrestricted diets. She was then taking 76+60 units, but after being in hospital for two weeks on a diet containing 200 g. of carbohydrate with about 60 g. of protein and about 100 g. of fat only needed 42+22 units, and the blood sugar was below 200 mg. throughout the day without any symptoms of hypoglycaemia.

It is still difficult to give statistical evidence that patients suffer harm from having persistent hyperglycaemia. The patients whom I treated in 1923-4 and who refused to keep to the strict diets of those days certainly died much more quickly than the ones who kept to their diet (*Lancet*, 1938, 2, 1), but some of them lived much longer than I expected. Nowadays the amount of carbohydrate in the diet is so much more generous than what I used then that it is rare that I find patients who do not stick to the diets, and with the aid of insulin they maintain a reasonable control of the diabetes so that I have little opportunity of telling whether patients do better or worse with continuous hyperglycaemia.

Dr. Luntz rightly points out that arteriosclerosis does not occur as a result of hyperglycaemia, and this complication is now accepted as being due to the low carbohydrate-high fat diets used for the first 6 years or so after the introduction

of insulin. The complication I dread is that of retinitis and cataract. Hyperglycaemia is not the only factor in the production of these conditions, and I have seen retinitis develop in elderly diabetics although the blood sugar has been well controlled. I have much more often seen it in patients who have had an uncontrolled diabetes for some years, and I have watched the retinitis improve when the diabetic condition has been brought under control. I believe that patients who are allowed to have a blood sugar above 250 or 300 mg. throughout the day run much greater risks of this complication. Prof. Micks says we shall know in 20 years, but by that time many patients may have suffered much from impaired eyesight. It seems a risk too great to be taken with our present knowledge.—I am, etc.,

London, W.1.

GEORGE GRAHAM.

Neonatal Gastro-enteritis

SIR,—I was much interested in Dr. J. L. Henderson's article on neonatal gastro-enteritis (April 3, p. 410) and in his letter (May 15, p. 613).

During the months of February, March, and April, 1942, I used sulphaguanidine in the treatment of seventeen cases of this disease. The cases occurred in the nurseries of the Royal Maternity Hospital, Belfast. Fifteen were in premature babies whose average weight was 3 lb. 8 oz.; the remaining two were in full-term babies.

Two of the patients died; therefore the mortality rate was just under 12%. For the purpose of comparison I looked up the hospital records of cases of this disease during the years 1938 to 1941 (inclusive). During this period there was a total of 58 cases of gastro-enteritis with 20 deaths—i.e., a mortality of slightly over 37%.

The treatment given was as follows: The affected babies and all "contacts" were isolated. Feeding with breast-milk was continued. The breast-milk was obtained from nursing mothers either by hand expression or by a breast pump. Sulphaguanidine 0.125 g. was given four-hourly. This dosage was continued till the stools were normal in frequency, colour, and consistency. In only a few cases was it thought necessary to administer Ringer's solution subcutaneously.

My results suggest that smaller doses than those recommended by Dr. Henderson will give good results. I agree that it is necessary to give an adequate fluid intake, but I think that it is unwise to discontinue feeds with breast-milk. Breast-milk can be obtained, and I think that a baby requires its natural food as urgently during illness as during health. Fortunately vomiting was not a marked feature of the cases I saw, and therefore feeding did not present any unusual difficulties.

I agree with Dr. Henderson that controlled experiments are not justifiable when dealing with this disease. The dividing line between life and death in these cases is very narrow. Further, these babies are frequently those from difficult obstetric cases, and therefore one is not justified in carrying out controlled experiments with them. While clinical impressions may be incorrect, it is impossible not to be favourably impressed when the evidence can be seen growing stronger and heavier every day. Experienced members of the nursing staff in the hospital who had witnessed other outbreaks of this disease were certainly favourably impressed by the results obtained. In fact, I doubt if they would have permitted a controlled clinical experiment.—I am, etc.,

G. A. CRAIG, F.R.C.S.E.D.,

Late Senior Obstetric Tutor,
Queen's University, Belfast.

Ayr, Scotland.

Epidemiology of Diphtheria

SIR,—I admire the caution of your conclusions in the leader on "Epidemiology of Diphtheria" (July 10, p. 44). One must in drawing conclusions from statistics in this disease take into consideration the capricious behaviour of the bacillus, as the following notes on a small epidemic in an isolated village show. The epidemic occurred eight years ago, before the days of immunization. The cases numbered 11 and the epidemic lasted two weeks.

1. The children affected (with one exception aged 7+) belonged to one class of the village school who were between 6 and 7 years of age, and the cases occurred at irregular intervals over a fortnight.

2. All the children affected (with the same exception) were inmates of sublet single apartments.

3. Every child had a brother or sister who occupied the same bed, but none of these was infected.

4. All the children of the school were examined regularly, swabs from suspicious throats being examined.

5. The origin of the epidemic was found to be a child of 3 years with chronic nasal diphtheria whose brother was a member of the class. Swabs from throat and nose of the brother were negative.

6. The epidemic ceased immediately these two were isolated.

Since this experience I have noted how seldom swabs from contacts in a family where one member has tonsillar diphtheria are positive, and how universal the infection if the disease is nasal. It may be that the infectivity of the disease increases with the duration of the infection.—I am, etc.,

Bathgate, West Lothian.

JOHN F. LANG.

Rehabilitation

SIR,—In Dr. Harold Balme's article on "Some Problems of Rehabilitation" (July 10, p. 47) he makes a number of points with which all consultants in physical medicine will agree but there are others that call for immediate comment lest worse befall the patient in the future than in the past.

The points which will meet with warm agreement can be enumerated as follows:

1. "The effect of trauma on every type of soft tissue—fascia, muscle, tendon, serous and synovial membrane, etc.—demand careful study. . . . It should not, however, be difficult, by means of controlled experiment carried out on a sufficient number of cases, to establish definite criteria by which to judge of the method suited to each class of disability and to each stage of recovery."

2. "Nothing would be more unfortunate than for rehabilitation to be divorced from medical or surgical control and established as a new health cult."

3. "In the first place, what do we mean exactly by rehabilitation? It is an unfortunate and clumsy term, and one which is already being used with a variety of different meanings, but from a strictly medical and surgical aspect it can perhaps best be defined as the method by which physiological function is fully restored after its temporary loss from injury or illness."

With regard to No. 1, physical medicine has for more than 20 years asked the Medical Research Council and other bodies for funds for definite investigation and has always met with a polite but firm refusal. There is no indication in Dr. Balme's article that such funds are anywhere in sight. Without them his premisses are but the paper recommendations we have all made over many years. Can he tell us whether the Ministry of Health is prepared to be generous and sponsor the investigation he calls for? Its actions up to date give less than hope that adequate investigation of physical methods is, or has ever been, part of its programme.

As all physical medicine consultants will agree with No. 2 this calls for no comment.

In reference to the definition of rehabilitation, it is possible to agree with Dr. Balme's description of the term as "unfortunate and clumsy," but his definition should have these words added: "and begins with the onset of the injury or illness." Rehabilitation is neither a new nor a separate subject.

So much for those aspects of his paper about which the practitioners of physical medicine can agree. In his paragraph headed "Organization of a Rehabilitation Team" he falls, however, into the fallacy (or is he being merely diplomatic?) so common, particularly among orthopaedic surgeons, that, by referring a case to a medical man with special training in physical medicine the physician or surgeon is losing control over the patient. He states that his "prescribers will of course consist of the physicians and surgeons actually in charge of the patients, whose duty it is to signify when rehabilitation should start." By this proposal he suggests perpetuating the worst features of inefficient physical medicine departments by putting those cases whose treatment the staff wish to delegate into the care "of one or more members of the whole-time medical staff," presumably a house-physician or other junior practitioner inexperienced in physical medicine. There is really no difficulty about the position or relations that should exist between members of the staff and the specialist in the medico-physical aspects of health and disease. All that is required is to adopt certain simple rules that have been in operation at the Royal Free Hospital for twenty years. These are:

(a) "Will Dr. — kindly see and treat"—i.e., a complete transfer of the case to the physician in charge of the department.

(b) "Will Dr. — advise re treatment?"—i.e., the case is seen a report made, and the staff member decides whether to accept the advice or not. These patients see the referring member of the staff at stated intervals, if physical treatment is decided upon, and remain under him.

(c) "Will Dr. — please give short wave, etc." These cases are treated by the recommended method unless technical considerations strongly contraindicate it, when the case is referred back with a report. These cases also remain under the member of the staff referring them. It is also understood that if a member of the staff wishes to insist on particular types of treatment the facilities of the department are at his disposal. But he must be sufficiently acquainted with all the techniques to be able to carry them out himself. From the patient's point of view is not this "a minimum reasonable requirement"?

Under the Royal Free Hospital rules full liaison exists and the consultant is able to develop and evaluate new techniques. Under Dr. Balme's proposed organization with multiple control, or only subordinate staff control, the departments would inevitably degenerate into "radiant heat-faradism-massage" annexes, as I have seen on all too many occasions, and occupational therapy rooms would become places where "arty-crafty" gadgets are made under the dignified name of diversional therapy. I confess I do not understand his "co-ordinating officer"—apparently non-medical.

Bring together, under a first-class clinician, rehabilitation, physical medicine—call it what you will, so long as it includes full access to proved physical methods, whether electrical, hydrotherapeutic, massage, exercises, physical training, or occupational therapy—and have rules of procedure agreeable to members of the staff and provision for research and then rehabilitation will secure an honoured place in medical work, and Dr. Balme's review will have served a valuable purpose.—I am, etc.,

London, W. 1.

C. B. HEALD.

X Rays and the Colon

SIR.—In your issue of July 10 (p. 51) you report a discussion at the Proctology Section of the R.S.M., and in so doing the impression is given that Sir Arthur Hurst gave a warning against the use of x-ray diagnosis in diseases of the colon, although his words may have applied only to colonic spasm. In any case I feel obliged as a radiologist to comment on his statement, which may otherwise give rise to misunderstanding of the place of x rays in investigating the large bowel.

There is no viscus more readily examined radiologically than the colon in most of its length, and there is no one method of investigation so productive of information, although it must be repeatedly pointed out to clinicians that a radiologist's report is only offered as one link in the diagnostic chain, and it is unfair to place the responsibility of diagnosis upon any one such link. The colon may be filled with barium, either from above after a barium meal, or from below by a barium enema, and the former method gives little information unless gross abnormality is present, such as almost complete obstruction. By a barium enema, administered after thorough cleansing of the colon, the lumen may be entirely filled and deformities due to obstruction—tumours, diverticula, and the different types of colitis—visualized. Examination of the residue left after evacuation, with air inflation if desired, gives further valuable information about the state of the mucosa.

Presumably there is no real challenge to the value of x-ray diagnosis in the gross obstructive and deforming lesions, but in the investigation of cases of colitis and minor derangements of bowel function a word may be needed: Division of constipation cases into the types of rectal dyschezia and colonic constipation is readily made from the gross dilatation of the rectum seen in the former and the abnormal haustration and mucosal pattern of the latter, and, of course, organic disease of the colon is at the same time eliminated to a large extent—a point of great value, as the question of malignancy has to be considered in most cases. Ulcerative colitis shows well-marked radiological signs in all its stages, from the early irritable and pin-pointed mucosa to the late hose-piping and infiltration.

Sir Arthur Hurst very clearly points out the fallacy of diagnosing mucous colitis, but on this question of spasm and colonic catarrh a good deal of radiological evidence is available. A simple catarrhal colitis is often seen, with general excess of sticky mucus and widespread tenderness and spasm; and a chronic colitis, also associated with spasm, is recognized radiologically, and is by many regarded as one of the allergic family, and it is presumably this condition to which he specifically refers. Spasm is a most obvious thing radio-

logically, and it is difficult to see any objection to reporting on its presence and suggesting a diagnosis.

Finally, a word of caution may be offered as to one province in which the radiologist may be misleading, and that is in conditions affecting the upper rectum and recto-sigmoid, as this region is most difficult to visualize and radiograph owing to the overlying coils of sigmoid, and unless a clear view is obtained during the filling very little more is seen and an early ring carcinoma may be missed. Fortunately this distal colon is easily examined directly, and proctoscopy and sigmoidoscopy are definitely needed to supplement x-ray investigation of the colon.—I am, etc.,

Hove.

E. MILLINGTON, D.M.R.

Aspirin and Gastric Haemorrhage

SIR.—The inflammatory reaction to aspirin seen in the gastric mucosa is limited to the immediate vicinity of the granules adhering to the stomach wall. This fact and the rapidity of development of the changes point to the action being a local one, and not a post-absorption effect as suggested by Dr. M. Honigsberger (July 10, p. 57). If further proof be needed it is supplied by the observation that calcium aspirin in solution has no effect on the gastric mucous membrane.

In regard to Sir Arthur Hurst's letter (June 19, p. 768) we should, I think, be careful not to include under aspirin-induced haemorrhage examples of sufferers from gastric or duodenal disease who have bled after taking the drug. It may indeed have provoked the bleeding, but it can be argued that it would have occurred in any case. It is by no means uncommon in a case of duodenal ulceration for haemorrhage to arise during a period of complete freedom from pain. I have recorded only those patients who have taken aspirin for pain not arising in the alimentary tract. If they bled yet recover quickly with no trace subsequently of indigestion or radiological abnormality, it is reasonable to inculpate aspirin as the cause.—I am, etc.,

London, W. 1

A. H. DOUTHWAITE.

The Nation's Milk

SIR.—In the proposed alterations concerning an improved milk supply the term "accredited" is retained. Surely this misuse of language should not persist. If a substance is "accredited" the public may rightly expect it to be trustworthy. The standard of bacterial purity required to reach "accredited" grade is so low that milk sold as such may still contain the living organisms of such diseases as tuberculosis or enteric fever. Veterinary inspection of herds once a year will not suffice to prevent such germs from reaching children whose parents think in supplying them with "accredited" milk they are thereby securing safety.—I am, etc.,

Northwood, Middlesex.

ESTHER CARLING.

Intravenous Technique in Infants

SIR.—Dr. D. MacCarthy's paper (July 10, p. 36) on venoclysis was most welcome. He is to be congratulated on the scrupulous care he exercises, and uniformly good results are possible only with such care. Michelangelo's dictum, "Trifles make perfection and perfection is no trifle," must be remembered. Putting up a drip on a six-weeks-old infant is a great test of skill and patience, but it is a most satisfying operation when completed. Alterations such as the slight plantar flexion of the foot make the whole difference to the success or failure of the operation. Some points which I have learned by failure are, I think, worth mentioning.

This operation is often performed at night, and most difficulties seem to occur also at this time. Therefore a strong, powerful light is a *sine qua non*. Stooping over a low cot puts a strain on the operator; it is better to kneel by the cot. The instruments must be placed so that they can be got at easily without turning or stretching. Babies with fat ankles are often the most difficult, and little blobs of fat make the detection of the vein difficult. A pair of scissors such as those used by ophthalmic surgeons are a great aid in making a suitable "nick" in the vein. A severed vein does not mean failure; it is usually possible to pick it up and use it. A very fine forceps is most useful in picking up the V-shaped piece of vein preparatory to the actual insertion of the cannula. Getting the lip of the cannula into the vein is the most difficult part of the operation: once in, the remainder of the cannula slips in easily. I have succeeded in getting a full-size Hamilton Baile;

cannula into the saphenous vein of a baby five months old. Dr. MacCarthy's suggestion to retain the stylet in the cannula is an excellent one. After suturing the wound, the ligature can be passed through the holes in the wings of the cannula and tied. This prevents any movement of the cannula within the vessel, and in adults one can entirely dispense with a splint. The Baxter equipment is very easy to handle, and the rubber tubing is better than that supplied with E.M.S. sets. The latter is too stiff and has a spring-like action. On two occasions as I was about to tie the proximal ligature on the vein torsion on the tubing pulled the cannula out. Frequent swabbing and probing most certainly lead to sepsis. Also, one should never try for the vein higher up in the leg when one has failed lower down. The remaining point to discuss is—Which is the better, needle or cannula? We lose the vein for future use by cutting down on it and using a cannula. This is important in cases where repeated transfusions at intervals are required—e.g., blood diseases. Young diabetics if not stable may also require repeated infusions. In adults the needle is the method of choice for a single infusion, but for continuous infusion a cannula is better.

Finally, "blood is thicker than water." A blood transfusion in an infant often spells failure for the intravenous method. Blood will not run through a small needle or cannula even though saline will. Other methods such as giving it into the superior sinus or into the bone marrow may then be tried. Intraperitoneal infusion for saline must also be remembered. I am sure that papers giving full details about the practical side of these methods would be appreciated by all those interested in paediatrics.

—I am, etc.,

WILLIAM CAHILL.

Blood Grouping in Tubes

SIR.—The annotation on blood grouping (June 19, p. 764) emphasizes three cardinal points—namely, that accurate grouping is not a simple procedure; that grouping on cells and serum is essential; and, lastly, that it is desirable to use the tube technique. The M.R.C. War Memorandum (No. 9, H.M.S.O., 1943) sets forth the essential points and should be carefully studied by all concerned with blood grouping. In the light of my own experience in the Welsh Board of Health regional transfusion laboratory I should like to emphasize the great value of grouping in tubes. In the past three years upwards of 25,000 grouping tests have been performed per annum. From June, 1940, till August, 1942, all tests were performed on slides, and the majority were grouped on cells only. In August, 1942, grouping on glass slides was completely discarded in favour of tubes in view of Dr. G. L. Taylor's article on a reliable technique for the diagnosis of the ABO groups (*J. Path. Bact.*, 1942, 54, 81). The tube method has revealed many errors made by the slide technique, and we have repeatedly had cause to be very thankful for the change over. It does mean extra work in the laboratory and more precise technique, but it is significant that the technicians prefer the tube method. Without exception all grouping is performed on cells and serum. If the latter is not available a further specimen is asked for.

A larger tube than that recommended by Dr. Taylor is used, the size being $2\frac{1}{2}$ in. \times 2 in. (1 cm. \times 5 cm.). Such a tube is convenient because it is easily cleaned. Larger volumes are used—namely, four drops each of saline, serum, and citrated cell suspensions. Tubes are stood 15 minutes and then centrifuged for 2 minutes at 1,500 to 2,000 revs. per minute. Beautifully clear-cut readings are obtained. With the tube-centrifuge technique it has never been necessary to use the microscope. Alternatively, tubes may be left to stand 4 hours (or overnight) on the laboratory bench and then read; the agglutinates are much larger and coarser than those obtained with the small tubes and smaller volumes recommended. I would emphasize the importance of using a thin rather than a thick suspension of cells.

A disconcerting discovery was that O had sometimes been wrongly diagnosed by the slide technique as AB or A, or A labelled O, etc., and the causes of these errors were largely cold or pseudo-agglutination. Routine grouping on serum effectively checks the results of grouping on cells and renders errors almost impossible, especially if tubes are used. Since using tubes we have eliminated well over a hundred errors, but there must be more because large numbers of persons grouped on cells by the slide technique only have not had their groups rechecked. The importance of correctly diagnosing O requires no emphasis, and I believe that this can most

reliably be done only by grouping on cells and serum in tubes. The same of course applies to the other groups. I do not know what the percentage of errors is with the slide technique, especially when cells only are grouped, but I doubt if it is less than 1% in inexperienced hands, and it is probably more. Some years ago I observed two fatalities due to incompatible blood transfusion. Both were due to grouping on cells only and to faulty grouping by the slide technique.—I am, etc.,

Cardiff.

R. DRUMMOND,
Regional Blood Transfusion Officer.

Blast Injuries

SIR.—I have read (with delay) what Major J. V. Wilson states about the possible causes of death in blast injuries from high explosives (April 17, p. 470). Though not a pathologist, I have had occasion to examine a large number of corpses of civilian war casualties. Blast injuries were common, but these were generally associated with other lesions such as burns, splinter wounds, lesions to the skull from a knock against the ground or wall, etc. Only a very few cases could be considered as pure blast cases.

On one occasion I performed a post-mortem examination on two sisters, aged 8 and 13 years respectively, who had died in a badly constructed rock shelter in front of the only entrance to which a very heavy high-explosive bomb had burst. The dead children were found lying down in their sleeping-cots, and it was presumed that they must have been killed from blast injuries without having been knocked. External examination showed no lesion whatever. The abdominal viscera were markedly congested all over; the lungs had all the haemorrhagic lesions which Major Wilson portrays with perfect faithfulness in his paper. But most interesting was the condition of the brain. There was no lesion whatever in the scalp, skull, or dura mater, but this was on the stretch, and when cut through, the brain bulged out under excessive tension. On removal the brain was found very large, with flattened convolutions, very oedematous, and markedly congested; no haemorrhages were noticed.

The condition of the brain recalled the clinical observation that many wounded exposed to blast had presented on admission to the Central Hospital all the signs that are usually associated with cerebral concussion—unconsciousness or drowsiness, amnesia, irritability, headache, etc.

It is suggested that lumbar puncture and repeated enemas of magnesium sulphate may be of benefit in the early treatment of blast cases. No attempt was made to check the utility of this conclusion, as it was reached only when aerial bombardment on the island on a large scale had nearly come to an end.—I am, etc.,

Malta.

WALTER CANADO.

Psychiatry in General Hospitals

SIR.—Under the above heading (June 12, p. 735) we adduced positive evidence in demonstration of the striking success of the voluntary system in mental hospitals by application of the provisions of the Mental Treatment Act, 1930. In replying to Dr. Crichton-Miller's and Dr. Minski's observations (June 26, p. 800) we would point out that both correspondents are at pains to find objections to the mental hospital which our voluntary patients (mainly psychoneurotics) have themselves already learned to surmount.

In stressing so particularly "the locked door" of the mental hospital, Dr. Crichton-Miller has chosen a singularly inapposite objection. Our gates are open night and day; moreover, out of eight male wards one only is kept locked—the so-called closed ward. A similar though less extensive arrangement holds good on the female side, and all our villas where the psychoneurotic cases are housed are conducted entirely upon the open-door principle. By applying such a word as "condemned" to those who freely place themselves under care Dr. Crichton-Miller reveals a prejudiced outlook; he surely can have no true conception of what the mental hospital to-day is really like.

Turning now to Dr. Minski's letter, he begins by simply begging the question as to whether the so-called neuro-psychiatric unit does in fact succeed in inducing people to undergo early treatment in those alleged cases where the mental

hospital is said to fail. We have already shown that, despite the proximity of chronic patients properly segregated, patients are not in fact deterred from voluntarily seeking admission to mental hospitals, and this accounts for our high increase in admissions, during the past ten years. Dr. Minski attributes to us, by the interpolation of words we did not use, assertions which we ourselves avoided. We made no claim that the mental hospitals "originated" the modern physiotherapeutic treatments; the exact phraseology was "initiated and evolved," and Dr. Minski might refer to Drs. Andratsche and Rogerson's article on page 780 of the issue in which his own letter appears, which says of electric convulsion treatment that "credit for the introduction to this country must be shared between Fleming, Golla, and Grey Walter (1939) and Shepley and McGregory (1939)."

Stigma is the social ostracism that is attached to any mental illness, and will exist so long as the general opinion towards mental disorders remains unenlightened. The mental ward of the general hospital labours under the same stigma as the mental hospital, despite the introduction of euphemisms such as "neuropsychiatric wards," and the dropping of the word "mental." Furthermore, the general hospital is neither situated nor equipped so as to be able to provide those occupational and recreational facilities which are indispensable adjuncts in the rehabilitation of the mentally afflicted.

In conclusion we would urge that the requirements of mental treatment to-day are such that the patients' interests are best served by their being treated in a hospital designed, equipped, and staffed for the purpose—in short, a mental hospital.—We are, etc.,

T. P. REES.
W. H. SHEPLEY.

SIR.—Dr. Minski's statement (June 26, p. 800) that the modern physical treatments in psychiatry originated in American and Continental neuropsychiatric clinics and not in mental hospitals contains several mistakes. While insulin treatment and electrically induced convulsions were first applied in university clinics, Meduna initiated convulsion treatment and Moniz performed his first leucotomies in mental hospitals. University clinics on the Continent are frequently not part of a general, but of a mental, hospital. I do not know of any method that originated in America, but American psychiatrists have applied all those mentioned on a large scale in their varied types of hospitals.

There is no doubt that, as Dr. Minski points out, a great variety of treatment facilities for psychiatric cases is desirable. If one remembers the long pre-war waiting lists of many psychiatric institutions and the large number of psychiatric patients only recognized as such after being called up to the Services, it is difficult to understand why specialists should now quarrel where they should be treated. Those who welcome with enthusiasm psychiatric wards in general hospitals seem to forget that these are already in existence. May I briefly refer to two of them in different parts of Britain.

One of these hospitals belonging to a progressive municipality has a psychiatric department with well over 600 beds and a yearly admission rate of 700 patients. The "observation ward," containing approximately 100 mental defectives and the same number of senile dementias, has one doctor, who during recent years was not a psychiatrist. There are no treatment facilities. A somewhat similar psychiatric department forms part of the other hospital, for which the corporation is responsible. It was originally intended for neurotics, but is now filled with 400 psychotics, many of them of the chronic type. There are one full-time psychiatrist and two visiting specialists, and the therapeutic possibilities are only slightly better than in the institution first referred to. Both places, although parts of general hospitals, are in fact merely dumping grounds for patients who, for one reason or another, cannot be admitted to the mental hospitals, where they would receive suitable treatment.

I would suggest that these facts show that successful psychiatric work depends not on the type of hospital but on proper staffing and equipment—in other words, appreciation of the authorities of their duties towards the mentally ill and the dimension of the social problem of psychiatry.—I am, etc.,

Richter Royal, Dumfries.

W. MAYER-GROSS.

Resuscitation by Rocking: Adaptation for First Aid

SIR.—Dr. N. Howard Mummery's rocking apparatus for Eve's method of resuscitation (June 19, p. 759) would appear to be excellent for, as he says, rescue stations, also ships, hospitals, etc. It is, however, not particularly suitable as a portable adjunct to first aid.

The N.C.O.s of the medical section of this battalion, along with the director of the Civil Defence first-aid posts in the district, have given some time to the study of the possibility of applying this rocking method to first aid. They believe it to be, from what they have read on the subject, the most efficient method yet known. The technique is easy to learn. It is much less arduous and more foolproof than any previous

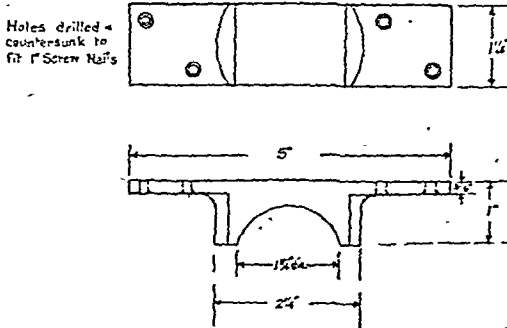


FIG. 1

form of artificial respiration, and, once it has been set in motion, it can be carried on by quite untrained personnel. For these reasons it would appear to be the method of choice.

To take the place of the rather cumbersome apparatus described by Dr. Howard Mummery we are having a little "gadget," of which I enclose a sketch, attached to all our stretchers of the Army type—a pair to each stretcher. It is, in essence, merely a grip to slip over any available pole, hayfork handle, fence, rope, paling, etc., so that the rocking of the stretcher may be carried on. The gadget is of the "lazy-block" pattern, and has been made for me by Mr. Robt. Colquhoun, chief engineer of Messrs. Baird and Dalmellington's Fauldhead Collieries. It consists of a base plate which is fixed to the centre of each stretcher pole by four screw nails. From the plate arises an attachment for fitting over the pole, bar, etc., on which the rocking is to be done. It is easy to make, and there should be little or no expense incurred in converting



FIG. 2

Army type stretchers into rocking stretchers. We have tried it out in practice and we think that it works. It may be open to some grave criticism—if so it can easily be scrapped. We claim no patent rights, but, if acceptable, it might perhaps be known as the "Kirkconnell" adaptation.

It seems only fair that the men who have worked for a forward step in first aid should be known; their names are Sergts. A. McAnespie and J. Torrance, and Cpl. D. Hastings of this battalion, along with Mr. Robert McCormick, Civil Defence First-aid Post Controller, Upper Nithsdale. The sketch of the gadget has been made by Lieut. G. Broadfoot, Kelloholm.—I am, etc.,

BOWMAN EDGAR.
M.O., 4th Bn., Dumfriesshire H.G.

Kirkconnell, Dumfriesshire.

Artificial Respiration

SIR.—Dr. E. Granger (July 3, p. 23) propounds a "swing-boat" method of artificial respiration. His arguments are based on inaccurate mechanics. Eve's rocking method over some fulcrum below the centre of gravity of the patient is the more efficient from any slight body slide; which is arrested by the friction of clothing or by suitable straps, the inertia of the

viscera thus having a succussive effect. The extra effort needed to reverse the position encourages the necessary slow steady rate, with a pause at the limit of each excursion. Centrifugal force is negligible. The method is highly efficient even in unskilled hands.

The "swing-boat" has a self-stabilizing horizontal position and an easy natural period, as has any comparable device of linkage producing rotation about a virtual fulcrum above the centre of gravity of the patient. When it is worked steadily at that period (as it would obviously be) it subjects the viscera to no great longitudinal displacement, but to centrifugal force in a dorsi-ventral direction only!

Personal experience will show that one is unable to resist the rhythm of Eve's method, whereas the prone position on a swing induces no respiratory compulsion.—I am, etc.,

London, S.W.1.

D. STENHOUSE STEWART.

Treatment with Tuberculin

SIR,—I am much interested to see the correspondence on the use of tuberculin in your issues of June 12 (p. 736) and July 3 (p. 19).

I used Dr. Camac Wilkinson's method very extensively from 1910 to 1913, and again in 1918 as tuberculosis officer in Portsmouth, and published the full account of the methods with the results I obtained in a book called *Dispensary Treatment of Pulmonary Tuberculosis*, published by Baillière, Tindall and Cox. Circumstances made it difficult to follow up the after-history of the cases since 1919, except in a certain number of private cases which have confirmed the value of the remedy. I have not been engaged in medical work since then, but in the course of social welfare work during this war have had contact with a tuberculosis dispensary and have been disappointed to find that there appears to be no improvement in the treatment of the disease to justify giving up a remedy which, although not perfect, gave very satisfactory results in a great proportion of cases. The recent development of x-ray diagnosis should greatly increase the confidence with which tuberculin treatment could be used and the results estimated.

If any of your readers would find the study of my cases in Portsmouth useful and is unable to obtain a copy of my book, I shall be glad to lend a copy.—I am, etc.,

Ashtree House, Horton Kirby, Kent.

HILDA CLARK.

Subcutaneous Ligature of Varicose Veins

—Although I do not consider the method of Major Goldstone is the ideal surgical treatment of varicose veins, there is no doubt that many cases will not respond to injection treatment no matter how skilfully applied, and some form of surgery is necessary. However, to suggest, as Mr. R. R. Foote does (July 3, p. 22), that the surgical mortality is a serious matter is plain nonsense. I have performed or supervised the ligation at various sites of several hundred cases without a death, and I know of several large series which have been equally successful.—I am, etc.,

Brentwood.

W. D. PARK.

The Cult of Negative Health

SIR,—The argument propounded by Dr. Alan Maberly (July 10, p. 55) that the environment must be sufficiently unfavourable for the living organism to thrive is nothing but the crude Darwinian theory of the struggle for survival which gave nineteenth-century *laissez-faire* its pseudo-scientific benediction. It is a doctrine adopted, significantly enough, by our Nazi and Fascist enemies, who extol the virtues of hardship and blood-letting as a race invigorator. The rest we know to our cost and peril. A second world war is being fought to put an end once and for all to a "jungle" struggle for survival, and at its victorious conclusion to extend to mankind for the first time a modicum of ordered security in a world of fellowship.

To preach the salutary effect of "an environment sufficiently unfavourable" in these days of agonizing human effort and suffering is proof of an approach completely out of touch with current social realities. Does Dr. Maberly think (for his argument implies as much) that absenteeism in the coalfields is due to the environment—i.e., the

conditions of labour—not being unfavourable enough—to stimulate the men to greater efforts? One can imagine the reception such a doctrine would have if preached in South Wales, Tyneside, or the Clyde.

Furthermore, I do not accept the analogy between the living organism and society as postulated by Dr. Maberly. Society is a congeries of classes and sects, political and economic, shut through at various levels by a diversity of religions. Order and stability are at best a precarious compromise dependent upon the relative predominance of a class or sect at a particular period. Society is never homogeneously soft or fat; indeed it is only because one section of the community is fat that the other is thin, and in our particular state of social organization this is a necessary condition of affairs.

In the modern world Russia alone gives the lie direct to the argument that "not only has a greatly improved standard of health been accompanied by an increasing tendency to hypochondria, but an equally great improvement in social services and economic security has run parallel with increased anxiety about the future, with lessened individual self-confidence and self-reliance." There (before the war) steadily rising standard of living has gone hand in hand with a steadily diminishing incidence of neuroses of all types (see Williams, F., *Soviet Russia Fights Neurosis*, 1933), plus fearlessness and an optimism heightened by the quiet confidence of the individual in his and his country's future. Present events confirm this. The inherent danger of the arguments put forward by Dr. Maberly and by Dr. R. E. Lucas (June 1 p. 766) is that they play straight into the hands of the reactionaries who see in every attempt at social amelioration the nefarious work of Satan, who would set free idle hands for evil purposes.

Surely there is suffering enough in the world without emphasizing the danger of waxing soft and fat in an environment not sufficiently unfavourable. Time enough when such physical calamities as cancer and tuberculosis have been conquered, and when social diseases such as economic and political injustice have been laid low, to talk of softness and waxing fat. We should not forget that man creates his own environment and so badly has he adapted himself to it that he is in grave danger of extinction through a variety of causes all in the power of man to eradicate. It seems to me most inopportune to stress the need for an unfavourable environment in such days. On the contrary, it is our duty to adopt a "positive" attitude and to define our conception of a favourable environment as one to struggle for its achievement.

For me, at any rate, a favourable environment is one in which man can express his physical, mental, and spirit capacities to the full in a harmoniously integrated personality and so achieve positive health: a *sine qua non*, a state of political and economic democracy. To-day we are committed to scientific industrialism. The problem of post-war leisure and "practical problems" which have caused Dr. Lucas's misgivings are complementary and interconnected. We cannot enjoy the one without facing up to the other. In a world already contemplating a little fearfully the problem of post-war mass unemployment such misgivings about our future of leisure are completely out of court in this context. In last analysis it is not a question of how many or how few electrical gadgets a country housewife may or may not possess but the old problem of the State and her sense of community within it.—I am, etc.,

Bush Hill Park.

W. LESTER, M.J.

Medicine and Politics

SIR,—It seems that the well-disciplined armies now mobilized against the idea of change and development in our medical services must be provided with banners in the form of clichés which exert a hypnotic effect upon them and lead them to the attack. That well-worn slogan, "Free choice of doctor," still inspires many, perhaps the majority of who have acquired the bulk of their patients by purchase from their predecessors. Dr. Geoffrey Bourne, appealing to a section of medical interests, has raised as his standard the sacred name of science. Some of his supporters may find it difficult to live up to this rallying-cry.

Controversy becomes easier when it can be expressed in such simple and colourful pictures as that of the noble p

of science set upon by the black-hearted politicians (in the scientific words of Dr. Bourne, "either ignorant, incompetent, or dishonest"). The fact is, of course, that many of the present deficiencies in our medical services have nothing whatever to do with "science," and Dr. Bourne cannot be allowed to evade these matters by such an easy device.

Let us take a simple example from the field of hospital services. A member of the public in need of hospital treatment seeks admission to a voluntary hospital. He finds that his chances of early admission to the hospital of his choice are infinitesimal, but they can be greatly increased if he is able to pay a private fee and consult a member of its honorary staff. If he feels this to be wrong, to whom should he appeal—the "scientists" or the "politicians"? (If Dr. Bourne doubts whether such a situation frequently arises, I can furnish him with particulars of some recent examples at hospitals well known to him.) Such matters are of more immediate concern to the people whom we serve than the abstract claims of "science," and if we believe in democracy, as Dr. Bourne does, we must concede the people's right to protest against them and the duty of democratic government to remedy them. Perhaps it is considerations of this kind which have given rise to the development of municipal hospital services. At present more than 80% of the hospital beds required by the people of London have to be provided by public authorities, and this would not be necessary if voluntary organizations had proved equal to our needs.

Municipal hospitals, like other institutions, have their faults, and it is easy (and legitimate) to criticize them. From the public's point of view, however, they have one simple virtue: they are *responsible to the public* for the provision of hospital treatment to those in need of it. For the very large proportion of patients suffering from diseases of the types which are unpopular in "scientific" institutions, this virtue outweighs many disadvantages.

Science, too, has its claims, and if Dr. Bourne is familiar with the magnificent public authority hospitals in countries where voluntary hospitals are unknown (for example, in Scandinavia), he must realize that science can and does flourish in such hospitals. In attacking the relatively archaic form of organization of our own municipal hospitals Dr. Bourne is largely tilting at the windmills, for their organization will undoubtedly develop and progress as do their standards of treatment. Those of us who work in municipal hospitals are not blind to their faults nor unconscious of their opportunities for development and improvement.—I am, etc.,

London, W 9.

A. L. JACOBS.

Conditions for Good Work

SIR.—The average doctor is inarticulate, has no time for thinking or writing, and after recent events is more fatalistic than ever; it is therefore the extremes of opinion that are voiced. Of all that has appeared in print Mr. Wilfrid Adams's letter (July 10, p. 53) most nearly expresses the feelings of the average general practitioner and goes to the root of our present difficulties—namely, numbers.

Most of our troubles, both those mentioned by Mr. Adams and others, can be abolished, but only by a great increase in the numbers of the profession. State interference is now necessary because the average income cannot afford full and efficient up-to-date medical service; so the main feature of that interference should be financial subsidy. Given the money and the personnel, success could be achieved without making devastating changes: lacking either, any scheme must fail.

It is essential, therefore, by offering reasonably attractive prospects and by other means, to ensure an adequate supply of recruits and greatly increase the numbers of the profession: otherwise a vicious circle may develop with great detriment to the good of the community.—I am, etc.,

York.

CHARLES C. COBB.

It is generally agreed that the solanaceous alkaloids are useful in the symptomatic treatment of Parkinson's syndrome. H. Volmer (*Arch. Neurol. Psychiat.*, Chicago, 1942, 48, 72) concludes from his own experience that a combination of alkaloids is more effective than any one given separately, and found that the best mixture is 90.2% hyoscyamine hydrobromide, 7.4% atropine sulphate, and 2.4% scopolamine hydrobromide.

Obituary

The recent death of HUGH WELLS ARMSTEAD at Seaton, Devon, whither he retired on giving up practice in London some years ago, removes one of those very highly qualified and gifted members of the profession who fifty years ago did not disdain the status of general practitioner but are now much more likely to adopt a specialty. He was educated professionally at St. Bartholomew's Hospital and School, where he was successively exhibitor, junior scholar, senior scholar, and senior house-surgeon. He qualified M.R.C.S., L.R.C.P. in 1892; M.B., B.S. Lond., with 1st-class honours in medicine; M.D. Lond. and F.R.C.S. Eng., both in 1894—a record which speaks for itself. He was for a long time a well-known London general practitioner, and published his reminiscences and reflections entitled *Thirty Years of General Practice*. Outside his professional interests, his leanings may be gathered from his *Artistic Anatomy of the Horse* and his contributions to the *Magazine of Art* on similar topics. For several years he was a member of the Council of Epsom College, until increasing deafness and his departure from London led to his resignation. He had been a good friend to the College, and to its library, as well as a regular subscriber for many years.

Dr. GERALD S. EWEN, of East Twickenham, who died on June 26 at St. Bartholomew's Hospital, joined the B.M.A. in 1912 and was chairman of the South Middlesex Division in 1924-5. He was born in Jamaica in 1877 son of the Hon. William Ewen, and from Lord Weymouth's Grammar School came to England to study medicine at Bart's, qualifying M.R.C.S., L.R.C.P. in 1902. During the last war he served in Salonika with a temporary commission in the R.A.M.C. Dr. Ewen had been honorary medical officer of St. John's Hospital, Twickenham, since 1921.

Lieut.-Col. H. C. Keats, I.M.S. (ret.) writes: It was with great regret that I read of the death of Lieut.-Col. H. J. SHIRLEY. I knew him not as a doctor but as the colour sergeant of G Co. the Artists Rifles in the '90's. This company, of which I was a humble member, was composed of medical students, and I think that Charlie (as he then was) was the smartest colour sergeant in the regiment. A keen soldier and a strict disciplinarian, he was a man of great bonhomie and charm when off parade. I have very pleasant recollections of the little suppers we sometimes had in some small Soho hotel after Saturday parades. Personally I think he was cut out for a soldier and would have risen to high rank had he been in the Regular Army. The Artists want no advertisement; the value of their work and training was seen in the last war. And it was to such men as Col. Shirley that their efficiency was due; men who unselfishly gave up their leisure hours to promoting the efficiency of their famous corps.

The Services

Col. B. C. Ashton, V.H.S., I.M.S., has been appointed Honorary Surgeon to the King in succession to Major-Gen. A. A. C. McNeill, I.M.S. (ret.)

Temp. Surg. Lieut. J. F. J. Kelly, R.N.V.R., has been mentioned in dispatches for good services to the wounded in a ship which was attacked by U-boats.

Majors (temp. Lieut.-Cols.) H. J. R. Thorne and C. H. Kerr, R.A.M.C., have been awarded the D.S.O., and Capt. T. Reilly, R.A.M.C., has been awarded the M.C., in recognition of gallant and distinguished services in the Middle East.

Cpts. H. M. MacFie, W. Robinson, and J. F. Webb, R.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in North Africa.

Brig. (temp.) E. A. Sutton, O.B.E., M.C., late R.A.M.C., has been appointed C.B.E. (Military Division), Lieut.-Col. S. W. T. Lee, Lieut.-Col. (temp.) T. F. Anderson, and Major (temp. Lieut.-Col.) D. Bell, E.A.A.M.C., have been appointed O.B.E. (Military Division), and Major A. Galloway, South African Forces (attached E.A.A.M.C.) and Lieut. (temp. Capt.) L. P. Harington, Southern Rhodesia Medical Corps, have been appointed M.B.E. (Military Division) in recognition of gallant and distinguished services in East Africa and Madagascar.

Capt. C. P. Blacker, M.C., R.A.M.C., has been awarded the George Medal in recognition of conspicuous gallantry in carrying out hazardous work in a very brave manner.

The following have been mentioned in dispatches in recognition of gallant and distinguished services in East Africa and Madagascar: Col. (temp.) B. C. O. Sheridan, M.C., Capt. (temp. Major) W. N. Hood, and Capts. G. C. Griffiths, R. H. Isaac, and W. H. Whyment, R.A.M.C.; Lieut.-Col. C. H. Marshall, Majors (temp. Lieut.-Cols.) W. K. Connell, D. D. McCarthy and C. E. Roberts, and Capt. (temp. Major) N. J. Willans, E.A.A.M.C.; Lieut.-Col. J. Wakeford and Major P. Baron, Southern Rhodesia Medical Corps.

CASUALTIES IN THE MEDICAL SERVICES

Prisoners of War.—Major R. T. Binns, A.A.M.C.; Wing Cmdr. D. Magrath, R.A.F.

The notification that Dr. N. H. R. McCallum had been mentioned in dispatches, published in a *Supplement to the London Gazette* of June 22, should have read Temp. Surg. Lieut. N. H. R. McCallum, R.N.V.R.

Universities and Colleges

UNIVERSITY OF OXFORD

In Congregation on July 1 the degrees of B.M., B.Ch. were conferred on J. A. Ritchie, and (*in absentia*) R. E. Lee.

UNIVERSITY OF LONDON

GUY'S HOSPITAL MEDICAL SCHOOL

The following awards have been made for 1943: *Entrance Scholarship in Arts*—R. Handy. *Entrance Scholarship in Science*—B. J. Silkoff.

UNIVERSITY OF BRISTOL

The following candidates have been approved at the examination indicated:

FINAL M.B., Ch.B.—J. E. Bevis, M. P. Bourke, 1 A. G. M. Davies, Mercia J. Griffiths, C. H. Gurd, Elisabeth Hodson, (Mrs.) Lois M. Leitch, D. E. Olliff, 2 Mildred J. Post, D. A. Sarsfield, 3 S. S. Short, T. R. Stephens.
1 Distinction in forensic medicine and toxicology. 2 Distinction in public health. 3 Distinction in surgery.

UNIVERSITY OF DURHAM

At a Congregation held on June 30 the University of Durham conferred the degree of D.Ch. *honoris causa* on Major-General P. H. Mitchiner, C.B.E., T.D., surgeon to St. Thomas's Hospital.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examinations indicated:

M.D.—A. B. Concanon, G. Sanderson, Mary D. H. Sheridan, V. K. Summers.

M.B., Ch.B.—Part III: Mary A. R. Allan, Muriel C. Andrews, A. Ansell, E. R. Banner, Beryl R. Bentley, R. A. Blyth, N. Broughton, Hilda E. Bullen, W. G. Canning, G. Davies, J. H. Foy, Joan O. Grant, E. N. Hughes-Jones, Eirwen M. Jones, J. J. Lieben, I. P. Madhok, Margaret L. Mace, A. W. Merrick, Jean C. Miller, K. H. Oldfield, E. W. Parry, E. Scott, K. H. Taggart, G. A. Weatherell. *Passed in Separate Subjects*: A. S. del (Surgery, Obstetrics and Gynaecology), H. Francis (Medicine, Obstetrics and Gynaecology), Irene W. Simpson (Medicine and Surgery), Beryl G. K. Alexander, J. T. D. Allen, E. T. Anderson, H. B. Andrews, Beryl G. 2 G. Ansell, K. W. F. Baruch, 2 J. P. D. Bates, T. J. Boag, Edith M. Brown, E. Cooper, 2 D. Craddock, Constance M. Davis, B. Dover, K. R. Dumbell, E. D. Edmondson, J. L. Edmondson, J. W. L. Edwards, R. Ellam, P. Foster, J. J. C. Frew, B. R. Frisby, S. Gillis, N. J. Gourdjii, D. A. Gregson, C. R. Helsby, 2 Winifred L. Hollick, G. Hughes, L. Jacobs, D. C. R. Jones, E. S. Jones, H. A. Jones, J. T. W. Jones, P. R. B. Jones, D. S. Jones, M. Kirwan, W. T. W. Lawson, Joyce R. Lewis, S. Lipton, B. Lynch, K. McCarthy, M. G. McEntegart, 2 R. H. Martlew, 2 Lucille F. Morgan, 2 D. B. Mossman, C. M. Ogilvie, C. A. Pearson, H. H. Pilling, J. B. Roberts, Isabel S. Smellie, G. W. Storey, P. J. Taylor, W. A. Thompson, Corris Venables, H. Wickham, J. R. E. Wilson. *Passed in Separate Subject*: A. D. Charnley, H. T. Davenport, Muriel E. St. Pier (Pharmacology and General Therapeutics).

1 Distinction in Pathology and Bacteriology. 2 Distinction in Pharmacology and General Therapeutics.

UNIVERSITY OF GLASGOW

At a graduation ceremony at Glasgow University, held on June 24, the degree of Doctor of Laws (LL.D.) was conferred on Air Marshal Sir Harold E. Whittingham, K.B.E., M.B., F.R.C.P.Lond., F.R.C.P.Ed., F.R.F.P.S., Director-General, Royal Air Force Medical Services.

UNIVERSITY OF WALES

WELSH NATIONAL SCHOOL OF MEDICINE

The following candidates have satisfied the examiners at the examinations indicated:

M.B., B.Ch.—Obstetrics and Gynaecology: S. Brest, I. F. Barwell-Clarke, Joan Collins, K. V. Crowther, 1 A. D. Evans, Eileen J. Evans, 1 H. J. Fisher, J. C. Hughes, R. G. Hughes, D. C. W. Jenkins, D. I. Jenkins, H. O. Jones, T. L. Jones, Alice M. A. Lee, Sarah M. Lewis, D. A. Macfarlane, Eiry Morgan, Mary W. Owen, E. J. Parr, J. L. J. Phillips, Winifred S. Phillips, Isabella M. Pinkerton, J. Rees-Mathews, D. B. Richards, F. W. Richards.

E. G. G. Roberts, W. Stevenson, Gertrude G. Thomas, L. P. Thomas, V. V. Tracey, H. O. Williams, Mary L. Williams, W. H. Williams. *Pharmacology*: W. H. Beasley, J. W. Bowen, B. L. Crystal, M. L. Edwards, L. A. J. Evans, M. Evans, J. C. Ham, D. W. James, W. J. Jenkins, C. G. W. Mason, J. Matthews, Isobel F. A. Mitchell, Nesta G. Morgan, Margaret Owen, D. B. Price, E. G. Rees, O. V. Rees, D. M. Rowlands, 1 R. M. E. Seal, D. R. Thomas, D. V. Thomas, G. H. Thomas, D. Tooms, Catrin M. Williams, Roberta Williams.

1 With distinction.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a meeting of Council held on July 8 Sir Alfred Webb-Johnson was re-elected President and Mr. H. S. Souttar and Sir Girdling Ball Vice-Presidents.

The following appointments were made for the ensuing year:

Hunterian Professors.—Prof. G. Grey Turner, one lecture on the Construction of the Ante-thoracic Oesophagus; Surg. Rear-Admiral G. Gordon-Taylor, one lecture on the Technique and the Results of the Surgery of Peptic Ulcer, with Special Reference to the Value of Regional and Splanchnic Anesthesia; Brig. Noel St. J. G. D. Buxton, one lecture on Gunshot Wounds of the Knee-Joint; Prof. A. B. Appleton, two lectures on the Bronchi and Blood Vessels of the Lungs; Mr. W. Sirk Adams, one lecture on the Problem of Acute Otitis Media in Children and the Response of the Infection to Sulphonamide Therapy; Surg. Cmdr. J. B. Oldham, one lecture on Coccygeal Sinus; Mr. J. F. Brailsford, one lecture on the Plasticity of Bone; Mr. T. Holmes Sellers, one lecture on Constrictive Pericarditis; Mr. T. M. Tyrrell, one lecture on the Surgery of the Lacrimal Sac; Dr. R. B. Zachary, one lecture on Factors influencing Recovery after Nerve Suture.

Arris and Gale Lectures.—Dr. N. M. Goodman, one lecture on the Supply of Subjects for Dissection: A Historical Review; Dr. Herbert Haxton, lectures on (1) the Function of the Patella, and (2) the Anatomy of Progression.

Erasmus Wilson Demonstrators.—Mr. L. E. C. Norbury, one demonstration on the pathological contents of the Museum; Mr. C. E. Shattock, one demonstration; Mr. R. Davies-Colley, two demonstrations on Certain States of Bone Absorption; Surg. Rear-Admiral Cecil P. G. Wakeley, two demonstrations on Tumours of the Alimentary Tract.

Arnott Demonstrator.—Dr. A. J. E. Cave, six demonstrations on the contents of the Museum.

Macloghlin Scholar.—Michael Hatton of Epsom College.

Diplomas

A Diploma of Fellowship was granted to A. M. L. Smith, M.B., Ch.B.

Diplomas were granted, jointly with the Royal College of Physicians of London, as follows:

DIPLOMA IN PUBLIC HEALTH.—D. Hewspear, A. S. Hoscason, Joyce B. M. Mayes, S. J. Sutton.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—C. Anderson, H. M. Cohn, D. L. Davies, Wilhelmina L. Devlin, Elizabeth P. Dodds, H. M. James, Joan E. Mackworth, R. R. Prewer.

DIPLOMA IN LARYNGOLOGY AND OTOTOLOGY.—J. C. Liddle, P. S. Meyrick, C. P. Williams.

Medical Notes in Parliament

Food Conference at Hot Springs

In the House of Commons on July 6 Mr. EDEN made a statement on the result of the Food Conference recently held at Hot Springs. He said that the Government accepted the resolutions passed and the obligations to give effect to them in so far as they applied to conditions in the United Kingdom. They would also commend the resolutions to the Governments of the Colonies and overseas territories. The third resolution recommended that Governments should immediately begin the task of increasing food resources and improving the diets of their peoples in accordance with the principles and objectives outlined in the findings of the conference. The Government intended, despite the inevitable difficulties which the war entailed, to press on with this aim. They intended to participate fully in the work of the interim commission to be set up to prepare a plan for a permanent organization in the field of food and agriculture. One of the tasks of the commission would be to draw up a formal declaration or agreement for the consideration of the respective Governments, which would recognize their obligation towards their peoples and to one another to collaborate in raising levels of nutrition and standards of living.

In the House of Lords Lord ADDISON also called attention to the Hot Springs conference. Lord WOOLTON said that the recommendations of the conference covered the short-term and long-term phases of post-war development. The first two years after the war was bound to be a time of great stringency on the food front. We must prepare for that stringency now, as well as do what we could to meet the circumstances of the present stringencies in Europe and Asia. In the generally improved standards of nutrition and the special provision made for what the conference called "the vulnerable groups"—children, pregnant women, nursing women, and factory workers—we in this country had made really remarkable progress. Undernutrition had been vastly reduced during the war, and this was reflected in an improved national health bill. The creation of the interim commission would mean that the work of the conference would not be left in mid-air, and the Government intended to participate fully in the work of the commission.

Nurses (Scotland) Bill

Lord ALNESS, for the Government, in the House of Lords on July 7 moved the second reading of the Nurses (Scotland) Bill, which had already passed the Commons. He said one part of the Bill set up a new grade of assistant nurse, a second part restricted the use of the title "nurse," and a third established licensing and inspection of "nurses' co-operations." A period of five years had been fixed by the Secretary for Scotland for setting up the grade of assistant nurse.

The Bill was read a second time. On the following day it was taken by the House of Lords in Committee.

Lord ALNESS accepted amendments moved by Lord CRAIGMYLE to make clear that hospitals provided by the Department of Health for Scotland might be used for training assistant nurses. He said the Secretary for Scotland had communicated on the matter with the General Nursing Council for Scotland.

Lord CRAIGMYLE moved to provide that nothing in the Bill would prevent Red Cross nurses, V.A.D.s, and others now known as Red Cross nurses in Scotland from calling themselves nurses. Lord ALNESS said that, in view of the diversity in training and experience of V.A.D. nurses and nursing auxiliaries, it was impossible to promise that the regulations when made would authorize these women to call themselves nurses. Mr. Johnston would look into their claim to be so called. The amendment was withdrawn.

Lord CRAIGMYLE moved a further amendment designed to ensure that the General Nursing Council should take into consideration the training and experience gained by Red Cross, auxiliary, and assistant nurses in nursing the sick and wounded in a reputable hospital under the eyes of a fully qualified sister. He said the amendment left the General Nursing Council to decide what remission of time should be allowed to these nurses who had reached a standard of competence and training. The core of the hospital problem in Scotland was not absence of beds but shortage of nurses. Lord GEDDES said the women referred to in the relevant clause of the Bill were those who were to become State-registered nurses. In the interests of the sick he begged the House to insist that every woman on the State register of nurses had the necessary training in the fundamental sciences. V.A.D.s, if they wished, should be helped to get the training. He thought the V.A.D.s had had a "raw deal."

Lord ALNESS said the Secretary for Scotland had made a concession to assistant nurses who had at some time undergone training as student nurses. Under Lord Craigmyle's amendment any V.A.D. or auxiliary nurse who had been three weeks in a hospital might claim remission of training. The Minister of Labour and National Service was communicating with the General Nursing Councils of both Scotland and England to see whether some concession should be made in the direction proposed by Lord Craigmyle.

Lord Craigmyle's amendment was rejected by 20 to 18 and the Committee stage was completed.

Towards Cleaner Milk

On July 8 Mr. ROBERT HUDSON announced that the Government had reviewed the livestock situation in the light of prevailing trends in milk and meat production with the object of improving the quality and quantity of our milk supply. He said the basis of a sound milk policy must be a well-bred, healthy dairy herd. At present a large number of herds in the country were not inspected at all. It was proposed in future to arrange for a minimum of one inspection a year for every dairy herd and to inspect more frequently, within the limits of the available veterinary personnel, those herds with a bad disease history or where the milk was not heat-treated before sale.

To ensure the production of cleaner milk the National Milk Testing and Advisory Scheme was introduced last year. Already over 70% of the milk producers were having their milk regularly tested, while nearly 90% of the larger creameries operated the scheme. With a view to greater efficiency and uniformity in methods of milk production the Government would submit to Parliament, after consultation with local authorities in England and Wales, legislation providing for the transfer to the Ministry of Agriculture of the functions now exercised by local authorities in regard to the production of milk, including designated milk, or the farm. His Department would become responsible for all matters relating to the production of milk. Owing to transport difficulties much of the T.T. milk now produced was not sold to the public as such, but was bulked with and sold as ordinary milk. To encourage the production of this valuable milk the Government proposed to pay a uniform production premium of 4d. a gallon. The Minister of Food would take all practicable steps to ensure

that as much T.T. milk as possible in present circumstances was sold as such to consumers. The price would be only slightly higher than for ordinary milk. Schemes introduced by the Ministry of Food for the rationalization of the retail distribution of milk deprived the public in areas to which such schemes applied of their freedom to choose their milk suppliers. In some cases persons who previously made a point of buying pasteurized or T.T. milk now received ordinary raw untreated milk. This placed upon the Government the obligation to ensure, as soon as possible, that all milk supplied to consumers in areas affected by rationalization schemes should conform to the higher standards of purity previously demanded. The Government's intention was to prohibit, in areas to be scheduled, the retail sale of milk unless it was (a) T.T. milk; (b) accredited milk sold by a retailer who sold the milk of a single accredited herd; or (c) milk which had been rendered safe by means of heat treatment. This policy would be applied, in all areas affected by schemes for the rationalization of retail distribution, as rapidly as the necessary plant could be made available.

A White Paper was published on July 8 which gave Mr. Hudson's proposals in greater detail and set out a parallel scheme for Scotland. In that country it is not proposed to take from local authorities the powers they possess over milk supplies.

Comprehensive Health Service

Mr. ERNEST BROWN told Lady Apsley on July 8 that in connexion with the discussions for a comprehensive health service, he hoped fairly soon to issue a general statement which might serve as a focus for the views of all interested bodies. He had undertaken at that stage to get into touch with the Associations of Medical Aid Societies.

Alien Doctors in Hospitals

In answer to Sir Robert Young on July 8 Mr. ERNEST BROWN said the number of doctors of Allied and neutral countries employed as such in hospitals was 200. The number of specialists included in this total was not available. An over-sea doctor could acquire a British medical qualification by passing one of the qualifying examinations after the appropriate period of study. He could also be placed temporarily on the British Medical Register if the General Medical Council was satisfied that he fulfilled certain prescribed conditions as to the holding of medical diplomas and otherwise. Mr. Brown added that his approval was not required for the qualification or registration of an individual doctor.

Higher Education and Research in the Colonies

In the House of Commons on July 13 Colonel OLIVER STANLEY gave a comprehensive review of the progress made in colonial affairs and of the plans for the future. He said that educational advance and economic development were the twin pillars on which any sound scheme of political responsibility must be based. With regard to higher education, it was quite clear that if our goal of colonial self-government was to be achieved colonial universities and colleges would have to play an immense part. They would have to meet the enormously increased need for trained professionals which increased social and economic services would necessitate. They would have to provide the agriculturists, engineers, doctors, teachers, veterinary surgeons, and specialists and technicians which the approach to higher standards of life would entail. They would have to do an immense amount of research. In encouraging the constructive growth of these universities and colleges, the guidance and help of the home universities must be looked for. It would be a tremendous gain if, in a way, the colonial colleges could be admitted as partners in the circle of the home universities, and if there could be an intellectual Lend-Lease between the universities here and the colonial centres of higher education. He believed that the practical difficulties, which were many, could be overcome. He was accordingly setting up a Commission of Inquiry, with Mr. Justice Asquith as chairman, to inquire into the general problem of the relationship between home and colonial universities, and the way in which the latter could best be assisted. He was also setting up a Commission of Inquiry into higher education in British West Africa, of which Dr. Walter Elliot would be chairman, and on which three African representatives had been invited to serve.

Col. Stanley added that with regard to primary education the whole question of reducing mass illiteracy was now being considered by his Advisory Committee on Education, and he hoped shortly to receive its report. The Minister said that our objective in the Colonial Empire must be to make the Colonies self-supporting.

Medical News

Dr. A. J. Amor has been appointed Chief Medical Officer of the Ministry of Supply with effect from July 19, in succession to Air Vice-Marshal Sir David Munro, who has relinquished that appointment. Sir David Munro has been appointed Medical Adviser to the Ministry with effect from the same date.

The Distinguished Service Medal and Award of the American Medical Association for 1943 has been conferred on Dr. Elliott Proctor Joslin, whose outstanding work on diabetes is recorded in the *Journal of the American Medical Association*.

The President of Poland has conferred the Order of Polonia Restituta, Third Class, on Prof. Sydney A. Smith, M.D., Dean of the Faculty of Medicine, University of Edinburgh, and Prof. F. A. E. Crew, M.D., F.R.S., in recognition of services during the war.

After the annual general meeting of the Medical Society for the Study of Venereal Diseases to be held at 11, Chandos Street, Cavendish Square, W., to-day (Saturday, July 24), a medical meeting will begin at 2.30 p.m., when papers will be read on hyperthermia in the treatment of resistant gonococcal and non-specific urethritis, and on physiological changes in fever treatment.

On July 21 the Minister of Agriculture attended the centenary commemoration of the founding of the Rothamsted Experimental Station, Harpenden, when the laboratories, field experiments, and the 100th wheat crop on Broadbalk Field were inspected at the invitation of the Lawes Agricultural Trust Committee, of which the Earl of Radnor is chairman.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week there were 304 more notifications of scarlet fever and 26 more of diphtheria, but there were 1,609 fewer cases of measles and 81 fewer of whooping-cough.

Only small changes in the trend of diphtheria within the counties were reported. The largest variations in the totals for scarlet fever were rises in Yorks West Riding 35, Lancashire 33, and Essex 31. The greatest rises in whooping-cough were in the counties of Southampton 35, Durham 32, Warwick 31. The largest falls in the notifications of measles were Staffordshire 155, Lancashire 148, Norfolk 140, London 118.

The notifications of dysentery rose from 13 to 120. The only new outbreak was in Leicestershire, Hinkley U.D. 10; 14 more cases were reported from the outbreak in Bristol C.B.; the only other large centre of infection was London, with 20 cases in ten boroughs.

In *Scotland* the notifications of infectious diseases fell substantially: whooping-cough by 107, measles by 88, dysentery 44, and scarlet fever by 43; but diphtheria was up by 15. The reduction of whooping-cough was due to a fall of 103 in Glasgow. Glasgow, with 98 fewer cases of measles, was also responsible for the downward trend of this disease, the outbreaks in Edinburgh and Dundee remaining at a constant level. In Paisley the cases increased by 37. The number of cases of cerebrospinal fever has been fairly constant for the whole country during the past five weeks, but there has been a slight drop in Glasgow, where 19 of the 30 cases occurring during the week were recorded.

Quarterly Return for England and Wales

The birth rate during the first quarter of this year was 16.8 per 1,000, the highest rate for a first quarter since 1928, and was 2.0 above the average for the five preceding March quarters. The sex rates of births were 1,070 males to 1,000 females, compared with an average for the ten preceding first quarters of 1,058. The infant mortality was 60 per 1,000 live births—14 below the average of the ten preceding first quarters. The rate for stillbirths was 33 per 1,000 of the total births registered. The general death rate was 13.5 per 1,000, compared with an average of 16.5 for the five preceding first quarters. The natural increase—excess of births over deaths—was 34,251. In the March quarter of 1942 the increase was 6,963, while in the first quarters of 1940 and 1941 the births were in defect of the deaths by 50,838 and 31,610.

The number of persons marrying was 124,674. This was 51,770 fewer than in the first quarter of 1942, and was the lowest number in any quarter since the outbreak of war.

The Week Ending July 10

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,959, whooping-cough 2,284, diphtheria 580, measles 3,593, acute pneumonia 502, cerebrospinal fever 49, dysentery 93, paratyphoid 12, typhoid 8.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 3.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	49	2	30	3	5	105	4	36	3	7
Deaths	—	—	1	—	—	—	—	2	—	—
Diphtheria	608	36	163	65	21	728	39	171	44	21
Deaths	10	1	4	—	1	17	2	5	3	—
Dysentery	120	20	64	—	—	242	22	46	—	—
Deaths	—	—	—	—	—	1	—	—	—	—
Encephalitis lethargica, acute	5	—	—	—	—	6	—	1	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	37	4	1	—	—	41	7	2
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	—	—	—	44	—	—	—	—	—	—
Deaths	—	3	8	9	5	30	2	12	5	4
Measles	4,165	213	234	8	8	7,581	815	249	97	233
Deaths	1	—	—	—	—	5	1	4	1	—
Ophthalmia neonatorum ..	109	2	24	1	—	83	3	5	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	10	3	1	—	—	14	—	2	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza* ..	530	27	7	—	10	734	35	5	3	8
Deaths (from influenza) ..	7	—	1	—	—	11	—	1	—	—
Pneumonia, primary	530	19	194	12	10	—	—	184	20	5
Deaths	7	—	—	5	—	—	—	—	—	—
Polio-encephalitis, acute ..	—	—	—	—	—	2	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	5	1	—	5	—	7	—	1	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	1	20	—	—	—	1	15	4	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	149	6	16	3	2	161	9	17	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1,984	171	201	39	54	1,396	84	229	74	2
Deaths	1	1	—	1	—	7	—	—	—	—
Small-pox	—	—	—	—	—	—	—	9	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	8	—	1	6	2	4	—	1	7	—
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	2,249	100	133	42	38	1,457	128	17	37	1
Deaths	10	—	5	—	1	7	—	—	—	—
Deaths (0-1 year)	284	30	60	34	26	282	31	51	18	—
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) ..	3,742	508	580	175	120	3,726	527	562	165	—
Annual death rate (per 1,000 persons living) ..	—	—	13.1	11.5	†	—	—	12.6	11.0	—
Live births	6,563	793	934	478	323	6,083	709	921	390	—
Annual rate per 1,000 persons living ..	—	—	19.1	31.4	‡	—	—	19.0	26.0	—
Stillbirths	190	16	33	—	—	227	20	39	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	34	—	—	—	—	20	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. If reprints are required, as proofs are sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be sent to the Secretary.

TELEPHONE No.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES—EDITOR, *Aitology Western, London*; SECRETARY, *Medisera Western, London*.

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Primary Vaccination of Adolescents

Q.—I have been asked to vaccinate a previously unvaccinated girl aged 12 years, as she is being sent to a boarding school, the head master requiring such vaccination before her admission. (1) Is such a primary vaccination either safe or desirable in the absence of a small-pox epidemic? (2) What is the dosage of lymph for intra- or sub-cutaneous vaccination, and do such methods leave a scar?

A.—1. The Ministry of Health deprecates the imposition of vaccination as a condition of admission to an institution or of employment in this country. The vaccination of persons of adolescent or school age who have not been previously vaccinated is not desirable unless they have been in contact with a case of small-pox or have been directly exposed to small-pox infection.

2. It is customary to use 0.1 c.cm. of 1:50 to 1:200 dilution of lymph—i.e., of vaccinal pulp after its dilution with glycerin water 1 in 5 or 6; but we do not know the amount of vaccinia virus in the pulp. This necessarily varies with the time and method of collection, and there is no method of ascertaining the virus content. There is no scar formation (unless there is accidental vesicle formation), and in this connexion Henderson and McClean (*J. Hyg., Camb.*, 1939, 39, 680) noted that unless there was vesicle formation there was little immunity. These authors found a definite correlation between the appearance of a typical epidermal vesicle and the subsequent development of immunity. It is to be borne in mind that calf lymph is not sterile, and the possible danger of introducing adventitious organisms into or under the skin should be considered. In some cases persistent induration is said to follow.

Streptococci and Nephritis

Q.—Will a chronic streptococcal infection of the throat cause high blood pressure by insidiously damaging the kidneys?

A.—So far as is known, streptococcal infections of the throat only cause high blood pressure through the medium of nephritis, in which condition albumin is rarely absent from the urine, and red cells and casts are usually present also when the spun deposit of a fresh specimen is examined. Wintenwerder *et al.* (*Arch. intern. Med.*, 1935, 56, 297) have found that the persistence of streptococci in the nasopharynx is commoner in nephritic patients in whom the condition is progressive than in those who recover, but operations to remove infected foci produced neither disappearance of the organisms nor amelioration of the nephritis. It is not yet clear whether nephritis is the result of a reaction between streptococcal antigens and antibodies, or due to a different agent such as a virus.

High Blood Pressure in Pregnancy

Q.—What is considered high blood pressure in pregnancy, especially in the last month, in the absence of clinical signs of renal affection? What does it signify? I have a patient aged 23 years in her last month of pregnancy, with no evidence of renal trouble, but her blood pressure is 170/80. I have read somewhere that this may bring on premature labour.

A.—It is generally accepted that at any stage in pregnancy a systolic pressure of over 140 or a diastolic pressure of over 80 is pathological. Some authorities even put the limits of normal at 130 and 70. In the absence of evidence of nephritis the raised blood pressure is indicative of either essential hypertension or of pre-eclamptic toxæmia. In the case of essential hypertension the blood pressure is raised throughout pregnancy with a tendency to exacerbation in the later weeks. In pre-eclampsia the rise of blood pressure does not usually occur until the last one or two months of pregnancy, but may precede other signs such as albuminuria and oedema. Patients suffering from essential hypertension are more likely to develop pre-eclampsia or eclampsia; so whichever is its cause the raised blood pressure in this particular case should be

regarded as being of serious significance. Premature onset of labour is one of the common complications of the toxæmias of pregnancy, but there is no direct connexion between a rise in blood pressure and the onset of labour.

Deafness after Scarlet Fever

Q.—A patient, partially deaf since childhood (due to scarlet fever), recently had a severe catarrhal cold with subsequent copious mucopurulent discharge from the nose. When this got better his hearing considerably improved, and in fact has been better than it has been for two years. He is now aged 54. Is there any remedy that would keep his hearing fairly normal? At present I think it is about 80% normal, whereas for a considerable time past it has hardly been 40%. Eustachian inflation has done no good.

A.—Unless accurate observations with an audiometer were made of this patient's hearing it is not possible to form any valid conclusions. The late Dr. Albert Gray, however, observed that in a few cases of otosclerosis a coryza caused a temporary improvement in hearing, which was attributed to an increase in the blood supply from vasodilatation. Possibly a cervical sympathectomy might have the same effect, but it would be too experimental to be seriously considered.

Cows, Rheumatism, and Streptococci

Q.—Do cows suffer from rheumatic arthritis and endocarditis? If so, that would explain where the infection of acute rheumatism comes from.

A.—Cows do not suffer from rheumatic arthritis and endocarditis: there is in fact no animal naturally subject to rheumatic fever as seen in man, though various other forms of arthritis are common among them. The insusceptibility of animals is actually an obstacle to the experimental study of rheumatic fever. There are, however, strong reasons for regarding infection, primarily involving the throat, by haemolytic streptococci as an essential part of rheumatic fever, if not its whole cause. The cow or its milk is thus involved to the extent that in some cases they may be the source of the infection. Streptococcal mastitis in cows is occasionally due to infection of human origin, the streptococcus being of Group A, and thus liable to produce serious disease in man: more commonly it is of Group B (*Streptococcus agalactiae*), which is much less pathogenic to man. Alternatively, milk may be directly contaminated by cough spray or otherwise from a human source. This ever-present danger constitutes one of the many reasons why general pasteurization of milk is necessary in the interests of the public health.

Jaundice after Serum Injection

Q.—Is the jaundice following the injection of measles serum and other sera (homologous serum jaundice) due to the lighting up of a dormant virus?

A.—There is, as yet, no evidence that homologous serum jaundice is due to a virus. It has been assumed by many workers that this condition is due to the virus of infective hepatitis (epidemic catarrhal jaundice). It should be noted, however, that the incubation period of the two conditions is different: 2 to 3 months in homologous serum jaundice and round about 1 month in infective hepatitis. Perhaps one should not have used the term "incubation period" for the former condition, since there is no real evidence that it is an infective process. It may be, but that remains to be established. Two additional points make one hesitate to accept the view that homologous serum jaundice is due to the virus of infective hepatitis. It is assumed that certain batches of serum are iatrogenic because they come from donors who happened to have this virus in the circulation when they were bled; yet it is strange that no well-established case exists of jaundice following transfusion with whole blood. The second point is the absence of well-authenticated secondary cases arising as the result of exposure to a case of serum jaundice. Future investigations should be made with a view to an unequivocal answer to these two points.

Oestrogens for Small Breasts

Q.—One of my patients, a multip-2, has small, rather shrunken breasts, of which she complains for cosmetic reasons. She is otherwise well developed. Oestradiol injections have proved useful for undeveloped virgin breasts. Would they achieve anything in a case of this nature? What dosage should be employed? "Progyon" ointment contains 0.1 mg. of hormone in 1 g. of base. What is the strength in i.b.u.? Are there likely to be any ill effects from the continued use of oestradiol, and is the susceptibility to conception increased?

A.—Incomplete development of virgin breasts is due to the relatively low concentration of oestrogen secretion in the adolescent girl. Small shrunken breasts in a multip-2 without other evidence of oestrogenic deficiency indicate a peripheral resistance on the part of the breasts to the normal ovarian activity rather than a lack of intrinsic oestrogen. Such local insensitivity is often very obstinate and is unlikely to be overcome by extrinsic oestrogen administration.

It is improbable, therefore, that oestradiol injections would achieve any spectacular result in such a case. Dosage is still rather arbitrary. Oestrogen ointments containing 2 mg. per g. are available, and the higher dose should be preferred, though there is evidence that local application is more effective in such conditions than an equivalent dose given either by the oral or parenteral route. 0.1 mg. is equivalent to 1,000 i.b.u. Continued use of oestrogens is to be deprecated. The most likely ill effect is disturbance of menstruation as evidenced either by temporary suppression of menstrual bleeding if the dose is sufficiently effective or excessive uterine haemorrhage with a less effective dose.

Inhibition of pituitary function may result from continued high dosage of oestrogen, though this is usually seen only in cases of obvious pituitary over-activity. For instance, high-dosage oestrogen therapy is temporarily of benefit in cases of Cushing's syndrome (pituitary basophilism) and acromegaly (pituitary eosinophilism). The carcinogenic tendencies which may result from continued administration of oestrogen have been frequently cited by certain clinicians. Though consideration of the pertinent animal experiments is reassuring on this point, it would be foolish to suppose that administration of, say, 1 mg. of oestrogen daily for a period of 3 years would be without risk. If the susceptibility to conception were to be affected at all it would be diminished. Though oestrogen could in no manner be described as a contraceptive, continued high dosage would tend to inhibit the luteal (or secretory) phase of the menstrual cycle and would therefore not favour conception.

Some Drug Conundrums

Q.—A patient of mine has been taking a preparation of potassium iodide 9.25%, caffeine 1.32%, and sod. benz. 1.85% for about two years. He apparently stood this preparation well until about a month ago, when he came out in an iodide rash. On my advice he stopped taking it, and he found that he became very short of breath, especially on exertion, and in fact has had to go back to the preparation and gradually reduce the dose; but he is not able to give it up altogether. He suffers from bronchial trouble with emphysema; no real asthma. Thinking there was probably an adrenal deficiency through the caffeine, I put him on tablets made up of suprarenal extract gr. 1/2, thyroid gr. 1/12, orchic substance gr. 2; but this does not seem to have had much effect. I have also suggested inhalations of 1 in 100 adrenaline when the dyspnoea became pronounced.

A.—The effective element in the first preparation is probably the potassium iodide. The development of intolerance in this way is unfortunately not unusual; it may be to some extent alleviated by intermitting the drug for a time. The expectorant action of the iodide might be duplicated by ammonium chloride gr. 5 t.d.s., or apomorphine hydrochloride gr. 1/32, or a combination of the two. The only active agent in the second preparation is the thyroid, as neither suprarenal nor testicular hormones are absorbed in this dosage by mouth. In any event there is no evidence that patients with asthma or emphysema suffer from adrenal exhaustion, which appears to be a mythical malady invented by the advertising agents. In experimental animals denervation of the adrenals or even complete sympathectomy does not lead to notable functional disturbances under normal environmental conditions. If the patient complains of exhaustion, it may well be due to the withdrawal of the caffeine, which is a cerebral stimulant. The caffeine and sodium benzoate might therefore be given alone or be replaced by another xanthine derivative—theophyllin with ethylene diamine, gr. 1½ to 3 t.d.s. Otherwise an attempt may be made to replace the drug with either amphetamine sulphate or methedrine, 2 to 4 mg. at breakfast and noon; or ephedrine hydrochloride gr. 1/2 with phenobarbitone gr. 1/2 p.r.n., up to thrice in the day. Finally, the value of respiratory exercises is worth stressing, particularly in a case of this kind, in which there may be a considerable fraction of neurasthenia.

Premature Greying of Hair

Q.—Is there any treatment which holds out hope of a cure for premature grey hair?

A.—Following the observation that pantothenic acid and p-aminobenzoic acid are necessary for normal pigmentation of the hair of the rat, which becomes grey in their absence from the diet, attempts have been made to treat premature greyness in human beings with these substances. Success has been claimed for the treatment of such cases with vitamin B complex preparations and with p-aminobenzoic acid (*Science*, 1941, 94, 257) in conjunction with endocrine products (thyroid). The dosage of p-aminobenzoic acid was 100 mg. twice daily by mouth. After about two months' treatment darkening of the hair was reported. The calcium salt of pantothenic acid has been tried in doses of 100 to 500 mg. twice weekly intramuscularly, but appears to be ineffective (*Amer. J. digest. Dis.*, 1943, 10, 45). If p-aminobenzoic acid is used it must be discontinued if sulphonamides are ever given. Of suitable vitamin B complex preparations yeast is the cheapest.

Premature loss of the colour of the hair is occasionally a manifestation of endocrine disorder, and particularly is this so in Simmonds's cachexia (hypopituitarism), but the hair changes are usually associated with other endocrine features. It is well known that a sudden shock may cause a greying or whitening of the hair, but it is less well known that a sudden shock may be followed by the syndrome of Simmonds's cachexia, probably via the hypothalamic-pituitary mechanism. About the treatment of this condition little is known from an endocrine point of view, but in one case of incomplete Simmonds's cachexia following parturition, in which the hair tended to lose its colour and become dry and brittle, the administration of testosterone produced a return of colour, lustre, and silky appearance. Such therapy should be used with caution in a female. Thyroid extract and oestrogens have also been advocated in this condition.

LETTERS, NOTES, ETC.

Vitamin E and Other Standards

Dr. PERCIVAL HARTLEY, F.R.S., Director of Biological Standards, National Institute for Medical Research, Hampstead, N.W.3, writes: In the *Journal* of July 10 (p. 61) under "Any Questions?" it is stated that there is no international unit for vitamin E. The circumstances under which an international standard, and an international unit defined in terms thereof, for vitamin E have been established and provided for international use are explained in the *Journal* of Oct. 18, 1941 (p. 553). Briefly stated, the international standard for vitamin E is a specimen of α -tocopheryl acetate, and the international unit is defined as the specific biological activity contained in 1 milligramme of the standard preparation. This opportunity is taken of reminding research workers and those laboratories and institutes in any part of the world who require international biological standards for their work that, on behalf of the Health Organization of the League of Nations, the international standards for drugs, vitamins, and hormones, and for antitoxins, antisera, and tuberculin (thirty standards in all established since 1922 by the League) are maintained at this Institute and will be supplied on application, free of charge, to the Directors of National Control Centres in those countries in which these have been established, or directly from this Institute to individual workers and others situated in countries in which such centres are not yet in operation (see *Journal*, July 6, 1940, p. 24).

"Morton's Metatarsalgia"

Mr. W. SAYLE CREER (Manchester) writes: In the section "Any Questions?" (June 26, p. 808) there is a short note relating to "Morton's metatarsalgia." It is, I fear, very inaccurate, as are most accounts of the condition. Your writer says: "Morton's metatarsalgia is not a diagnosis." He does not say what it is. Now "metatarsalgia" means pain—in the same way as neuralgia, neuritis, and sciatica mean certain pains—in the region of the metatarsal heads. The word denotes a symptom and not a diagnosis. But "Morton's metatarsalgia" does denote a diagnosis—a particular variety of metatarsalgia. It denotes pain of an intermittent, excruciating nature shooting into the second, third, or fourth toe. It was first described in 1875 by Prof. D. P. (or T. G.—various books give different initials) Morton, and attributed by him to pressure on a digital nerve by, at, or near one of the metatarsal heads. D. J. Morton says it is due to arthritis of a metatarsophalangeal joint. It is a distinct, though rare, cause of pain in the forefoot. Prof. Morton was wrong in attributing it to pressure on digital nerves, just as Dr. D. J. Morton is incorrect in ascribing it to arthritis of the metatarsophalangeal joint. The latter is a much more frequent condition with a distinctly different type of pain—stabbing, yes, but shooting, no. One always hesitates to say anything is impossible in surgery, or medicine, yet there is no other course left when considering the possibility of normal digital nerves being pinched by normal metatarsal heads. With a metatarsal head increased in size by osteophytes, as occurs in the condition called "Kohler II," pinching is theoretically possible. I haven't seen it yet. Morton's metatarsalgia occurs with normal metatarsals; only when there is a fibromatous or neurofibromatous enlargement of the digital nerve. But it is so rare that in fourteen years I have been tempted to operate only once; the enlargement was there. Excision cured the disease. I know of only three other cases. None has been published yet.

Disclaimer

Dr. A. GUIRDHAM writes: A pamphlet entitled *Revolt against Pity*, written by me, contains on its title-page several decorative additions, including references to periodicals, medical and other wise, to which I have contributed. The form of this title-page was made without my being consulted, and the proofs were not submitted to me before publication, though the agreement signed with the publishers specifically indicated that this would be so. This pamphlet is non-medical and related to the present crisis. Nevertheless I would be glad if you would publish my objection to the above-mentioned additions to my name on its title-page.

LONDON SATURDAY JULY 31 1943

TYPING OF PARATYPHOID B BACILLI BY MEANS OF VI BACTERIOPHAGE*

BY

A. FELIX, D.Sc., F.R.S. AND BESSIE R. CALLOW, M.A.

(From the Emergency Public Health Laboratory Service)

An account was given in a previous paper (Felix, 1943) of experience with the bacteriophage typing of typhoid bacilli according to the technique of Craigie and Yen (1938a, 1938b). The conclusion reached was that the method is an indispensable laboratory aid to the control of typhoid fever. In this country during the past few years paratyphoid B fever has been much more prevalent than typhoid fever. It appeared, therefore, highly desirable to investigate the possibility of applying Vi-bacteriophage action to the examination of paratyphoid B cases and carriers.

The presence in cultures of *Bact. paratyphosum* B of an antigen resembling the typhoid Vi antigen was described some years ago (Felix and Pitt, 1936), but most workers paid little attention to this finding. Kauffmann (1936a, 1936b) attempted to identify the antigen with one of the several components of the complex O antigen assigned to the paratyphoid B bacillus in the Salmonella scheme of Kauffmann and White (Salmonella Subcommittee, 1934). The intricacies of this controversial problem cannot be discussed here, but it may be stated that unpublished experiments carried out by one of us (A.F.) in collaboration with Miss R. M. Pitt before the war strongly indicated that paratyphoid B bacilli possess a heat-labile somatic antigen that is essentially similar to the typhoid Vi antigen, though differing from it in certain respects. Moreover, experience during the present war confirms the earlier observation, and every paratyphoid B strain isolated in this country which has been examined up to the present time contains the heat-labile "Vi" antigen.

These facts are the theoretical basis of the present investigation. The data from the bacteriological and serological experiments will be published elsewhere; only those results are summarized here which help to make clear the practical application of the method.

Isolation of Anti-Vi and Anti-O Bacteriophages

During 1941 large outbreaks of paratyphoid B fever occurred in different parts of the country, and, thanks to the co-operation of many pathologists, nearly 500 cultures of the paratyphoid B bacillus were collected and examined within a few months. Bacteriophages were grown from specimens of faeces of paratyphoid B patients, convalescents, and carriers; from freshly isolated "smooth" cultures that were found to be phage-contaminated; and from "rough" variants of paratyphoid B strains; a few bacteriophages were also received from Dr. R. Knox of the E.P.H. Laboratory, Leicester. It was soon found that most of the phages obtained from these sources were anti-O phages that acted on paratyphoid B bacilli as well as on *Bact. typhi-murium* bacilli and many other members of the Salmonella group. Even minor O-antigenic components that are common to the various Salmonella species, though they are not listed in the Kauffmann-White diagnostic scheme, provide an adequate point of attack for anti-O bacteriophages.

On the other hand, a number of phages were found which were specific for the paratyphoid B bacillus. These phages

did not attack any of the other Salmonella species tested, and were therefore considered to be specific anti-Vi paratyphoid B phages. They differed, however, in one respect from the corresponding typhoid Vi phages described by Sertic and Boulgakov (1936), Scholtens (1936), and Craigie and Brandon (1936). The typhoid Vi phages, when employed in the form of concentrated unadapted preparations, attack every strain, or almost every strain, of the typhoid bacillus, so long as the bacilli contain enough of the Vi antigen to provide the required point of attack. Our Vi paratyphoid B phages, however, acted selectively on certain paratyphoid B strains but failed to lyse other strains, in spite of the fact that these also contained the heat-labile somatic Vi antigen.

It is noteworthy that the non-specific O phages were grown readily from specimens of faeces, whereas the specific Vi phages could be isolated only exceptionally from this source. Thus, of the first ten anti-O phages examined seven were derived directly from faecal specimens and three were isolated during the process of purification of Vi phages, which was in each instance carried out by repeated transplantation from single plaques. On the other hand, the first ten anti-Vi phages were obtained from the following sources: five from lysogenic "rough" variants, four from phage-contaminated "smooth" cultures of the paratyphoid B bacillus, and only one direct from a specimen of faeces.

Although the Vi bacteriophages had been isolated from patients in localities as widely separated as Aberdeen and Inverness in the north, and Bristol and Exeter in the south, no difference in their affinities for different paratyphoid B strains could be detected. Every strain examined was either lysed by all the Vi phages or was resistant to all of them, no matter in which part of the country the strain had been isolated. All the strains examined during any given outbreak usually behaved in a precisely similar manner towards all the available Vi phages: this was interpreted as indicating that the cases had a common source of infection. Such confirmation by laboratory findings, though of limited value, was appreciated by the medical officers of health who were investigating the outbreaks (Davies, Cooper, and Fleming, 1942; Parry, 1942). There seemed, however, at that time to be little hope of attaining our goal—namely, the differentiation of paratyphoid B strains into a number of distinct Vi-phage types. As was proved later, nearly all the larger outbreaks during 1941 were due to strains belonging to the same bacteriophage type—namely, Type 1 (see Table III).

Adaptation of Vi Bacteriophages

The position at once changed when the first instance of adaptation of a Vi phage had been observed. This occurred in the course of the examination of cultures from a relatively small outbreak of paratyphoid B fever in Ipswich during July-Aug., 1941. Thanks to the most helpful co-operation of Dr. P. H. Martin of the E.P.H. Laboratory, Ipswich, we were able to examine the strains from all the patients concerned and also from a number of cases that occurred at the same time elsewhere in East Suffolk. The "Suffolk" strains were all lysed by the available Vi phages in very high dilutions, exceeding in some instances even a dilution of 1 in 10 millions, whereas the "Ipswich" strains were all insusceptible. When

* A report to the Medical Research Council.

however, certain of the phage preparations were applied in a concentration about a million times stronger than the usual amount a few plaques were occasionally produced on some of the "Ipswich" strains. New preparations of bacteriophage grown from these plaques still lysed the "Suffolk" strains, but they also lysed the "Ipswich" strains to the same titre. Using one of the original Vi phages, which had been isolated from a patient in Aberdeen, and the new preparation derived from the "Aberdeen" phage and adapted to the "Ipswich" strains, we were now able to identify every strain that belonged to the "Ipswich" type.

The next Vi phage to be specifically adapted to certain strains was obtained by an analogous procedure during the examination of strains from a small outbreak in Southampton. The cultures had been isolated by Dr. J. T. Duncan of the E.P.H. Laboratory, Winchester, during May-June, 1940, and were found to be resistant to all the original Vi phages, including the "Aberdeen" phage and the adapted "Ipswich" phage. After numerous unsuccessful attempts a few plaques were eventually produced by the adapted "Ipswich" phage on some of the Southampton strains, and from these plaques another adapted phage was initiated. The new phage preparation possessed a strong lytic power for all the cultures from the Southampton outbreak, but had entirely lost the lytic power for the "Ipswich" strains which it had acquired during the previous process of adaptation. Its affinity for the parent strain ("Aberdeen" strain) still remained unchanged. The original "Aberdeen" Vi phage was now labelled "Type 1," and the adapted "Ipswich" and "Southampton" phages were designated as "Type 2" and "Type 3" respectively.

TABLE I.—Showing the Reactions of Type Strains of *Bact. paratyphosum* B and *Bact. typhi-murium* to Anti-Vi and Anti-O Bacteriophages

Type Strains	Anti-gens Present in the Strains	Anti-Vi Bacteriophages				Anti-O Bacteriophage	
		Bact. paratyphosum B					
		Type 1	Type 2	Type 3a	Type 3b		
lact. para-typhosum B	Type 1 ..	Vi+O	CL	CL	+++	-	CL
	" 2 ..	Vi+O	-	CL	-	-	CL
	" 3a ..	Vi+O	-	-	CL	-	CL
	" 3b ..	Vi+O	-	-	SCL	-	CL
	Untypable (Group Z)	Vi+O	-	-	SCL	-	CL
Bact. typhimurium	Type 1 ..	Vi+O	-	-	-	CL	CL
	Vi-negative variant	O	-	-	-	-	CL

CL=Confluent lysis with standard loopful of test dilution of phage.
SCL=Semi-confluent lysis with standard loopful of test dilution of phage.
+++=Numerous discrete plaques, subnormal in size.

So far only four different Vi-phage types of *Bact. paratyphosum* B have been identified; their relationship to each other is indicated in Table I. Type 1 strains are lysed by all the available BVi* phages, whereas the other three types are attacked only by the corresponding adapted BVi phages. Group Z is the provisional designation chosen for the untypable strains that are resistant to all the BVi phages so far available in spite of the fact that the cultures contain the BVi antigen. There can be little doubt that this group comprises a number of further Vi-phage types that have not been identified because the corresponding type phages have not yet been isolated.

If the typing scheme outlined in Table I is compared with that at which was first devised by Craigie and Yen (1938a) for the typing of the typhoid bacillus it is seen that the two are very similar, and indeed almost identical. The first place in each of the two schemes has been assigned to the type of bacillus that is sensitive to all the adapted phage preparations; the phages corresponding to these types—namely, Type A phage of the typhoid bacillus and Type 1 phage of the paratyphoid B bacillus—nevertheless possess a high degree of specificity. The remaining types in the two schemes are all characterized by their particular sensitiveness to the homologous adapted type phage. The relationship between subtypes of the paratyphoid B bacillus (Types 3a and 3b) is also similar to that obtaining between the various subtypes of the typhoid bacillus.

* The symbol BVi is used throughout this paper to denote the Vi antigen of the paratyphoid B bacillus.

Bacteriophages adapted to Types 2, 3a, and 3b were isolated many times later in the course of this investigation. The phage preparations were obtained as the result of cross-reactions between cultures and Vi phages that had been derived from outbreaks or sporadic cases in various parts of the country. Whichever of these phage preparations were employed in the typing of paratyphoid B strains, the results obtained were invariably the same—namely, identical with those summarized in Table I.

The table also shows that *Bact. typhi-murium*, which shares the heat-labile Vi antigen with *Bact. paratyphosum* (Felix and Pitt, 1936), is not lysed by any of the four BVi type phages. *Bact. typhi-murium* is sensitive to its own specific Vi phages, of which two different types have been identified so far. Table I shows only one of these. It remains to be investigated whether the specificity of these phages is as strict as it appears to be at the present time.

The procedures that led to the adaptation of anti-Vi phages were also applied to the examination of a number of anti-O phages. In no instance, however, did we succeed in training an anti-O phage to develop strain specificity. This finding is of great interest, from the theoretical point of view, since it provides additional evidence of the similarity between the Vi antigen of typhoid and that of paratyphoid B bacilli. Table I shows that an anti-O phage attacks strains belonging to all known Vi-phage types of the paratyphoid B bacillus and also Vi-positive and Vi-negative strains of *Bact. typhi-murium*.

The Epidemiological Significance of Paratyphoid-B Vi-phage Types

It has already been mentioned that the subdivision of paratyphoid B strains into Vi-phage types first proved its usefulness during a small outbreak in Ipswich, July-Aug., 1941, which was examined bacteriologically by Dr. P. H. Martin. The epidemiology of this outbreak has been very thoroughly investigated by the Ministry of Health, in co-operation with the E.P.H.L. Service, and a report by Dr. J. R. Hutchinson appears on page 130 of the present issue (Hutchinson, 1942). The clear-cut result of the field inquiry was that all the cases from which Type 2 bacilli had been isolated had a common source of infection, whereas the cases that were due to Type 1 bacilli were unrelated to that source.

Many outbreaks, large and small, have been investigated since, and our experience so far has been that the epidemiological significance of paratyphoid-B Vi-phage types is much the same as that of the now well-established typhoid Vi types. A few instances may be mentioned here by way of illustration. During the paratyphoid B outbreak in Liverpool, May-September 1941 (Holt, Vaughan, and Wright, 1942), 72 cultures, derived from 66 patients or temporary excretors, were examined. The included cultures isolated from three employees of the bakery responsible for the outbreak and from a synthetic cream used by the firm in question. All these cultures were found to belong to Type 1. In an outbreak in Bristol, July-Oct., 1941 (Davies, Cooper, and Fleming, 1942), five strains from the primary wave in August and six strains from the secondary wave in September were typed, and it was found that again all the cultures were of Type 1. On the other hand, thirty strains from the outbreak in Consett, June, 1940 (Warre, 1941), and six strains from the 1939 outbreak in Bebington (Hughes and Harwood, 1940) were typed, and all were found to belong to Type 3a.

Several chronic faecal carriers of *Bact. paratyphosum* B have been examined repeatedly over periods varying from a year to over three years. The phage type of the excreted organisms in every instance remained unchanged during the period of observation. These results permit us to state with confidence that the typing of paratyphoid B bacilli by the Vi-phage technique is a reliable aid to the epidemiological investigation of cases or outbreaks of the disease.

Paratyphoid-B Vi-phage Types Prevalent in England, Wales and Scotland during 1940-2

The results so far obtained with the typing of strains of the paratyphoid B bacillus have been summarized in Tables II and III. The number of cultures examined in the course of this investigation was 808, including about 100 cultures from the late W. M. Scott's collection; the number of patients a

carriers, temporary or chronic, from whom the cultures had been derived was 714. Many paratyphoid B outbreaks of considerable size occurred in the British Isles during 1941, and nearly all of these were due to Type 1 bacilli. As a sequence to these outbreaks, cultures of Type 1 strains from convalescent patients and temporary excretors continued to be sent in for examination throughout the following winter and well into the first quarter of 1942. It seemed advisable, therefore, to choose March 31, 1942, as the date separating the "epidemic" year 1941 from the "non-epidemic" period that followed it. The distribution of the various types during the three years under observation can thus be traced more accurately than by strictly adhering to yearly periods.

TABLE II.—Showing the Vi-phage Types of *Bact. paratyphosum* B found in England, Wales, and Scotland during April, 1940, to March, 1943

Vi-phage Types of <i>Bact. paratyphosum</i> B	Number of Patients and Carriers from whom Paratyphoid B Strains belonging to the Various Vi-phage Types have been Isolated					
	April, 1940, to Dec., 1940		Jan., 1941, to March, 1942		April, 1942, to March, 1943	
	No.	%	No.	%	No.	%
Type 1	95	55.6	349	79.3	37	41.1
" 2	5	2.9	34	7.7	2	2.2
" 3a	51	29.8	33	7.5	38	42.2
" 3b	1	0.6	4	0.9	1	1.1
Untypable (Group Z)	19	11.1	20	4.6	11	12.2
Total	171		440		90	

Part II.—Notified Cases of Enteric Fevers in England and Wales

	1938	1939	1940	1941		1942
				Jan.-June	July-Dec.	
Typhoid fever ..	—	—	—	—	677	464
Paratyphoid fever ..	—	—	—	—	2,941	404
Total typhoid and paratyphoid fevers	1,322	1,479	2,833	1,145	3,618	868

In order to assess the significance of the figures shown in Part I of Table II it is necessary to emphasize that the method of collecting the cultures for typing has not been the same throughout the whole period under review. During the initial stages of the investigation it was felt that no useful information could be obtained from the examination of sporadic cases or small groups of cases, and these were neglected almost entirely. Most of the cultures collected during 1940 and 1941 were therefore obtained from cases belonging to larger outbreaks

of the disease. In March, 1942, when the number of available Vi-type phages had risen to three, it was decided to extend the investigation to include strains from sporadic cases or from small groups of cases. This change was a timely one, since the year 1942—proved to have the lowest number of notified cases of enteric fevers ever recorded in England and Wales. The total notifications, based on the weekly returns of the General Register Office, are shown for comparison in Table II.

The typing of a small fraction of the total number of cases such as has only been possible up to the present time, obviously provides a very rough indication of the frequency-distribution of the different Vi-phage types. Carefully organized surveys covering all parts of the country and carried out for a number of years, are required in order to obtain a reasonably adequate picture. It is, however, clear that the figures for 1940 and 1941 approximate more closely to the true frequency-distribution of the various types than the 1941 figures, which reflect the epidemic spread of Type 1 bacilli. The prevalence of this type during 1941 was obviously due to accidental causes, and not to any particular virulence of Type 1 bacilli.

It is of especial interest to note that the proportion of strains that could not be typed with the four type phages so far available has been very small. The highest figure was that for 1942—namely, 12% of the total number examined. In a similar series of cases of typhoid fever from this country (Felix, 1943) the proportion of untypable strains was slightly higher (69 out of 432 strains, or 15.9%). These figures are remarkable in view of the fact that the typhoid strains were tested against twenty-two different Vi-type phages, whereas only four phages were available for the typing of paratyphoid B bacilli. The significance of these observations is at present a matter for speculation. It is possible that by mere chance only a small number of the different Vi-phage types of paratyphoid B bacilli that are indigenous to this country were encountered during the present investigation. An alternative possibility is that the Vi antigen of *Bact. paratyphosum* B is not capable of variation to the same degree as the Vi antigen of *Bact. typhosum*—that is to say that the former has developed fewer Vi-phage types than the latter. Future investigations in this country and abroad will give the answer to these queries.

Paratyphoid B bacilli do not lose their specific Vi antigen as readily as do typhoid bacilli. In the corresponding series of strains of *Bact. typhosum* that had been typed by the bacteriophage technique (Felix, 1943) eight strains could not be typed because the cultures were Vi-negative "O" variants. In the present series of 714 strains of *Bact. paratyphosum* B

TABLE III.—List of Phage-typed Outbreaks of Paratyphoid B Fever in England, Wales, and Scotland

Outbreaks			Strains of <i>Bact. paratyphosum</i> B examined by the Vi-phage Method				Reference
Year	Months	Place	No. of Cases Notified	No. of Strains Typed	Vi-phage Type	Cultures received from	
1931	Feb., March	Epping and district	312	2	1	Metropolitan Water Board	Bullough (1931)
1936-7	Dec., Jan.	Liverpool and district	132	2	1	Prof. H. D. Wright	Frazer, Glover, and Glass (1937)
1939	Aug.-Oct.	Bebington	51	6	3a	Dr. H. H. Mole	Hughes and Harwood (1940)
1940	April	Southampton	10	6	3a	E.P.H. Laboratory, Winchester	—
	June	Consett and district	56	13	3a	E.P.H. Laboratory, Barnard Castle	Warren (1941)
	June-Sept.	Kettering and district	213	18	1	E.P.H. Laboratory, Leicester	Hogg and Knox (1941)
	July, Aug.	Exeter	60	29	1	Dr. W. A. Robb	Page (1940)
	May, June	Bristol	34	3	1	Dr. K. E. Cooper	Davies, Cooper, Wiseman, and Davies (1940)
	Aug.-Dec.	Sheffield	39	7	3a	Prof. Wilson Smith	—
1941	March	Inverness and district	200	5	1	Dr. H. J. R. Kirkpatrick	—
	May	Dundee	178	3	1	Prof. W. J. Tulloch	—
	June	Taunton	28	6	Group Z	Dr. R. Wood, F.I.C.	—
	May-Sept.	Liverpool and district	883	72	1	Prof. H. D. Wright	Holt, Vaughan, and Wright (1942)
	May-Oct.	Birmingham and district	254	63	1	Dr. H. Henry	—
	July-Oct.	Bristol	203	11	1	Dr. K. E. Cooper	Davies, Cooper, and Fleming (1942)
	July, Aug.	Ipswich	16	16	1	American Red Cross-Harvard Unit	—
	Sept.	East Hampshire	33	16	2	E.P.H. Laboratory, Ipswich	Hutchinson (1943)
	Oct., Nov.	St. Albans	21	11	1	E.P.H. Laboratory, Winchester	—
	Dec.	Torquay	6	4	Group Z	Prof. L. P. Garrod	—
1942	Jan.	Ely	10	4	1	E.P.H. Laboratory, Cambridge	E.P.H. L.S. Monthly Bulletin, April, 1942
	April	Locking	15	6	3a	Dr. R. Wood, F.I.C., Taunton	—
1943	Jan.	Hastings	35	10	3a	Dr. P. Lazarus-Barlow	—

not a single strain remained untyped for that particular reason. All the cultures listed in Table II as untypable (Group Z) strains were examined in agglutination tests with pure O and pure Vi immune sera and were found to contain the heat-labile BVi antigen. On the other hand, paratyphoid B cultures that show the accepted criteria of "roughness" (Arkwright, 1930) cannot be typed. According to the degree of antigenic degradation which they have suffered, such cultures may or may not be lysed by anti-O phages; they are, however, invariably resistant to the action of anti-Vi phages.

Table III shows in chronological order those outbreaks of paratyphoid B fever in the British Isles that have been typed by the Vi-phage method. Many of these outbreaks have been described in detail in published reports, and the various epidemiological aspects raised by the authors have been reviewed in an interesting study by Savage (1942). No published accounts are available of those outbreaks mentioned in Table III to which no reference is printed in the table. The information concerning these outbreaks has been supplied by the pathologists from whom the cultures were received and by the General Register Office. The figures specified in Table II, when read in conjunction with the data recorded in Table III, will convey an indication of the distribution of the various types of paratyphoid B bacilli throughout the country. Table III shows that all the large outbreaks that occurred during 1941 were due to Type 1 bacilli.

This first survey of necessity furnishes only fragmentary information, but it shows clearly the scope of applicability of the new typing method. Its value as an epidemiological weapon is beyond doubt. The extent to which it can be usefully applied to the control of paratyphoid B fever depends solely upon the degree of co-operation between clinician, field investigator, and laboratory worker.

Summary

Anti-Vi bacteriophages that act specifically on *Bact. paratyphosum* B are described. Anti-O bacteriophages, on the other hand, attack strains belonging to many diverse *Salmonella* species.

Anti-Vi phages of *Bact. paratyphosum* B can be adapted to develop a high degree of specificity for particular strains, whereas anti-O phages are incapable of such adaptation.

Four separate and distinct Vi-phage types and subtypes of *Bact. paratyphosum* B have been identified so far, and a method of typing strains of paratyphoid B bacilli has been developed similar to that which was first devised by Craigie and Yen for the typing of typhoid bacilli.

Of 714 strains isolated from patients or carriers in Great Britain only 50 (7%) could not be typed by means of the available four Vi-type phages. The larger outbreaks of the disease in 1941 were found to have been caused by Type 1 strains.

The significance of paratyphoid-B Vi-phage types is the same as that of typhoid Vi-phage types. The typing of paratyphoid B strains isolated from sporadic cases or outbreaks is a valuable epidemiological weapon and is certain to be widely applied in the future.

We should like to express our thanks to the pathologists of the Emergency Public Health Laboratory Service and of many other public health or clinical laboratories for their co-operation throughout this investigation; to Dr. J. R. Hutchinson, Dr. W. H. Bradley, and Colonel C. Maddock of the Ministry of Health for help in collecting epidemiological data; and to Dr. C. M. Wenyon for hospitality at the Wellcome Research Institution.

REFERENCES

- Arkwright, J. A. (1930). *System of Bacteriology*, 1, 349. Med. Res. Cncl., London.
 Bullough, W. A. (1931). *Ann. Rep. County M.O.H. Essex*.
 Craigie, J., and Brandon, K. F. (1936). *J. Path. Bact.*, 43, 233.
 ——— and Yen, C. H. (1938a). *Canad. publ. Hlth. J.*, 29, 448.
 ——— (1938b). *Ibid.*, 29, 484.
 Davies, I. G., Cooper, K. E., and Fleming, D. S. (1942). *Lancet*, 1, 129.
 ——— (1940). *Ibid.*, 2, 778.
 Wiseman, J., and Davies, J. M. (1940). *Ibid.*, 2, 778.
 E.P.H.L.S. Monthly Bulletin, April, 1942.
 Felix, A. (1943). *British Medical Journal*, 1, 435.
 ——— and Pitt, R. M. (1936). *Brit. J. exp. Path.*, 17, 81.
 Frazer, W. M., Glover, B. T. J., and Glass, V. (1937). *British Medical Journal*, 1, 333.
 Hogg, C. B., and Knox, R. (1941). *J. Hyg., Camb.*, 41, 553.
 Holt, H. D., Vaughan, A. C. T., and Wright, H. D. (1942). *Lancet*, 1, 133.
 Hughes, T. L., and Harwood, H. F. (1940). *Ibid.*, 2, 601.
 Hutchinson, J. R. (1943). *British Medical Journal*, 2, 130.
 Kauffmann, F. (1936a). *Z. Hyg. Infektkr.*, 117, 778.
 ——— (1936b). *Ibid.*, 118, 318.
 Page, G. B. (1940). *Ann. Rep. M.O.H. Exeter*, p. 21.
 Parry, S. C. (1942). *British Medical Journal*, 2, 661.
Salmonella Subcommittee (Nomenclature Comm. int. Soc. Microbiol.) (1934). *J. Hyg., Camb.*, 34, 333.
 Savage, W. G. (1942). *J. Hyg., Camb.*, 42, 393.
 ——— (1943). *Ibid.*, 43, 452.
 Scholtens, R. T. (1936). *C. r. Soc. Biol., Paris*, 122, 35.
 Senn, Y., and Boulgakov, N. A. (1936). *C. r. Soc. Biol., Paris*, 122, 35.
 ——— (1937). *Publ. Hlth.*, 54, 139.

A NOTE ON THE VALUE OF PHAGE TYPING IN THE INVESTIGATION OF AN OUTBREAK OF PARATYPHOID B FEVER

BY

J. R. HUTCHINSON, M.D., D.P.H.

Senior Medical Officer (Epidemiology), Ministry of Health

Felix (1943) recently related his experiences of the typing of typhoid bacilli by means of Vi bacteriophage (Craigie and Yen, 1938), and in a companion article Bradley (1943) gave an account of the first application of this new knowledge to field investigations in this country, and proved, in peculiarly difficult circumstances, its value to epidemiologists. As a natural corollary Felix and Callow proceeded to apply a like laboratory technique to *Bact. paratyphosum* B—the preliminary results of which are reported on page 127 of this issue—and an opportunity recently occurred of ascertaining whether the harmony between the laboratory and field findings demonstrated in typhoid also held in paratyphoid B fever.

In Ipswich in late July and early August, 1941, there were twelve primary cases of paratyphoid B fever notified from twelve different addresses in the town. Ten of the patients had not eaten any food away from home for many weeks. By the courtesy of Dr. Hunter, the medical officer of health, and Dr. P. H. Martin of the Emergency Public Health Laboratory Service, cultures of the causal organism recovered from the stools of all the patients were submitted to Felix for phage typing. He found that ten of the patients were excreting *Bact. paratyphosum* B Type 2 and two of the Type 1. Colonel Maddock, a Medical Officer of the Ministry made local inquiries and ascertained that, although no history of the consumption of one common article of food or drink from one source could be obtained, all the ten patients who had had no meals away from home had, at a material time, a common source of supply of "confectionery" from a shop in which an unattended case was found in the person of a daily domestic helper. There was no other common factor. This woman had continued at work for four weeks after she began to be ill, but ceased on Aug. 13, by which time she infected her daughter, who lived with her. The helper's daughter took her into the shop (she had no access to bulk supplies) and although they did not ordinarily include the handling of confectionery, there is ample evidence that she did this, and also assisted in conveying unwrapped confectionery from the bakery on the premises into the shop. The bakery supplied confectionery in bulk to certain other shops, to which none were traceable, and all the ten patients implicated were the same type was recovered from the stools of the secondary cases. Of the two primary cases excreting Type 1, neither had had any dealings with the shop in question. One was staying in another part of Suffolk and the other in a town in the Midlands.

From the beginning of 1941 to the time of the investigation fifteen cases of paratyphoid B fever had been notified from twelve different parishes scattered throughout seven parishes in the county (i.e., outside Ipswich), conjectured dates of infection of seven of the primary cases fell within the period during which the source of infection was the Ipswich shop. Two of the seven were present in the Ipswich shop. Both of the seven were to be excreting Type 2, the others Type 1. Both of the Type 1 cases lived in parishes contiguous to Ipswich and were customers of the implicated shop.

All the primary Type 2 cases in Ipswich and the neighbourhood, therefore, were associated with one shop in which an excretor of Type 2 was handling at a material time. There was thus complete harmony between the laboratory and the field findings.

REFERENCES

- Bradley, W. H. (1943). *British Medical Journal*, 1, 438.
 Craigie, J., and Yen, C. H. (1938). *Canad. publ. Hlth. J.*, 29, 448.
 Felix, A. (1943). *British Medical Journal*, 1, 435.
 ——— and Callow, B. R. (1943). *Ibid.*, 2, 127.

THE TWO-STAGE AMPUTATION

PRIMARY PLANNED AMPUTATION IN THE PRESENCE OF SEPSIS

BY

E. A. JACK, M.B., F.R.C.S.Ed.

Major, R.A.M.C.

AND

J. CHARNLEY, M.B., F.R.C.S.

Major, R.A.M.C.

(No. 2 Orthopaedic Centre, M.E.F.)

Amputations in battle casualties at some interval after wounding present two main problems—namely, the level at which amputation should be performed, and the procedure to be adopted in dealing with the stump. Sepsis is the bogey. There is no doubt that if a formal flap amputation is performed a large proportion of the wounds become infected, with immediate danger to life and ultimate detriment to the stump. Authoritative publications unanimously recognize this fact, and explain it on the grounds that some hours after injury organisms invade the surface of the wound and migrate up the lymphatics of the limb. From the lymphatics they become liberated into the amputation stump. The M.R.C. War Memorandum No. 5 (1941) states that if 24 hours have elapsed since wounding infection of the amputation stump is almost inevitable; the American Medical Association *Handbook on Amputations* (1942) presents similar views, but puts the limits of the safe period at 12 hours; while other authorities vary between these times.

If infection of the stump is thus accepted as inevitable the only alternatives are either a low guillotine operation, with formal site-of-election amputation when all danger is passed, or a flap amputation at the site of election, the flaps being left widely open until sepsis subsides. Verrall (1941) suggests that it is sufficient to stitch the flaps loosely, with adequate drainage. During recent campaigns in the Middle East many cases have been received from the forward areas treated by these methods, and their subsequent behaviour has been observed. The flap amputation with loose suture or without suture was commonly performed during the Second Libyan Battle. During the Third Battle the low guillotine method was more in favour.

Of the former group few cases may be said to have pursued a satisfactory course. Almost all of the wounds became infected at some stage in the treatment, and the loose flaps became oedematous and retracted. A large discharging wound presented on which secondary suture was rarely possible, and the stumps healed only after a prolonged period of granulation. The eventual scar was often thin, puckered, and adherent to bone. If further plastic procedure on the stump is necessary and involves shortening of the bone, valuable length is lost.

The cases on which the low guillotine operation had been performed obtained perhaps, in the long run, the better end-results, because the final amputation was planned, but in the early stages their course was equally depressing. The misery of the large painful raw area, again frequently the site of prolonged infection, needs no elaboration. Reamputation is necessary, and on a patient who is just recovering from a severe ordeal the psychological effect of the news that a further portion of the limb must be lost is not the least of the disadvantages. Moreover, there is no guarantee that the final stump will remain aseptic unless the second amputation is delayed for a long time.

Experience of these methods yielded nothing but dissatisfaction at the prolonged morbidity which they entail.

Sources of Infection in the Amputation Stump

Infection may gain access to the amputation stump in three ways: (1) organisms may be present in the lymphatics and escape from them into the wound; (2) organisms may enter the wound from the skin edges or along drainage-tubes; (3) the wound may be contaminated at operation. The second source is perhaps a very common one in battle casualties,

in which multiple wounds, burns, or abrasions so often affect the skin close to the amputation field.

In the formal flap amputation, organisms once introduced into the wound find a ready site for multiplication owing to two main factors—the collection of blood or serum, and the release of normal tissue tension.

Unless operation is very much prolonged it is extremely unlikely that absolute haemostasis is achieved before stitching up. Small dead spaces remain between the flaps and about the bone-end which fill with blood-clot, and a tube drain or a loose closure affords nothing more than drainage by overflow. The flaps when cut retract, and are rarely drawn out to their normal tension again by the sutures, so that the circulation is altered in the flaps and there is a tendency to oedema, which renders the tissues more susceptible to infection. A bandage which brings enough pressure to bear at the end of the stump to eliminate pockets and to prevent oedema is almost impossible to apply, because the stump affords no purchase. Loose suturing of the flaps merely to allow drainage invites infection rather than prevents it.

The Two-stage Amputation

The two-stage amputation employs two principles. First, to combat implanted or invading organisms, sulphanilamide powder is introduced into the wound in large quantity to maintain a high local concentration. Secondly, to counter the predisposing conditions a large dry gauze pack is sutured under the flaps with its ends left projecting from the corners of the incision. The pack must be large and it must be of dry gauze. It must be large so that the flaps are sutured over it under moderate tension approximating to that obtaining in normal tissues; it must be of dry gauze so that it is absorbent.

During the first few hours after operation there is an out-pouring of serum from the raw surfaces, which soaks into the pack. By the capillary action of the gauze it is conducted out, via the extremities of the pack, into the dressing. At the same time a proportion of the sulphanilamide is dissolved by the serum and carried into the pack, which thus becomes a reservoir containing a solution of sulphanilamide in high concentration. Vaseline gauze will not fulfil these functions. The tension of the flaps over the pack maintains the circulation as nearly normal as possible, and at the same time produces through the medium of the pack an even pressure over the whole surface of the wound, thus preventing oedema and promoting effective haemostasis.

Technique of the Operation

The first stage starts as a standard flap amputation at the site of election. Often the vessels are seen to be surrounded by oedematous connective tissue, signifying lymphatic infection extending up the limb. When haemostasis has been rendered



FIG. 1.—Guillotine disarticulation through knee-joint prior to two-stage amputation.

as complete as possible, sulphanilamide powder is coated thickly over the wound. A dosage of 10 g. should not normally be exceeded for a mid-thigh amputation. The dry gauze pack is then introduced. Its size depends on the length of the flaps. Gauze roll folded on itself six or eight times to make a pack an inch and a half to two inches thick is recommended. It is carefully inserted well up into the folds of the flaps, so that it comes into direct contact with the whole surface of the

wound. Its ends project from the corners of the incision. (See Fig. 2.) The flaps are then pulled over it, and anchored with four or five sutures, and a well-padded dressing is applied. During the first 24 hours after operation there is usually some serous soakage through the dressings.



FIG. 2.—Appearance of stump before opening at second stage.

The second stage should be performed four or five days later. If it is done before the fourth day there is often some undissolved sulphanilamide still in the wound, and the full benefit has not been obtained. If left longer than five days there is a tendency for granulation tissue to grow into the pack, and bleeding follows its removal. The second stage must be carried out as a formal operation with the full aseptic precautions. The sutures are cut, the flaps very gently opened, and the pack peeled away from the surface of the wound. The flaps are soft and pliable, and are easily reflected. The wound is clean, dry, and a healthy pink colour. There are no

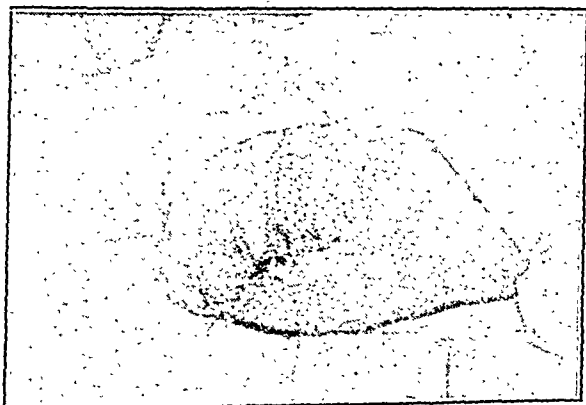


FIG. 3.—Stump before removal of sutures 14 days later.

haematomata. Sometimes about the bone-end there is a small area with a gelatinous appearance suggesting possible mild infection, but on culture this is found to be sterile. A second liberal coating of sulphanilamide powder is introduced, and the flaps are closely sutured without drainage. The sutures should be retained for 14 days.

If during the interval between stages the temperature does not quickly fall to normal, and there are signs of sepsis, the second stage should not be delayed. Should it be found, on removal of the pack, that infection has occurred and that there is suppuration in the wound, no harm has been done. The flaps are left open, and after control of infection a late secondary suture may be feasible.

The use of a dry pack is not claimed as original. It was tried out by one of us (J.C.) on two cases, at a time when site-of-election amputation with loose closure was being performed almost universally on battle casualties with bad results. The trial was satisfactory. Since then the procedure has been gradually evolved until the technique described above is now the routine for all amputations performed in this unit.

Report on Results

The two-stage method has been used in 26 cases, which are now reported.

1. Primary healing without any complication was obtained in 13 cases.

2. In 3 others, after final removal of the stitches, the skin margin slid apart for about half an inch, but quickly healed without sepsis when they were drawn together with strapping. In these cases the stitches were removed only 10 days after the second stage. Whipple (1940) reports that local sulphanilamide seems to delay normal primary wound healing, and as a result of this experience the stitches are now retained for 14 days after the second stage.

3. Three cases developed mild surface sepsis at the skin edges which did not interfere with the final healing or form of the stump. This group consists of cases in which the method was put to the most rigorous test, and in which closure by ordinary methods would almost certainly have been doomed to failure. Confidence born of success in preceding trials, and a desire to test the efficacy of the procedure to the full, are the excuses for having attempted a closer operation. One was a case of gas gangrene to the elbow, on which mid-arm amputation was performed one inch below an infected skin wound. The flaps looked quite clean at the second stage, and were closed. Mild sepsis broke down about an inch of the skin edges but the stump was healed after four weeks. The other two cases were both compound fractures of the femur with complications necessitating amputation. Preliminary wound toilet and sulphanilamide dressings had produced very mildly infected wounds. They came to amputation three and five days respectively after wounding. In each instance the first stage was performed through the wounds and fracture, damaged skin and muscle being excised before the introduction of the sulphanilamide and pack. At the second stage the wound appeared to be clean and dry except for minor infection at the corners of the incision, and the flaps were tightly closed except for these areas. The skin edges partly separated, but the wounds did not break down, and the stumps were healed, with linear scars, four to five weeks later.

4. Only 2 cases developed severe established infection with suppuration. In both of these pus was found on removal of the pack at the second stage, and the flaps were left open. In no case did sepsis develop to the extent of breaking down the wound after closure at the second stage of the amputation.

No case in this series came to operation within 24 hours of wounding. But with the introduction of air evacuation many arrived at the base inside two days, and in exactly half the cases reported amputation was performed within the first week when the danger from lymphatic infection should have been at its height. They are therefore comparable to amputations performed in the forward areas. Of the 13 cases, only one developed severe infection. The three instances of mild superficial infection belong to this group.

The remaining 13 were operated on at intervals varying from one to ten weeks after wounding, again with one failure. Seven were cases in which severe progressive infection had worn down the patient's resistance to breaking-point. Six were reamputations after low guillotine operation in the forward areas. The two-stage method made it possible to perform reamputation successfully very much earlier than would normally have been considered safe, even though the flap incision was often extremely close to the guillotine wound. The following case is an example:

Rfn. S. sustained a gunshot wound in the groin with division of the external iliac artery. Excision of groin wound and ligation of artery were performed and guillotine disarticulation of the knee, in a forward area. Ten days later the guillotine wound was still discharging freely. The groin wound was clean and granulating. (Two stage amputation with primary healing. Figs. 1, 2, 3.)

Conclusion

The procedures at present in vogue for amputation accept infection of the stump as inevitable. The guillotine seeks to side-track it, the loose-closure method to minimize its effects.

The two-stage operation aims at prevention of infection. In the cases reported it has yielded impressive results. Moreover, should it fail in its object no harm has been done.

The two stages of the procedure fit logically into the average time-lag between forward-area surgery and arrival at a base hospital. It is suggested that under modern conditions there should be no difficulty in giving the method a controlled trial.

REFERENCES

- Amer. Med. Ass. (1942). *Handbook on Amputations*, Chicago.
- M.R.C. (1941). *War Memorandum No. 5, Emergency Amputations*, H.M. Stationery Office, London.
- Verrall, P. J. (1941). *Surgery of Modern Warfare*, ed. by H. Bailey, p. 77. Livingstone, Edinburgh.
- Whipple, A. O. (1940). *Ann. Surg.*, 112, 481.

PASTEURIZATION OF MILK AND INFANT MORTALITY RATES IN TORONTO, VANCOUVER, AND VICTORIA

BY

ALAN BROWN, M.D.

Professor of Paediatrics, University of Toronto

[In reply to an inquiry from Dr. Donald Paterson, Secretary of the British Paediatric Association, regarding statistics of infant mortality rates and pasteurization in Vancouver and Toronto, Dr. Alan Brown was able to collect through Dr. Bob Defries, Director of the School of Hygiene, University of Toronto, the following information, which he thinks presents the situation very plainly. It is, he says, quite unfair to compare statistics as statistics, because there are so very many factors to bear in mind. "We all know here that the climate is much more favourable on the Pacific coast than it is in the eastern part of the country. And, after all, the great importance of pasteurization lies in its reduction of all milk-borne infections. We have not had a case of milk-borne infection (including bovine tuberculosis) enter the Hospital for Sick Children—having lived in the city of Toronto and used nothing but pasteurized milk—since 1915." The inquiry arose out of a statement on infant mortality in Toronto made by Dr. A. H. Macdonald in a letter to the JOURNAL of Jan. 9, 1943.]

Discussion of pasteurization in the British Parliament was recorded in the *British Medical Journal* in September and December, 1942. In the issue of Dec. 19, 1942 (p. 727), there appeared a leading article entitled "Do Doctors Disagree about Pasteurization?" and several letters were subsequently published from correspondents. The following abstract from a letter from A. H. Macdonald, appearing in the correspondence columns of the *Journal* for Jan. 9, 1943 (p. 52), affords the probable basis of this inquiry from England regarding infant mortality rates and pasteurization in these Canadian cities: "The infant mortality in Toronto, where all milk is pasteurized, is double that in Victoria, Vancouver, where all milk is drunk raw. My own statistics dealing with large masses of children for 18 years show raw milk to be a good thing." (The letter refers to "Victoria, Vancouver." It is possible that the writer meant Victoria on Vancouver Island. As it is not clear, we have dealt with the cities of Victoria and Vancouver.)

Comment

1. The infant mortality rate for the city of Vancouver in 1940 was 25.6; for Victoria, 28.4; for Toronto, 38. The rate in Toronto is approximately one and a half times the Vancouver and Victoria rates.

2. The statement "in Victoria, Vancouver, where all milk is drunk raw," is incorrect, since in the report from the Medical Officer of Health for Vancouver, made to the Committee on Milk of the Canadian Public Health Association, as relating to 1938, the proportion of milk pasteurized in that city was given as 79%; and in a similar report from the Medical Officer of Health for Victoria 50% was stated to be pasteurized.

Discussion

In considering the causes, as recorded statistically, of infant mortality under the headings of (a) "Diseases Peculiar to Early Infancy"; (b) "Communicable Diseases"; (c) "Acute Respiratory Infections"; (d) "Diarrhoea and Enteritis"; and (e) "All Other Causes," for Toronto and Vancouver, reference will be made to the data for the years 1919, 1929, and 1939. These three 10-year periods indicate the significant changes.

(a) *Diseases Peculiar to Early Infancy*.—In 1919 Toronto had a rate of 41.2 for this group of causes, in contrast to Vancouver, which had a rate of 26.3. Ten years later (1929) the Toronto rate had fallen to 37 and the Vancouver rate to 16.3. In 1939 the Toronto rate had fallen to 25.7 and the Vancouver rate to 13.1. The Toronto rate is practically double the Vancouver rate. As this group of causes represents more than half of the total infant mortality it is evident that much of the difference between the rates for Toronto and Vancouver is due to this group of causes, which includes prematurity, etc.

(b) *Communicable Diseases*.—The rate in 1919 for this group of causes was 7.4 in Toronto and 5.2 in Vancouver. Ten years later (1929) the Toronto rate fell to 5.7 and the Vancouver rate to 1.6. In 1939 the Toronto rate was 1.5 and the Vancouver rate 0.5. It will be noted that the rate in Toronto is three times the rate in Vancouver; but the total number of deaths from communicable diseases is quite small and does not explain the difference between the gross infant mortality rates.

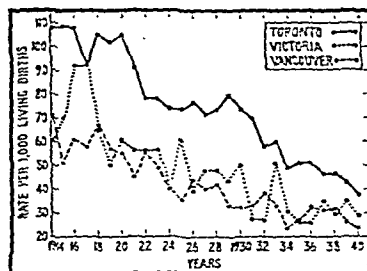
(c) *Acute Respiratory Infections*.—In Toronto the rate in 1919 for this group of causes was 16.3, and in Vancouver 7.4. In 1929 the Toronto rate was 6.5 and the Vancouver rate 5.7. In 1939 the Toronto rate was 4.8 and the Vancouver rate 2.1. It will be noted that the Toronto rates are again almost double the Vancouver rates; but the total number of deaths contributed by this group of causes is small and does not represent a major factor in the difference between the two rates.

(d) *Diarrhoea and Enteritis*.—In 1919 the Toronto rate was 11.5 and the Vancouver rate 5.2. Ten years later (1929) the rate for Toronto had fallen to 9.7 and for Vancouver to 1.4. In 1939 the rate in Toronto was 2.2 and in Vancouver 0.

(e) *All Other Causes*.—In 1919 the rate in Toronto was 25 and in Vancouver 12.6. In 1929 the rate in Toronto was 19.3 and in Vancouver 8.5. In 1939 the rate in Toronto was 9, and the rate in Vancouver also was 9.

From this analysis it is evident that the major differences in the rates in Toronto and Vancouver are accounted for largely by the differences in the rate in the group of causes entitled "Diseases Peculiar to Early Infancy." It is interesting to note that the fall in death rate in the group of diseases to which pasteurization would primarily be related—namely, diarrhoea and enteritis—is now approximately the same in both cities and represents a very small number of deaths.

Reference is not made to the city of Victoria because data of infant mortality rates by groups of causes were not available and, further, because the figures are for Greater Victoria, which includes adjacent municipalities. As, however, the infant mortality rate for Victoria is only slightly higher than that of Vancouver, analysis would probably yield similar data.



Graph showing infant mortality rates in Toronto, Victoria, and Vancouver from 1914 to 1940.

In considering this question of the difference in infant mortality rates of certain cities on the Pacific coast it is of interest to refer to a paper by Bellows and Reed published in 1934 in the *American Journal of Hygiene* (vol. 20, p. 565) entitled, "The Effect of Certain Environmental Factors on Urban Infant Mortality Rates." In this article a table is presented giving the crude infant mortality rates for cities in the United States having a population of over 100,000 and under 1,000,000, corrected for five factors—temperature, latitude, relative number of foreign-born, relative number of coloured, and unemployment in manufacturing and mining. Of the seven cities with the lowest crude infant mortality rate, six were on the Pacific coast. Seattle leading with the rate of 56.6. To each of these a substantial correction was considered necessary, ranging from plus 9 to plus 28. Seattle and Portland, Ore., retained the lead among the first seven; in fact, among the first ten. Others on the coast did not fare so well. "The first ten cities whose crude rates were all below 80 have marked increases in their corrected rates. The group will be seen to include all of the cities located on the northern Pacific coast, where climate is relatively favourable. Allowance for this factor, and for the lack of industrialization in the Pacific cities, was largely responsible for the changes in their rates. Adjustment for the small industrial development was the principal

correction in the other cities in this low mortality group (the first ten), temperature in this case being a factor of minor importance."

This subject was further considered by Dr. L. A. Pequegnat, Deputy Medical Officer of Health, Toronto, who presented a paper entitled "The Present Problem in Infant Mortality" to the Academy of Medicine, Toronto. The paper was published in the *Canadian Public Health Journal* (1938, 29, 477). It reproduces a table of Bellows and Reed's. In this paper the rates for Toronto and Vancouver are presented for the years 1930 to 1935. In 1930 and 1935 the infant mortality rate in Toronto was double the Vancouver rate. It would seem, therefore, that the lower rates of Vancouver and Victoria require in their consideration some of the factors studied by Bellows and Reed. That climate alone is not the factor is evidenced by the fact that the rate in Calgary in 1940 was 31.2 and in Edmonton 30.6, in comparison with 25.6 in Vancouver and 28.4 in Victoria. Figures for other cities in Canada are: St. John, N.B. (65% of milk pasteurized), infant mortality rate 55 (1940); Montreal (95% pasteurized), rate 70 (1939) and 58 (1940); Three Rivers, Que. (60% pasteurized), rate 97 (1940). In Ontario all municipal milk supplies were required to be pasteurized in 1938. Data for 1940 give the following infant mortality rates: Hamilton 33, London 36, Kitchener 37, Ottawa 49.

From these rates it is evident that neither climate nor pasteurization of milk gives an answer to the differences in rates. The larger number of deaths due to prematurity, etc., is an important factor.

THE OCULAR CRITERIA OF DEFICIENCY OF RIBOFLAVIN

BY

M. K. GREGORY, M.B., Ch.B., D.O. Oxon

Since Bessey and Wolbach (1939) showed that corneal vascularization was a sign of riboflavin deficiency in rats, and since the publication of two papers on ocular manifestations of ariboflavinosis, by Kruse *et al.* (1940) and Sydenstricker *et al.* (1940), there has been a spate of enthusiastic but uncritical investigations. It is therefore necessary that there should be some attempt to clarify the confusion of thought and to correct the looseness of terminology that has arisen. Evidence of this confusion is to be found, for example, in a recent report of an investigation by Scarborough (1942) in which he has taken the sign of circumcorneal injection as being of primary importance. This sign can occur in early ariboflavinosis, but it certainly is not pathognomonic; and I do not find anything in the paper by Sydenstricker *et al.* (1940), which is quoted by Scarborough, to indicate that this isolated sign should be so interpreted. A further discrepancy which I have noted occurs in the two papers mentioned above, which in one place describe the earliest change noted as being a superficial invasion of the cornea by capillaries, and in another place say that "the earliest and most common sign of ariboflavinosis is circumcorneal injection." Also the terms "circumcorneal injection" and "ciliary congestion" are used indiscriminately without indicating whether just some degree of fullness of the superficial pericorneal vessels is meant or whether there is an intense ciliary blush. From my own recent observations and from verbal corroboration by other observers I question whether what is clinically known to ophthalmologists as circumcorneal injection is necessarily an accompaniment of mild early corneal vascularization as we see it in this country.

As the ocular changes in early deficiency of riboflavin are concerned with the vascular supply of the limbus it is essential that observers first should have an exact knowledge of the normal blood supply and arrangement of vessels at the limbus;

secondly, they should have an accurate idea of the changes which, in the light of our present knowledge, may be expected to occur; and, thirdly, they should know what other conditions may produce somewhat similar appearances and how these may be distinguished. I propose to give a brief outline of these three points.

Fortunately it is rare at present for nutritional deficiencies to be more than slight in this country, and therefore, as it is the mild rather than the gross changes that are being considered, the picture that we may expect to find will scarcely be comparable with the fully developed cases described by Sydenstricker *et al.* (1940) and Kruse *et al.* (1940). I am not considering such signs as pigment deposits on the iris and mydriasis, as the significance of these has not yet been adequately established.

The Normal Blood Supply of the Limbus

The blood supply of the pericorneal region comes from the anterior ciliary arteries arising indirectly from the ophthalmic arteries via the arteries of the four recti muscles, each tendon being accompanied by two, except the external rectus, which has only one. These arteries pass forward on the episclera, giving branches to the sclera, corneal margin, and conjunctiva. The main branch of each artery pierces the sclera about 4 mm. from the corneal margin to enter the ciliary muscles, where it anastomoses with the long posterior ciliaries to form the circulus iridis major. Before piercing the sclera the anterior ciliary arteries give off the anterior conjunctival branches, which run forward deep to the posterior conjunctival arteries and anastomose to form the pericorneal plexus, consisting of a series of arcades parallel with the corneal margin. These give off final branches, marginal loops which bend round on their tracks to form venules leading into a venous plexus built up on similar lines. The anterior conjunctival arteries also give off small posterior branches to anastomose with the posterior conjunctival arteries, which come from the palpebral branches of the nasal and lacrimal arteries of the lids.

The pericorneal plexus is in two layers—the superficial conjunctival and the deep episcleral. This distinction is important because in superficial affections of the cornea the superficial portion is injected and may rightly be termed circumcorneal injection, whereas in diseases of the iris, ciliary body, or deep part of the cornea the deep episcleral portion becomes congested and gives rise to the rose-pink or violet band typical of ciliary congestion. This deep ciliary congestion is always a serious sign as indicative of uveal disease, but superficial circumcorneal injection can be transiently produced by vigorously rubbing the eye for a moment; and it results from irritations such as exposure to wind, cold, bright light, mild chemical irritants, mild infection, and numerous other causes. From such causes there must be a considerable proportion of the population showing circumcorneal injection, which would fit the description given in the paper by Sydenstricker *et al.* (1940) as "often it was grossly visible, frequently it could be seen with a hand lens or ophthalmoscope, and always it was obvious on slit-lamp inspection as marked congestion and proliferation of the limbic plexus." On this point I would ask what evidence there is that there is any real proliferation and not only engorgement of pre-existing but empty and therefore invisible vessels.

The extent to which the vessels may, within normal limits, extend on to the cornea should also be defined. The limbus is the whole zone in which the sclera and cornea overlie owing to the edge of the cornea being inset like a watch in a groove in the sclera. Though it is said to be 1 mm. width, it is very variable, often being much wider than that. With the slit-lamp the whole width of the limbus appears as ground glass, increasing in opacity peripherally. It may be segmented by digitations or may appear homogeneous. The marginal plexus is described as occupying a triangular area whose apex lies where Bowman's membrane ends and whose base is formed by episcleral and scleral tissue (Wolff, 1938). Thus it is normal for vessels to occupy the whole width of the limbus, and there is not necessarily an avascular zone between the plexus and sclero-corneal junction; and capillaries which do not extend beyond the limbus thus defined are considered to be within the limits of normal.

Ocular Appearances in Riboflavin Deficiency

The chief sign is a superficial invasion of the cornea by very fine capillaries arising from the apices of the marginal loops. These lie just deep to the epithelium and extend evenly as streamer-like vessels which anastomose to form a series of loops from the apices of which more capillaries grow towards the centre, giving the appearance, with the slit-lamp, of fine almost parallel vessels extending on to the cornea round the whole of its periphery in both eyes. The extent of invasion may differ in each eye. Superficial and interstitial opacities develop at various stages, but are definitely later in occurrence than the initial vascularization. In more advanced cases the vessels penetrate to a greater depth into the substantia propria. In a proportion of cases there is some injection of the pericorneal plexus, which in mild deficiency is confined to the superficial conjunctival layer.

Other Causes of Corneal Vascularization

The cause of the most extensive vascularization of the cornea is interstitial keratitis, in which the new vessels invading the cornea come from the anterior ciliary arteries as they pass deeply through the sclera, and thus, as the sclera is opaque, they disappear behind the limbus. With the slit-lamp they are seen to lie in the posterior half of the substantia propria over the whole area of the cornea and are irregular in arrangement. In contradistinction to the superficial centripetal regular arrangement of capillaries in riboflavin deficiency.

Some other conditions in which vascularization of the cornea may occur are vitamin A deficiency, tryptophan deficiency, injury of corneal epithelium due to chemical irritants, diseases causing pannus, such as trachoma, phlyctenular keratitis, pannus degenerativus, and also any superficial keratitis.

Bessey and Wolbach (1939) describe corneal vascularization, similar to that due to lack of riboflavin, in rats deficient in vitamin A; but this is not usually described as a sign associated with keratomalacia in human subjects, nor have I found it as an early sign in people known to be deficient in vitamin A. Albanese and Buschke (1942) describe vascularization of the cornea similar to ariboflavinosis in cases of tryptophan deficiency in both adult and growing rats and reversible by giving tryptophan. It is unlikely, however, that this specific deficiency will arise without other evidence of deficiency of protein. Vascularization from chemical causes is not usually bilateral nor so regular and uniform, except in the case of exposure to chemical vapour, which can give a comparable picture; but the history and the somewhat atypical appearance should enable it to be differentiated.

The vascularization of trachomatous pannus is confined to the upper part of the cornea under the upper lid and, as is characteristic of all pannus formation, there is infiltration of granulation tissue and leucocytes between and around the vessels. Phlyctenular pannus may occur right round the periphery, but it is of the pannus type of vascularization with coarser vessels, and can be further distinguished by symptoms of laceration, photophobia, irritation, and blepharospasm, which are extreme in this condition. Pannus degenerativus occurs in old blind eyes and starts in the substantia propria.

Out of 1,059 presumably normal people whom I recently examined in search of signs of riboflavin deficiency 31 (3%) showed corneal vascularization compatible with ariboflavinosis, and of these only 14 were recorded as having any injection or even fullness of the limbic plexus. Among these 31 only 5 complained of any subjective symptoms such as burning, irritation, or laceration, and none volunteered a history of twilight blindness, which Pock-Steen (1939) asserts is an early sign. In only 4 cases was the visual acuity in both eyes less than 6/6. Eight cases showed other signs of riboflavin deficiency such as glossitis or cheilosis. In all these subjects a full clinical examination was carried out and their night vision was tested. These results will be published at a later date.

I would suggest that, as in the cases examined by Scarborough (1942) the greatest incidence of pericorneal injection occurred in the age group 50-59, this may be a normal finding, since people of this age rarely have the clear white limbus normally found in youth.

Since the 47 patients in Sydenstricker's investigation were being given 300 mg. of nicotinic acid daily it appeared possible that the vasodilator action of this drug might have some influence on the high incidence of circumcorneal injection found. In order to test the possibility of this, I examined the eyes of 6 normal medical students and then administered 200 mg. of nicotinic acid by mouth. When examined 20 to 30 minutes later two showed marked injection of perilimbal plexus, three a moderate degree of injection, and one very little change. These subjects continued to take 200 mg. daily for five days, and were finally examined again 8 hours after taking the last dose. Three showed no increased vasodilatation compared with their original state and three showed a very slight but not significant increase. A further series of 6 subjects were given 200 mg. of nicotinic acid after examination, and then examined at half-hourly intervals. One showed marked, three moderate, and two only slight injection. The two slight and one moderate had returned to normal in 1½ hours, and two moderate and one marked case had returned to normal in 2 hours. Thus it is inferred that the local effect of these doses of nicotinic acid is important only within 2 hours of its administration.

It may be said that I have committed the error that I have criticized in Scarborough's paper in laying the emphasis on one isolated symptom—viz., corneal vascularization. This at least is more justifiable in that it is generally recognized as a more characteristic sign, and, according to Bessey and Wolbach (1939), "it precedes all other demonstrable lesions of the deficiency." Even so, I should refrain from diagnosing a definite deficiency on this single finding in the absence of other signs, such as cheilosis or the typical glossitis, unless it responded to treatment with riboflavin.

I would, however, advocate most strongly that those interested should acquire an accurate picture of the signs indicative of this deficiency, so that large quantities of this expensive vitamin preparation, which will presumably be so valuable in post-war Europe, will not be given empirically or unnecessarily, and considerable time will not be wasted in investigating signs that have no real diagnostic value.

Summary

An attempt has been made to elucidate early ocular signs due to riboflavin deficiency. Previously, circumcorneal injection has been given an unduly prominent place by other workers, whereas corneal vascularization is a more reliable sign. This is of a distinctive type, consisting of fine streamer-like centripetal arranged vessels invading all round the cornea in both eyes.

The normal anatomy of the part of the eye involved has been described, and other pathological conditions which might give comparable appearances have been briefly discussed.

An investigation of the effect of administration of nicotinic acid as a possible cause of circumcorneal injection has been described.

REFERENCES

- Albanese, A. A., and Buschke, W. (1942). *Science*, 85, 554.
Bessey, O. A., and Wolbach, S. B. (1939). *J. exp. Med.*, 69, 1.
Krusse, H. D., Sydenstricker, V. P., Sebell, W. H., and Cleckley, H. M. (1940). *Pub. Hlth. Rep.*, Wash., 55, 157.
Pock-Steen, P. H. (1939). *Genet. Tijdschr. Nederl.-Indië*, 79, 1986 (quoted by Heimann, M. (1942). *Arch. Ophthalm.*, Chicago, 28, 493).
Scarborough, H. (1942). *British Medical Journal*, 2, 601.
Sydenstricker, V. P., Sebell, W. H., Cleckley, H. M., and Krusse, H. D. (1940). *J. Amer. med. Ass.*, 114, 2437.
Wolff, E. (1940). *Anatomy of the Eye and Orbit*, 2nd ed., London.

In spite of outbreaks of small-pox in surrounding territories, since Feb., 1941, not a single case has been reported within the borders of Southern Rhodesia, yet between 1937 and Feb., 1941, the colony had over 2,600 detected cases of small-pox, almost entirely among natives, though the disease was generally of a mild type. It is worthy of note that a vigorous vaccination campaign has been carried out by the Public Health and Native Departments, as a result of which 400,000 natives (nearly a quarter of the colony's native population) were vaccinated. The Public Health Department now has a trained unit consisting of health inspectors and native vaccinators who systematically ensure effective vaccination. Last year the unit vaccinated 147,000 people. When, in Oct., 1941, small-pox broke out in Francistown, Bechuanaland, a few miles across the Rhodesian border, the unit carried out a vaccination campaign along the border for hundreds of miles and not a single case of small-pox developed on the Rhodesian side.

RUPTURE OF RECTUS ABDOMINIS MUSCLE DURING PREGNANCY

BY

RUFUS C. THOMAS, F.R.C.S.Ed., M.R.C.O.G.

Obstetric Consultant, County Borough of Croydon

Rupture of the rectus abdominis muscle is a very rare complication of pregnancy. Mr. T. J. Shields, librarian of the British Medical Association, to whom I am indebted for looking through the literature, was able to find nine instances, of which seven were recorded in foreign journals, and two—Hobbs (1938) and Ashkar (1939)—were published in this country.

Two Cases in the Literature

The patient described by Hobbs was a 6-para, almost at term, who had had a cough for a month, associated with occasional pain in the left upper abdomen. Following a bout of coughing she had a sudden severe pain in the left side of the abdomen, and was admitted to hospital about twelve hours later in a condition of collapse. She died in less than an hour, before a blood transfusion could be given. Necropsy revealed three pints of blood and clot in the sheath of the left rectus, with one large recent tear in the posterior surface of the muscle at the junction of the lower and middle thirds, and evidence of older tears and haemorrhages in the upper segments. Hobbs concluded that the vessel involved was the deep epigastric artery. The uterus contained a 9½-lb. foetus and some excess of liquor amnii.

Ashkar's patient was an 8-para, five months pregnant. She, too, had had respiratory trouble in the form of acute bronchitis a fortnight previously, but the acute abdominal pain associated with the muscular lesion occurred while she was sweeping the floor. A large blood-clot was removed from the right rectus sheath. A transverse, ragged, and incomplete tear was found in the muscle at the level of the umbilicus. This was sutured, and the patient made an uneventful recovery, the pregnancy proceeding to normal delivery at term.

It will be seen that, except for the difference in the duration of the two pregnancies, there is a close similarity in the train of events in the above patients. Both had coughs for some time before the final rupture of the muscle, though in the second case there was the added exertion of sweeping the floor. The muscle gave way in each patient at the umbilical level, which corresponds with the tendinous intersection between the lower and middle thirds. This is about the level of the lower edge of the posterior portion of the rectus sheath, the semilunar fold of Douglas, over which the deep epigastric artery passes before entering the deep surface of the muscle. The pathology of the muscular rupture seems very similar to that met with in rupture of the quadriceps extensor muscle after slipping off a curb or step.

The Present Case

The case I now record was a 3-para who had attended the Croydon County Borough ante-natal clinic from the ninth week of the present pregnancy. Her previous children had been 9 lb. and 10½ lb., delivery in each instance being spontaneous. She had remained well in the third pregnancy until the 36th week, when she had a cold. Two days later, on March 19, 1937, she went to see her own doctor because of a pain in the right side of the abdomen. He examined her the next day, when the pain had become acute. She was admitted to Mayday Hospital at 10.50 a.m. on March 20.

On examination she was complaining of acute abdominal pain, chiefly on the right side, but the whole of the abdomen was rigid. The pulse rate was 92, and the temperature 97°. She looked pale and somewhat shocked. Palpation of the abdomen showed generalized tenderness, but foetal parts could not be felt, nor could the fetal heart be heard. There was no vaginal bleeding. A catheter specimen of urine showed no albumin. The blood pressure on March 17 was 116/80 mm. Hg. A diagnosis of concealed accidental haemorrhage was made, and in view of her condition the membranes were ruptured under general anaesthesia. About a pint of liquor amnii was let out, and was found to be not blood-stained. The os was admitted one finger, and the vertex was presenting. It was not possible to say whether labour had actually started, but a Muesellum forceps was attached to the foetal scalp and a 1 lb. weight applied to stimulate labour. During the next twelve hours her condition became slowly but steadily worse, the pulse rate rising to 100. The abdominal pain was increasing, but there were no signs of labour having begun. In view of the deterioration in the general condition it was decided to empty the uterus by Caesarean section. Under general anaesthesia a right-sided pararectal subumbilical incision was made. On opening the sheath of the right rectus muscle it was found to be full of fresh blood-clot, which extended from the symphyseal region right up to the ensiform cartilage, and the umbilical region had spread over to the area between the

peritoneum and the left rectus muscle. The right rectus muscle appeared to be almost completely disorganized. No definite bleed point could be seen. Nearly two pints of blood-clot was removed from the immediate area around the incision. I was now in some what of a dilemma as to the further procedure. It was certain that labour would start very soon, and if delivery per vaginam was allowed there was considerable risk of the sutured abdominal giving way. The uterus was therefore evacuated by a lower-segment Caesarean section. The foetus was dead but not macerated, I think there can be no doubt that its death was the result of maternal shock. The uterus and abdominal incisions were closed the usual way, but a corrugated drain was placed within the sheath of the right rectus muscle from the umbilical region to the suprapubic end of the incision. Recovery was without further incident but the clot which had been left in the upper portion of the rectus sheath could be felt as a hard mass for some months after.

The patient had sustained a third-degree perineal laceration during the birth of her first child that had never healed, and she had practically no anal control for eight years; there was a marked cystocele as well. In March, 1938, she was readmitted, and I carried out an anterior colporrhaphy and posterior colpoperineorrhaphy with reconstruction of the anal canal, followed a month later by sterilization by excision of both Fallopian tubes. The incision for the latter operation was a left pararectal subumbilical one, and I was therefore not able to see the condition of the right rectus muscle. By palpation it appeared to be very deficient, but no trace of the mass of blood clot in its upper part could be felt. Some adhesions between the peritoneum and the omentum had to be separated, but the abdominal cavity was otherwise normal. She again made an uneventful recovery, and regained almost perfect anal control. Her joy at a gratitude over this result, after nine years of incontinence, was pathetic. Her only complaint after getting up was a feeling of abdominal discomfort, which was relieved by the fitting of an abdominal belt.

Summary and Discussion

A case of rupture of the rectus abdominis muscle during pregnancy is reported. The records of two previous instances of the same condition are referred to, and it will be seen that there is great similarity in the train of symptoms in the three cases. All had had respiratory trouble just before the accident condition occurred; all were multiparae, in whom it is probable that the rectus muscle had been weakened by previous pregnancies, the muscle finally giving way at the weakest point—the tendinous junction between the lower and middle thirds—the rupture being precipitated by sudden abdominal strain. The artery involved was almost certainly the deep epigastric, which passes into the deep surface of the rectus muscle just above the umbilical level.

The condition is rare, and can give rise to difficulties of diagnosis. Hobbs does not state what he thought the probable diagnosis was, but only that the condition of his patient suggested a severe haemorrhage, and she died in less than an hour after admission. In Ashkar's case the preliminary diagnosis was of an ovarian cyst with a twisted pedicle, the diagnosis being based on the sudden acute abdominal pain, the presence of a mass high up in the abdomen, tenderness and muscular rigidity, fever, and leucocytosis. In my case the signs closely simulated those of concealed accidental haemorrhage. Though my decision to empty the uterus was based on a wrong diagnosis, the fact that I acted upon it probably averted a fatal issue.

I have seen one other case of traumatic rupture of the right rectus muscle, which I reported in the *Lancet* in 1933. It occurred in an Indian port labourer, as a result of being pinned between the buffer of a railway truck and a bag of sugar which had been swung by crane from a barge. In this case, also, the rupture occurred at the level of the umbilicus, but the whole abdominal wall was burst open, resulting in the extroversion of several feet of small intestine and the crushing of several coils of adjacent gut. There was in this case singularly little shock and no haemorrhage worth mentioning. He made an uninterrupted recovery after resection of six feet of small gut and resuture of the disrupted abdominal wall which was closed without drainage.

The case record is published by courtesy of Dr. Oscar M. Holden, Medical Officer of Health, County Borough of Croydon, to whom my acknowledgments are due.

REFERENCES

- Ashkar, P. A. (1939). *Lancet*, 2, 934.
Hobbs, F. B. (1938). *British Medical Journal*, 1, 895.

Medical Memoranda

Treatment of Prostatic Carcinoma by Oestradiol and Diethylstilboestrol

The fact that American work on this subject is not widely known in this country leads me to report the following cases.

CASE I

A doctor aged 72 was seen in the spring of 1941. Carcinoma of the prostate was the clinical diagnosis, and this was confirmed by biopsy when Mr. Millin of London performed a perurethral removal of the prostatic "flap" to relieve increasing urinary obstruction. After an initial improvement the patient went gradually downhill with increasing urinary obstruction. X-ray examination showed metastases in the lumbar spine, and symptoms suggested metastases elsewhere. From July, 1942, because of general weakness and acute back pain he was only able to get out of bed for short periods, and from Oct., 1942, he was completely confined to bed. By the end of December he was requiring three or four hypodermic injections of morphine gr. 1/3 in 24 hours, micturition was very painful with cramp-like pains, the left thigh was swollen with lymphatic oedema, appetite was non-existent, and his colour was grey. There was no evidence of infection of the urinary tract; the prostate felt per rectum was hard, nodular, and large.

Early in Jan., 1943, treatment by intramuscular injection of oestradiol benzoate was started, tentatively at first, and then, after reading the paper by Kahle, Ogden, and Getzoff (1942), more boldly, 42 mg. (420,000 units) being given in the first 28 days. Improvement in the general condition, appetite, and colour was rapid and dramatic. This was followed more slowly by relief of the urinary symptoms. The back pain disappeared, the morphine was reduced, and the change in three weeks from a grey sufferer to a pink-cheeked man with a good appetite had to be seen to be believed. On examination per rectum the prostate was softer and had decreased in size.

Improvement since that date has continued, and he is now able to walk upstairs and out of doors for short distances. In 80 days he has had 159 mg. of oestradiol benzoate, 5 mg. being given on alternate days. In view of his good condition the dose has now been cut down to 5 mg. twice weekly. The only adverse effects noted were painful nipples and some allergic nasal catarrh; in view of the markedly beneficial results these symptoms were borne with some degree of equanimity.

It must be remembered that this patient is a doctor who, with full knowledge of his disease, at first regarded the treatment with a natural medical scepticism, polite but nevertheless apparent.

CASE II

A retired artist aged 60 was seen in Nov., 1942, with an enormous and very hard prostate. Urinary obstruction was increasing, and was obviously soon due to be complete. As his condition was very poor it was agreed to await developments, and to perform a permanent suprapubic drainage when absolutely necessary.

On Jan. 3, 1943, treatment was started with oestradiol benzoate, 1-mg. doses being given daily. This was followed by complete urinary obstruction, and tied-in catheter drainage was adopted. The injections were stopped. In spite of a clean urine the patient went downhill, and in view of Case I the injections were restarted with larger doses, 5 mg. being given on alternate days. Improvement in general condition, appetite, and colour was rapid and sustained, and in a month he had put on about 1 st. in weight. As catheter drainage was still necessary a permanent suprapubic catheter was inserted under local anaesthesia.

In 71 days he received 155 mg. of oestradiol benzoate. On March 15, 1943, he was changed over on to diethylstilboestrol (Boots), 5 mg. being given on alternate days, and improvement has been maintained. He is now able to walk some distance.

CASE III

This patient, aged 71, was seen on Jan. 15, 1943, with advanced carcinoma of the prostate, marked enlargement of the deep inguinal lymph glands, and lymphatic oedema of the thigh. His symptoms dated back for twelve months, and his weight was under 8 st. His appetite was non-existent.

This case was seen by Mr. Bernard Ward of Birmingham, who immediately performed a partial perurethral resection in order to avoid permanent suprapubic drainage.

On the patient's return home his urinary symptoms had been relieved, but his general condition was still poor and his appetite still absent. On Feb. 19 he was started on diethylstilboestrol (Boots), 5 mg. being injected daily, and 215 mg. being given in 44 days. Improvement was rapid and obvious after 7 days, and is being maintained. Over 1/2 st. in weight has been gained in six weeks. Again appetite, colour, and general condition were the first to respond, but improvement in urinary symptoms and the oedema in the thigh is following. Painful nipples are present in this case.

SUMMARY AND CONCLUSIONS

Three cases of carcinoma of the prostate, all advanced, are reported.

Improvement by treatment with large doses of oestradiol benzoate and diethylstilboestrol was marked and sustained. (My feeling is that the former works better than diethylstilboestrol, but it is much more costly.)

Improvement of secondaries appears to take place with that of the primary growth—Schenken, Burns, and Kahle (1942).

From a limited experience it seems that some form of drainage should precede the starting of this treatment, preferably perurethral diathermy.

The giving of large doses of diethylstilboestrol is theoretically carcinogenic; in advanced cases of carcinoma of the prostate this risk may, I think, be taken.

G. HARVEY DUNCAN, F.R.C.S.

REFERENCES

Kahle, P. J., Ogden, H. D., Jun., and Getzoff, P. L. (1942). *J. Urol.*, 48, 33.
Schenken, J. R., Burns, E. L., and Kahle, P. J. (1942). *Ib id.*, 48, 99.

Pseudocyesis Simulated in a Male

The following case of hysteroneurosis may be considered worthy of record on account of the rarity of the condition. A feature of interest was the close association between the patient's clinical symptoms and the initial and final stages of his wife's pregnancy. The case responded to psychotherapeutic treatment.

CASE RECORD

In June, 1942, a soldier aged 27 was admitted to the medical wards of an emergency hospital as a case of "2 abdominal tuberculosis." He remained in hospital for 40 days, during which time the abdominal distension which was the only abnormal finding in his case progressively diminished. He was thereafter discharged to his unit, and from this period onwards he remained well and constantly employed at his Service duties. On Feb. 20, 1943, he was again admitted to the medical unit of an emergency hospital with a complaint of abdominal distension and epigastric pain of one week's duration. The history revealed the sudden onset of abdominal pain while on parade, followed by abdominal distension and vertigo. Vomiting quickly ensued, which was associated with the putting on of his tunic belt, and did not occur at other times. The severity of his condition progressively increased until his admission to hospital.

Physical Examination.—He was a well-developed man, displaying considerable abdominal distension. There was an absence of tenderness to palpation, and the distension was uniform throughout, offering resistance to deep palpation. This resistance was most marked over an oval area extending from the umbilicus to the symphysis pubis in the middle line and measuring about 5 in. in breadth at its widest point. The circumference of the abdomen was 41 in. at the mid-umbilical level. There was an absence of any localized rigidity or dough-like feeling of the abdomen. With the exception of the physical signs of anxiety, which were pronounced, nothing of clinical interest was elicited on physical examination. Radiography revealed negative findings; test-meal curves were within normal limits; tests for occult blood were negative; and examination of the various systems failed to disclose any abnormalities. On March 3 the abdominal distension was still present to the same degree as on his admission to hospital.

Psychological Examination.—There was well-marked anxiety present. He was morbidly introspective, reticent, and monosyllabic. It appeared that his wife was shortly to be confined and that he had made attempts to secure compassionate leave on account of this. It was significant that when he first learned of his wife's pregnancy in June, 1942, symptoms similar to those on account of which he had been admitted to hospital ensued. On Feb. 13 he had received a letter from home at 8 a.m., and his abdominal distension resulted at 11 a.m. on the same day. Temperamentally he was of a nervous, highly strung, and emotional type, and had previously displayed a deep interest in religious affairs.

In view of the symptoms presented, the diagnosis of hysteroneurosis was made and it was decided to initiate treatment by "reinforced" suggestion. On March 3 12 c.cm. of a 1.5% solution of pentothal sodium was administered intravenously and an explanation of the causative mechanism underlying his condition was given to him. While in the narco-analytical state suggestion was carried out. The abdominal distension slowly subsided and at the mid-umbilical level was reduced to 30 in. The reduction was maintained at this level for a period of one hour subsequent to treatment, and thereafter slowly returned to the former level. On the following day suggestion was given with the patient in the waking state, when the distension again subsided. On March 15 the distension had entirely disappeared; there was complete freedom from pain on deep pressure, and he was able to be employed on light ward duties. On April 15 he was discharged to his unit with a recommendation for a lowering of his category. Leave was granted in order to enable him to visit his wife, and he had volunteered the statement that he now felt better in health than he had done for the past ten months.

I wish to express my indebtedness to Dr. J. Norman Cruickshank for his original recognition of the underlying causative factors, for his co-operation in granting facilities for the examination and treatment of this case, and for his permission to publish the results.

WILLIAM BLYTH, M.D., D.P.M., F.R.F.P.S.G.,
Physician, Emergency Medical Service.

Reviews

SEA DISEASES

Sea Diseases. The Story of a Great Natural Experiment in Preventive Medicine in the Royal Navy. By R. S. Allison, M.D., F.R.C.P. (Pp. 218. 25s.) London: John Bale Medical Publications.

R. L. S. wrote: "But the sea is our approach and bulwark; it has been the scene of our greatest triumphs and dangers; and we are accustomed in lyrical moments to claim it as our own. The prostrating experiences of foreigners between Calais and Dover have always an agreeable side to English prepossessions. A man from Bedfordshire, who does not know one end of the ship from the other until she begins to move, swaggers among such persons with a sense of hereditary nautical experience." Yet the self-examination of most of us would probably reveal that *Roderick Random*, the novels of Marryat, and a few witticisms of Dr. Samuel Johnson contain all we know of life in the Navy of our ancestors.

Forty-eight years ago the reviewer was presented by his form master with Commander Charles Robinson's *The British Fleet*. It was a good prize for a boy because it contained many attractive pictures, but, consulted in later years, when the reader's interest in medicine had developed, the book was less satisfactory; its 560 pages include two brief references to sickness, a few pages, mainly abstracted from Smollett, on the experiences of surgeons' mates, and some particulars of the uniforms of medical officers. No generally readable work on the medical and epidemiological side of life in the Navy had appeared until now; Dr. R. S. Allison's book, while not too technical to be good reading for a sixth-form boy, will deeply interest a clinician or epidemiologist. It richly deserves Surg. Vice-Adml. Sir Sheldon Dudley's characterization as a "scholarly and fascinating story of the sea."

Killing sea diseases in order of importance numerically have been scurvy, typhus, malaria, yellow fever, tuberculosis. The second and last of these were of equal or greater importance to English landmen in old days. Now tuberculosis alone is a redoubtable foe of seamen. Dr. Allison shows that scurvy, certainly, and typhus, probably, were not characteristically sea diseases at all before the 16th century, because the technique of shipbuilding and navigation had not reached a standard permitting a ship to remain continuously at sea for months. This is, of course, a conclusive explanation of the absence of scurvy. Whether the closely packed slaves in the old galleys died of fevers or of what fevers they died we do not know. With the coming of ships able to keep the seas for long periods scurvy became a reigning plague, and so long ago as 1601 a captain—James Lancaster—demonstrated the value of orange juice. The story of the conquest of ship scurvy, of the individual and official, which had to be overcome, has been told but never better than by Dr. Allison.

The changes in shipbuilding which provided a terrain for scurvy also favoured typhus; there was less ventilation and more overcrowding on board. The British system of impressment for the Navy was epidemiologically a perfect vicious circle. The poorest and dirtiest of the population were brought into the ships and, to prevent desertion, kept on board. Typhus continued to be a sea disease almost down to a time covered by the lives of men still living. Recruitment of volunteers, a general higher standard of cleanliness within and without the Service, extension of the age-long naval demand for order from guns, decks, and rigging to the bodies and clothing of the crew, eradicated typhus.

Dr. Allison has not only given us an epidemiological history; he has told us how the Naval Medical Service grew from a mob of despised underlings, whose status and characteristics were not exaggerated out of all resemblance by Smollett, into the efficient and honourable corps we know. He has given us vivid accounts of the careers of the men—Lind, Trotter, Blane, and others—to whom we owe great reforms. Dr. Allison quotes some of the earlier vital statistics of the Navy, particularly those of Blane; it may interest the reader to supplement these with data collected by W. B. Hodge and published in the *Journal of the Statistical Society* nearly 90 years ago (Sept., 1855). Hodge, using Blane's data, estimated the mortality

rate from "diseases and ordinary accidents" in the Navy in the war years 1810-12 as 38.3 per 1,000 of strength. In the peacetime Navy of 1830-6 the death rate from all causes was 13.8 and from diseases, 11.8 (the rates for 1936 were 2.0 from all causes, 1.4 from diseases alone). He concluded that the wartime surcharge was not less than 16.0. He estimated the whole cost of life of the great war 1793-1815 to the Navy to be about 63,000 lives lost, of which 44,662 were due to excess mortality from disease. The estimated loss of lives from all causes in the Navy and Mercantile Marine in 1914-18 was 48,000. These figures illustrate the enormous hygienic improvement which has been effected. If it be objected that the modern war lasted four and the old war more than twenty years, we must remember that the average seafaring population at risk in 1914-18 was far greater than in 1793-1815.

Dr. Allison has done a national service. There is room for a good deal more research into naval vital statistics, but he has provided an epidemiological-sociological foundation for his successors.

SYMPTOMATOLOGY OF CEREBRAL DISEASE

After-Effects of Brain Injuries in War: Their Evaluation and Treatment. The Application of Psychologic Methods in the Clinic. By Kurt Goldstein, M.D. Foreword by D. Denny-Brown, M.D. (Pp. 244. 21s.) London: William Heinemann, 1943.

Among those interested in the symptomatology of cerebral disease the name of Dr. Kurt Goldstein is well known. There can be hardly any contemporary publication on the subject with no reference to his work, and his terms "catastrophic reaction" and "abstract and concrete behaviour" have become stock phrases in the neurological slang. Most of Goldstein's work published during or after the last war is now difficult to obtain, and every worker interested in the subject will welcome this concise monograph, which gives his own version (often misquoted by others) of his experiences and the theories he based on them.

Goldstein's fundamental merit was the introduction into clinical practice of modern (*Gestalt*-) psychological methods, and accordingly the chapters on the basic approach, the origin of symptoms, the psychological laboratory investigations, and the (psychological) treatment of aphasics and of patients with circumscribed cerebral defects are the most stimulating and the most valuable parts of the book. In the chapters on general and neurological symptomatology one realizes too often that the development of neurosurgery and of some auxiliary medical sciences has made much of the experience of the last war obsolete. Ventriculogram and EEG are not mentioned; methods of studying the autonomic disturbances are not up to date. The psychological part also shows some disappointing omissions, apparently due to the fact that the author keeps too closely to his earlier (1919) book. Very little is said about controls or standardization of the psychological tests used, and, more disappointing, the sorting tests with which the author's name is closely linked do not appear at all in the chapter on laboratory investigations, and are dealt with elsewhere only in a short paragraph and a reference to another publication.

DERMATOLOGY AND SYPHILOLOGY

The 1942 Year Book of Dermatology and Syphilology. Edited by Fred Wise, M.D., and Marion B. Sulzberger. (Pp. 664; illustrated.) Chicago: The Year Book Publishers.

This is the second number of the *Year Book of Dermatology and Syphilology* to be published since the war came to America, and as might well be expected the imprint of war conditions on this excellent summary of the twelve months' work reviewed is very apparent. The editors point out that in the actions of modern warfare no less than 60% of all casualties are often of the nature of burns, and consequently they devote an introductory article of some twenty pages to the treatment of burns, in which all the most modern methods are described and compared. The editors remain strongly in favour of tannic acid preparations, while excluding their use from those situations where their employment may lead to contractile scarring, disfigurement, and loss of function—i.e. on the face, hands, feet, genitalia, etc. They do, however, also commend the saline and sodium bicarbonate methods in certain circumstances and also the application of vaseline tulle gras. This chapter is too long to summarize here, but will

repay careful reading. Perhaps it is also owing to war conditions that the sociological aspects of syphilology are given much prominence in this volume. It may be news to many people in this country to learn that no fewer than thirty States of the U.S.A. require certificates of medical examination, chiefly aiming at preventing the spread of syphilis through marriage, before marriage licences may be issued. Most of them require a blood test. The control of venereal disease in the armed Forces of the U.S.A. has been a subject of considerable discussion, and the conclusion seems to emerge that the most important factor in reducing the incidence of venereal disease among the mobilized Forces is the abolition of commercialized prostitution by closing the houses of ill fame in the vicinity of military and naval centres.

In addition to these matters of topical interest the yearbook includes its usual abstracts of the more arresting publications of dermatological writers during the period under review, often accompanied by shrewd comments from the editors. It may again confidently be recommended to the attention of all occupied with the various manifestations of cutaneous disease.

Notes on Books

A medical man who veils his identity under the pen name DAVID BRUCE has set out some ideas for economic and social reform in a booklet entitled *The Future and the Fighting Generation* (W. H. Allen & Co.; 1s. 6d.). He is appalled at the present system of government which in face of the gravest danger in our history took no measures of defence until it was too late. "To-day we are a nation with a purpose . . . we do not need the regimentation necessary to combat the apathy in national affairs which is all-pervading in our peacetime social circles . . . is the new spirit in the land to survive?" "No more dangerous element is present in our midst than the win-the-war-first-and-then-we-can-think attitude. . . . Political history of the past twenty years is a sorry tale of government without principles—it was government by expedients." From these brief quotations it will be gathered that the author has positive views and feelings. His aim is to secure a better social order to-morrow by setting ideas in motion while people's minds are plastic to-day. To free the House of Commons from "the good party man" and "the tied M.P." he calls for a secret ballot in all major divisions, as the first step to a new and better safer Britain. Many who agree that the key fault in our Parliamentary system is the power of the central offices of the parties, which reduces M.P.s to mere ciphers, will not go all the way with the author in other directions.

Dr. BEEBE'S study of *Contraception and Fertility in the Southern Appalachians* is a statistically competent account of observations made on the use of contraceptives and the inferences which may be drawn as to their effect in limiting fertility. The data also throw some light upon the normal physiology and psychology of sexual union. There is, of course, a large "literature" of the subject; the writings of the late Raymond Pearl are well known, and this volume does not perhaps appreciably modify the conclusions to be drawn from his researches. The English reader who is not a connoisseur of statistical methods will probably find the first chapter, which describes the social-economic situation in the West Virginian coal fields, the most interesting. It is a grim story which should help both to make our judgment of current industrial troubles in the United States charitable, and, possibly, to convince us that our own industrial system does not lag behind that of our kinsmen. The book is published in this country by Baillière, Tindall and Cox at 14s.

A sixpenny pamphlet *The Beveridge Plan: A Symposium* is published by the Individualist Bookshop, Ltd., 154, Fleet Street, E.C.4. The longest of the three contributions is from the pen of Mr. James W. Nisbet, Reader in Political Economy at St. Andrews University, who appraises the plan under the general heading "Britain and Social Security," and criticizes some of its features in sober language, ending with the moral: "If all difficulties are removed, strength of character is undermined." Sir Arnold Gridley follows with a brief essay headed "Deceiving the People," and Sir Ernest Benn winds up with a discussion on some implications of the Beveridge Report, reprinted from the *Quarterly Review*. Both are hostile in the main. Sir Arnold is chiefly concerned to rebuke Press, Platform, Parliament, and Pulpit alike for misleading the Public. Sir Ernest concludes: "If a single sentence can sum up so vast a subject and such an overwhelming quantity of statistics and detail, it may be said that the Beveridge Report may extend the Social Services a little, but will certainly expand the powers of the bureaucracy a lot."

Preparations and Appliances

PLASTER-OF-PARIS WRIST SPLINTS

A Simple Technique for Reinforcement

Capt. I. H. BAUM, R.A.M.C., writes:

A medical officer attached to a general hospital often has to apply plaster-of-Paris splints to the forearm and wrist. From my own experience I believe that the simple dorsal plaster slab technique can be improved. The dorsal forearm slab as applied in most clinics, and a suggested modification, are described and contrasted in this note.

Customary Method of Application.—A roll of 4-in. P.O.P. bandage is made into a slab reaching from the knuckles to about 2 in. below the olecranon, extra layers of bandage being applied at the wrist region to provide increased stability at the joint. The hand is fully clenched to give optimum position at the wrist-joint. The slab is moulded to the back of the forearm, which is prone on a table at shoulder height. The disadvantages of this type of splint are: (1) The dorsiflexion at the wrist-joint causes transverse folds and wrinkles to appear in the plaster at this level, especially on the inner surface apposed to the skin. These wrinkles reduce the mechanical efficiency of the tubular plaster and increase its liability to crack. The ridges may cause soreness of the skin and prevent a smooth neat appearance of the finished plaster (Fig. 1).



FIG. 1.—Drawn from a discarded plaster. (Usual method.)

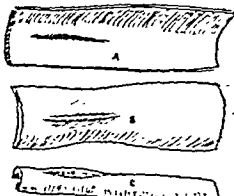


FIG. 2.—A, inside view; B, outside view; C, lateral view.

(2) The rough edges are unsightly and tend to fray or cut into the skin of the elbow.

Suggested Modification.—It is probable that the following technique is not new to many surgeons, but I have been unable to find references or advice as to this being the case. The dorsal slab is made as before, and the edges are "massaged" with the finger-tips to give squareness and to obviate fraying when dry. The plaster is reversed once on the table to ensure smoothness of both surfaces. The slab is then applied to the forearm and wrist. That part of the plaster over the centre of the carpus is pinched into a ridge 1/2 in. high and about 4 in. long, tapering proximally and distally. The rest of the plaster is then moulded in the usual manner (Fig. 2).

The advantages of this modification are: (1) The reinforcement against cracking: weight for weight, it is more efficient than the unmodified P.O.P. (2) The smoother and more closely applied inner surface. (3) The improved appearance.

Further modifications are as follows: First, after the first dorsal slab is applied a second slab is made, 5 in. by 4 in. by 1/4 in. (Fig. 3, A). One-fifth of the width is folded over at



FIG. 3.—Reinforced slab used as a wrist support.



FIG. 4.—Detachable plaster for fixation of thumb.

each edge (Fig. 3, B), and the groove thus formed is dovetailed on to the ridge of the first plaster (Fig. 3, C). This reinforced form of the slab may be used as a wrist support to enable a worker in heavy industry to carry on full duty with a weakened wrist-joint. The support can be removed when off duty. Secondly, for fixation of thumb by a detachable plaster a 6-in. bandage is made into a slab of required length. A longitudinal cut 2 1/2 in. long is made in line with the radial border of the second metacarpal. The radial part of the slab is fitted against the extended and abducted thumb, and two ridges are pinched up and moulded. The main ridge is over the mid-carpus, and the secondary ridge is at the angle of the thumb support (Fig. 4). This technique of buttressing an angled plaster will be found useful in the manufacture of casts at the ankle-joint. An anterior slab of this type applied to the instep serves two purposes: first, it prevents cracking; secondly, it provides a method of rapid removal of the plaster, since plaster shears are more easily inserted at the pleat.

I wish to express my thanks to Col. D. C. Scott for permission to publish this article.

THE F.R.C.S.

A CENTENARY CELEBRATION

A distinguished company, which included the Princess Royal, Ambassadors of the Allied nations, members of the Government, and High Commissioners of the Dominions and India, assembled in the Great Hall of Lincoln's Inn on July 21 to celebrate the centenary of the foundation of the F.R.C.S., at a reception given by the President and Council of the College. This coveted surgical diploma was instituted by Royal Charter 100 years ago, owing mainly to the efforts of Sir Benjamin Collins Brodie, then Vice-President of the College. It is pleasing to record that at the ceremony last week among those present was Sir Benjamin Collins Brodie, the fourth holder of the baronetcy created in 1834. Brodie, who became President of the Royal Society as well as of the College of Surgeons, described the object of the Fellowship in these words: "To insure the introduction into the profession of a number of young men who may be qualified to maintain its scientific character, and will be fully equal to its higher duties as hospital surgeons, teachers, and improvers of physiological, pathological, and surgical science afterwards."

A Message from the King

Sir ALFRED WEBB-JOHNSON read aloud the following message from the King: "As Visitor of the Royal College of Surgeons of England I wish to congratulate the President, Vice-Presidents, Council, and Fellows of the College on the occasion of the celebration of the centenary of the Fellowship. I have given me great satisfaction to learn that the Council has decided to mark it by conferring the Honorary Fellowship on several distinguished surgeons from the Dominions and Allied countries. I send my best wishes for the continued prosperity of the College, and trust that the plans for the restoration of its unique museum will be successfully carried out as soon as possible after the war." In his reply the President stated: "Your Majesty's interest and good wishes will be a great encouragement to all the Fellows of the College in the heavy tasks which lie before them. They wish to assure your Majesty that they will be untiring in their efforts to restore their museum, towards which they have received most generous promises of help from all parts of the Empire."

The Presidential Address

Beginning his address by welcoming the Princess Royal and other distinguished guests, the President went on to say that in the crisis of battle it was well to pause and dwell for a moment on our splendid heritage: "The past is always with us, never to be forgotten; and in the continual remembrance of a glorious past we find our noblest inspirations." Amenities of the College, he observed, had been destroyed by the enemy. They were therefore deeply grateful to the Treasurer and Masters of the Bench of the Honourable Society of Lincoln's Inn for putting their hall at their disposal that evening. There was much in common between the College and the Inn. Their Tudor gateway bore the arms of Henry VIII; the College had its Holbein masterpiece to remind them that Henry VIII gave them authority to take a historic step in their corporate progress. Inigo Jones had designed the chapel of the Inn and also the College's Theatre of anatomy, now destroyed. A hundred years ago the Hall had been built and the Fellowship of the Royal College of Surgeons instituted. G. F. Watts had painted the portrait of Brodie and also the fresco adorning the Hall.

Makers of Surgical History

"Let us now praise famous men, and our fathers that begat them. There be of them, that have left a name behind them, which their praises might be reported." Of such were John of Arden and Thomas Morstede. Of such were Wiseman and Cary; Ranby and Cheselden. Of such were Pott, Abernethy, Wey Cooper, Charles Bell, Hilton, Paget, and others. Of him, towering above all, were John Hunter, the founder of scientific surgery, and the immortal Lister. Of such also was Benjamin Collins Brodie, who founded the Fellowship of our College." After this gracious tribute to makers of surgical history Sir Alfred Webb-Johnson concluded his notable address stating that the College wished to mark the occasion by

the award of some Honorary Fellowships, the numbers of which on the Roll at one time must not exceed 50. They had been chosen for distinction in this way several surgeons from the Dominions and Allied countries. They had not forgotten those in the power of the enemy, but for the present their names must be withheld. "In accordance with precedent we have chosen some who are not practising surgeons, one of them being Madame Chiang Kai-Shek, in recognition of her services to humanity. It is with special pride that we add to our Roll the name of our great Prime Minister, the Right Honourable Winston Spencer-Churchill. I venture to assert that when the history of our times comes to be written Winston Churchill will be judged worthy of the same tribute as that paid to the greatest of our Fellows by the American Ambassador, Mr. Bayard, who, when addressing Lister, said: 'It is not a profession, it is not a nation, it is humanity itself which, with uncovered head, salutes you.'"

The Honorary Fellows

The awards which could be announced were: Sir High Devine, of Melbourne; Sir Thomas Dunhill, Serjeant-Surgeon to the King; Sir Humphry Rolleston, formerly Chairman of the Imperial Cancer Research Fund; Prof. A. T. A. Jurasz, of Poland; the Rt. Hon. Sir Earle Page; Prof. Nikolai N. Burdenko, Chief Surgeon to the Soviet Army; Prof. S. S. Yudin, of Moscow; Col. Elliot C. Cutler, of Harvard University; Prof. W. G. Penfield, of McGill University; Prof. Evarts A. Graham, of St. Louis; Prof. R. B. Osgood, of Harvard; Prof. N. S. Shenshine, of Toronto; Prof. Naguib Mahfouz Pasha, of Cairo; Prof. Innes Wares Brebner, of Witwatersrand University.

Those admitted as Honorary Fellows on July 21 were: Col. J. M. Holst, Consulting Surgeon to the Norwegian Army (presented by Mr. H. S. Souttar, Vice-President of the R.C.S.); Mr. Henry Wade, of Edinburgh (presented by Sir Girling Ball, Vice-President of the R.C.S.); Col. J. A. MacFarlane, Consulting Surgeon to the Canadian Army (presented by Major-Gen. C. Max Page, Member of Council); Prof. H. C. Naffziger, of San Francisco, Chairman of Committee on Neurological Surgery of the National Research Council of America (presented by Surg. Rear-Adm. Cecil Wakeley, Member of Council).

Two Russian Surgeons

It will be remembered (see *Journal* of June 5, p. 701) that under the auspices of the Medical Research Council and the British Council a group of British surgeons have gone to the U.S.S.R. on a joint Anglo-American Surgical Mission. During this visit Surg. Rear-Adm. G. Gordon-Taylor, as Senior Vice-President of the College, has admitted to its Honorary Fellowship the two Russian surgeons, Dr. Nikolai N. Burdenko, Director of the Operative Surgery Institute, Moscow University, and Surgeon-in-Chief to the Red Army, and Dr. Sergei S. Yudin of the Sklifassovski Hospital for Traumatic Diseases, Moscow. In admitting Dr. Burdenko, Admiral Gordon-Taylor said that in the years gone by the Fellowship had been presented three times to Russian surgeons—Victor Pachoutine, Nicolas Weliaminoff, and Vladimir Andrejevic Oppel. "We respect you, Academician Burdenko," he continued, "former pupil of the illustrious physiologist, Pavlov; we admire you as a great scientific surgeon and brilliant contributor to the advance of neurological surgery, but we honour you now as Surgeon-in-Chief to the famous Red Army, which has fought with a bravery and distinction that has commanded the wonder and admiration of all."

In conferring the Honorary Fellowship on Prof. Yudin, Admiral Gordon-Taylor said that they honoured him not only as a famous Soviet surgeon but also for what he had done by his publications to ensure that the contributions of Soviet workers towards the advancement of surgery should be known throughout the world. "The orbit of your surgical activity," he added, "has been vast and varied; you have made notable contributions to gastric surgery and have modified its technique; your writings on gastro-duodenal haemorrhage demand the closest attention and are of particular interest to myself, who have worked in the same branch of surgery; the numbers of patients suffering from cataclysmic haemorrhage whose lives have been preserved by your methods and your skill are impressive and convincing."

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY JULY 31 1943

FACT AND FANCY IN POLIOMYELITIS

In no field of neuropathology has advance been more rapid than in the case of poliomyelitis, and the successive additions to our knowledge within the past few years have necessarily involved the abandonment or modification of earlier views on such subjects as the portal of entry of the virus, the site and nature of the essential lesion, and the bases of the characteristic clinical variants of the malady. These advances have been pursued with great eagerness, and it cannot be said that those interested in the many problems surrounding poliomyelitis have been unresponsive to fresh ideas. Anything that offers to increase our control over so grave and disabling a disease may be sure of the most careful and favourable consideration. Yet it is in the realm of treatment that it is always most difficult to secure the dispassionate assessment of results that is so essential to rational therapy, and it is fair to say that already the ideas and methods associated with the name of Sister Elizabeth Kenny have become matter of animated controversy. This controversy has now reached a further stage in the publication by an American orthopaedic surgeon in collaboration with Sister Kenny of a considerable volume¹ on the new concept of poliomyelitis formulated by the latter and on the methods of treatment she advocates. The book has no fewer than three forewords and a final commentary by other writers, and, even though we miss from this impressive list of names those most familiar to us among the brilliant band of American workers on poliomyelitis, it is apparent that Sister Kenny does not lack sponsors in their country. From Sister Kenny's foreword it appears that as a result of her thirty years' work as a nurse dealing with cases of poliomyelitis she early became impressed by the presence and great importance of painful spasm of muscles in cases of poliomyelitis, and by the need for measures to relieve it at the earliest possible moment. She developed her own technique of treatment, including the local application of heat and remedial exercises, and the latest improvements on these are fully described in the book. There can be no doubt that Sister Kenny brought to her work unusual energy and thoughtfulness, and we may well believe that the young patients who came under her skilful hands received a thoroughness of treatment that, in the Australian bush where Sister Kenny tells us she began her work and developed her theories, was unprecedented and gave results as gratifying to her patients and their parents as they were encouraging to herself. Doubtless many of these children have reason to be grateful to her; nevertheless it is permissible to regret that Sister Kenny was not content to remain an outstanding practitioner of her particular art, and that she has succumbed to the temptation to rationalize her methods by providing a scientific basis for them. For this difficult—and quite different—task she had not the necessary training in physiology and pathology. However, she has formulated what is described as an entirely new concept of the disease which Dr. Pohl, the principal author

of the book, says "almost warrants considering the entity a new disease," whatever this may mean. But it is clear that, whatever measures of practical benefit may follow from the use of Sister Kenny's methods, her "entirely new concept" must stand or fall on its merits as a necessary and adequate generalization of the facts, though not necessarily as these are stated by her. Her methods may well be useful but her concept erroneous. The allowances we may be disposed to make for her presentation of her concept, in view of the difficulties arising from the fact that Sister Kenny has no medical training, do not relieve us from the obligation of assessing this by the proper standards applicable to all medical theories; and that Dr. Pohl sponsors the concept makes it the more necessary to scrutinize it critically, in view of his experience as an orthopaedic surgeon.

Briefly, Sister Kenny's case is that we have all been in error in supposing that destruction of ventral horn cells in poliomyelitis plays a significant part in the production of the characteristic paralyses and disabilities of this disease, for in truth this lesion is only a minor consideration in most cases. In short, the morbid anatomy of the disease, as we know it, is largely irrelevant. Further, we have omitted to pay attention to the painful muscular spasm which for her is the most prominent and the most important feature of the illness, and in consequence we have adopted principles of treatment that are adverse to optimum recovery. According to her new concept the "primary lesion" of the disease—as Dr. Pohl has it, but as we may correctly name it, the essential clinical feature—is muscle spasm. This is not merely a transient initial phenomenon, but persists indefinitely unless treated and leads to wasting, weakness, and contracture of the affected muscles with resulting deformities. Secondary to this spasm is a condition of "mental alienation" in the muscles antagonistic to those in spasm. This shows itself as a flaccid powerlessness with loss of tendon jerks. It persists as long as does the spasm, and like this leads in the end to wasting, permanent paralysis, and contracture. Further, there are marked incoordination of muscle movements, and, last and not least, some small degree and extent of true paralysis due to destruction of ventral horn cells. Fortunately, says Dr. Pohl with an optimism few will feel able to share, this last item is rarely of any importance.

We may leave for the moment the question whether this statement correctly represents the facts of poliomyelitis clinically considered, and pass on to discuss the details provided as to the cause and nature of spasm, mental alienation, and incoordination, all of which features, we are told, have hitherto escaped the notice of clinicians. But it is when we come to grips with the new concept that our troubles begin, for the authors have not succeeded in achieving agreement on any of the fundamental points, and at times we are hard put to it to decide which to choose of the various speculations put forward. Thus, according to Dr. Pohl, the cause of the spasm is (a) unknown, (b) irritation of motor nerve cells in the cord, (c) a direct action of the virus on the muscle fibre or on the myoneural junction, or (d) anoxia of the muscle. Dr. Knapp in his terminal commentary suggests toxic changes in the muscle, anoxia of the muscle, or irritative cord lesions. Since no evidence is forthcoming for any of these hypotheses, it is remarkable that all the contributors to the volume are agreed that the known changes in the ventral horn cells are certainly not responsible. The quality of the spasm provides its own difficulties, for, although it

¹ *The Kenny Concept of Infantile Paralysis and its Treatment*. Saint Paul, Minneapolis, U.S.A.: Broce Publishing Company, 1943.

leads to shortening of the muscles and to their hypertonicity, it does not cause any exaggerated tonus in them.

Mental alienation provides yet more difficult matter of exegesis. For Sister Kenny it can be described only in terms of psychology—the mind is divorced from, and becomes unaware of, the alienated muscle—but for Dr. Pohl it is a matter of “physiological block in the motor pathway.” In fact, the authors trip lightly from psychology to physiology, from mind to matter, with an ease and an assurance a philosopher might envy, and with a naïve unconsciousness that they are doing anything remarkable. The alienated muscle is flaccid and inactive, and hangs between its points of insertion like a hammock, but yet differs from the truly paralysed muscle by the slight tonus it possesses. The muscle is normal, and is powerless only because the spasm in its antagonist renders it so; its structure and innervation are alike intact. According to Sister Kenny it is powerless “through some disorganization” which causes “an interruption of the normal flow of impulses and the patient cannot visualize in space the exact area from which an attempt to contract should materialize, and the impulses run riot, as it were.” Yet, “remembering that consciousness is born of the subconscious, I endeavoured to bring consciousness about by attempting to bombard this area with impulses from the surrounding muscles . . . I would attempt to restore the reflexes to the tendon of the alienated muscle,” using for this purpose a form of vibratory massage that, as she believed, restored what she calls “the brain path.” Turning to Dr. Pohl for light upon this passage, we learn that “alienated muscles are examples of a physiological block in the motor pathway. They have merely ceased to function and become temporarily dissociated from the nervous system by the action of disease and in some instances as a direct result of spasm of the opposing muscles. Even the tendon reflexes of such muscles disappear and the alienated muscle has the appearance of being paralysed.” For alienation, as for spasm, we are offered a wealth of explanations. They include reflex inhibition by antagonists in spasm, the action of the virus on the muscle, and also the confession that the cause is unknown. Dr. Knapp assumes the predominance of psychological factors, and finds in the fact that spasm precedes alienation a good reason for adopting this explanation.

The incoordination of muscle movement is attributed to “a condition in the central nervous system in which the regulation and direction of nerve impulses is upset so that the natural rhythmic and co-operative action of associated muscles is disturbed. The muscles concerned are otherwise normal, but the misdirection of nerve impulses makes muscular activity incoördinate and ineffective. The process is in no way concerned with the will or volition of the patient but is rather a disorganization of the regulating centres and nerve pathways directly attributable to the disease process itself.” These long pronouncements may be summed up by saying that alienation and incoordination are due to the disease process. They are triumphs of the *circulus in probando*, and seldom can so little have been said in so many words as these authors employ. It would be without profit to pursue this concept further. Discarding the known pathology of the disease, it offers no more than vague statements to the effect that the essential disorder is a “disruption and disorganization of the nerve cell connexions and synaptic relationships which might persist in spite of the survival or recovery of the cells themselves”—a speculation which hardly accords with the claim that

Sister Kenny's methods of treatment secure recovery in 80% of cases.

As to the facts, that some muscle spasm is an initial symptom of poliomyelitis has long been familiar, and has indeed been the basis of diagnostic clinical tests, but that it persists indefinitely unless specifically treated by hot packs and of itself leads to permanent wasting, weakness, and deformity is not the general experience. That some muscles are more painful to pressure than others is also not a new discovery, and the association of flaccid and complete paralysis of muscles with painlessness is also known. Indeed, what is characteristic is that muscles which are but relatively slightly paralysed are the most painful and tender. The statement that flaccid inactive muscles are not really paralysed, but are only alienated and lost to voluntary control, is a purely verbal distinction that lacks a corresponding reality. Indeed, the entire physiology and pathology of Sister Kenny's “new concept” uses the terminology, but does not speak the language, of science, and finds its only current parallel in the medicine of Mrs. Baker Eddy's world-famous publication, *Science and Health*.

Yet there is perhaps a little more to be said on the matter, and this from what we may surmise is Sister Kenny's own point of view. The problem of pain and tenderness in the affected muscles of poliomyelitis is one that has never been faced. It calls for some explanation, but none has ever been seriously attempted. The same is true of the tenderness of muscles in other lesions affecting the lower motor neurone, and it may be thought of as matter of reproach that we have so long evaded the questions raised by this striking symptom. That pain and tenderness in muscles add to the sum total of their weakness, and may even influence the efficiency of other muscles normally associated with them in co-ordinated movement, is possible. It is also possible that the relief of spasm and of pain by hot applications brings relief to the patient and may facilitate the use of such motor function as the muscles possess. It is further reasonable to suppose that the intensive care and superb nursing that are stated to be a part of Sister Kenny's methods will yield better end-results than the somewhat perfunctory treatment that not rarely attends the later stages of the illness in cases of poliomyelitis. But all this is a far cry from the extreme claims made for the treatment, and a matter unrelated to the theoretical concept of the disease poliomyelitis that has been built on these irrelevant considerations. Nevertheless, one can picture the situation of Sister Kenny bringing before her doctors her sense of the importance of spasm and its treatment, and finding that they were not impressed by either its presence or its importance. As a not unnatural result she has concentrated on a partial view of the symptom-complex of poliomyelitis, and has sought to force its importance, as she conceived it, upon general opinion by making it the basis of a quite fantastic conception of poliomyelitis.

It would have been better had Sister Kenny and her supporters been content to subject her methods to adequate and prolonged trial, and to have let them stand or fall by their merits. The situation has been unnecessarily and adversely complicated by the intrusion of theoretical fantasies that can only prejudice the issue. Sister Kenny claims that her concept has been accepted by the American Medical Association and by the National Foundation for Infantile Paralysis; but until the general body of authoritative opinion, so weighty in the United States, has spoken on this issue, we find it hard to believe that this concept can command any assent among those whose experience entitles them to judge.

RESETTLEMENT OF THE DISABLED

The proposals of the Tomlinson Committee, more properly known as the Interdepartmental Committee on Rehabilitation, included the scheduling of certain occupations for the benefit of disabled persons and the establishment of a register of such persons. These expedients are criticized in a memorandum issued by the Central Council for the Care of Cripples. It is contended that such a schedule and register would have most unfortunate effects, particularly in fixing attention on the disability to the exclusion of the rest of the individual. After all, the most important thing about a man who has lost a limb is not the amputated limb but the fact that he is still a man with three limbs intact, together with a brain and other valuable faculties, all in good condition if he has been properly treated while in hospital. Even the functions of his amputated limb, if the stump has been well fitted with an appliance, may have been largely restored. If, therefore, he is to be registered at all, it is misleading to take account only of the anatomical defect and to categorize him on that basis. There is something to be said for the Tomlinson proposals, which were framed to ensure some avenues of employment for the disabled: but obviously everything turns on the interpretation of disablement and on the assessment of the man's abilities apart from it. It is not enough to say that all one-armed men must be considered only for certain occupations. That would have been to exclude from his employment a former Minister of Health, not to speak of the greatest of British admirals. (Some other objections to the registration and quota system are put forward in a report presented to the L.C.C. on July 27 by one of its committees, the chief being that the quota system would carry with it the suggestion that disabled persons are a liability to the employer.)

The Central Council holds that if there must be a register it should be one of employers who have troubled to study the industrial efficiency of various kinds of handicapped workers and to encourage them. A schedule of reserved occupations for disabled persons would have the disadvantage that such occupations would come to be regarded as the proper objective for employment of such persons without regard to individual capacity or intelligence. The solution of the problem, in the Central Council's view, would be better sought along the following lines: (1) a complete health service as called for under Assumption B of the Beveridge plan; (2) an educational campaign among medical and auxiliary medical personnel and also among employers and even legislators, on the broad principles of the adaptation of medicine in industry; (3) a better service of information so that people may be more readily and expertly advised as to the facilities available for treatment, training, and employment; and (4) the replacement of the present Workmen's Compensation system by a comprehensive health service linked with such arrangements for social security as might be thought appropriate.

One direction in which the State itself might give a lead is pointed out in the memorandum—namely, by relaxing the present stringent rules for a health standard on entry to the Civil Service. Those rules were framed largely with superannuation schemes in view, so as to ensure a good expectation of life among the persons accepted; and also a low rate of sickness absenteeism. But in fact, says this memorandum, among any large group of injured persons taken two years after the occurrence of the injury the expectation of life does not differ materially from that of a normal group. As for sickness absenteeism, a large proportion of this is known to be due to minor respiratory infections, dyspepsia, and nervous complaints, to which the disabled as a group are not specially prone.

It should be added that the Central Council does not criticize in any wholesale manner the Tomlinson report. Much that the report contains it describes as sound and stimulating, and this in spite of inauspicious beginnings, for it is pointed out that the appointment of the committee was never publicly announced, and only at a late stage was the decision made to publish its report. The committee consisted entirely of members of the Civil Service, and "the conclusion appears irresistible that it was contemplated that a few civil servants should confer privately among themselves, and out of their own knowledge and experience should produce a scheme for the training and placement of the disabled." If that is so, it is all the more gratifying that the report as a whole should find favour among people of great experience in the care of the physically handicapped.

"SHOCK" FROM VENOUS OCCLUSION

Research workers are very ingenious in reproducing the symptom complex seen in man as a result of depletion of circulating blood volume and known vaguely as "shock." Not content with simple removal of whole blood or plasma from the veins, investigators have devised elaborate methods of accomplishing the same ends unlike anything to be seen in man (even in this present period of scientifically directed trauma) either in the operating theatre or on the battlefield. They then devise methods for preventing or treating the ill effects of their interference. The usual sequence is first the recognition of a clinical syndrome and then its "reproduction" in animals. Recently Phemister¹ described a case of a woman who developed "shock" with low blood pressure and haemoconcentration due to loss of 4 litres of plasma after thrombosis of the veins of the leg. This appears to be the only recorded human case of a type of "shock" analogous to that produced experimentally by Katz and his colleagues.² After ligation of the common and internal iliac veins of one side and the injection into the distal end of a solution containing carbon particles the occluded leg became swollen and cold; the blood pressure fell progressively and haemoconcentration of +40% occurred. The swelling was due to local loss of plasma, and blood also: it amounted to 5% of the body weight. The severity of this shock response could be modified and the survival rate increased from 13 to 70% by "priming" doses of desoxycorticosterone.³ By its action on fluid equilibrium the rate of accumulation of fluid locally was decreased, thus giving time for the natural compensatory processes. The haemoconcentration and fall of blood pressure after this procedure could be entirely prevented by enclosing the lower limbs and groins in a plaster cast.⁴ When the cast was removed at 36 hours the occluded limb swelled at a rate about one-fifth of that in the untreated controls and without any systemic disturbance. It is concluded that the rate of loss rather than the amount of fluid lost is what determines the genesis of "shock." The authors consider that this method of preventing "shock" by plaster casts might be used in civilian and military crush injuries (as indeed it has been by Trueta^{5,6}). It has also been shown to prevent the fatal shock following freezing of a leg in dogs.⁷ Duncan and Blalock,⁸ working along "crush injury" lines, have recommended an inflatable rubber boot, again on the basis of animal experiments. For those who have not seen crush

¹ Phemister, D. B. (in discussion), *Ann. Surg.*, 1940, 112, 617.

² *Amer. J. Physiol.*, 1941, 134, 755.

³ *Ibid.*, 1942, 137, 79.

⁴ *Ibid.*, p. 559.

⁵ *Lancet*, 1939, 1, 1452.

⁶ *British Medical Journal*, 1942, 1, 616.

⁷ Fell, E. H., and Hanselman, R., *Ann. Surg.*, 1943, 117, 655.

⁸ *Ibid.*, 1942, 115, 684.

injury clinically it must again be stressed that "shock" in this type of case is not the immediate cause of death, except in patients suffering from other injuries and in those unable to obtain fluid replacement: these die in the first twenty-four hours. Most patients who die do so on the sixth day with a raised blood pressure and in uraemia. The clinical problem is to prevent renal damage, and it is to be hoped that this will receive prior attention from experimentalists.

THE TEACHING OF OPHTHALMOLOGY

The recent Oxford Ophthalmological Congress had a stimulating debate on education in ophthalmology. The apple was thrown by one participant who declared the teaching of ophthalmology to undergraduates to be a waste of time, because, he said, it was so rare for any of them to show interest in the subject. When they became general practitioners, he continued, they divided themselves into (a) those who sent every eye case direct to the ophthalmologist and (b) those who treated it with drops for a few days before doing so. Someone else suggested that there was a third class consisting of those who sent all eye cases to the refractonist. In the opinion of this speaker the student must have six months' whole-time work in ophthalmology if he was to gain more than a smattering of the subject, and the time should be spent under more than one teacher, so as to acquire an adequate outlook. These were extreme views and found little support from the general body of the Congress. An older ophthalmologist, with an experience of thirty years of undergraduate teaching, agreed that while the present system had brought into existence first-class eye specialists it had not produced general practitioners with an adequate knowledge of the fundamentals of the subject or even of the meaning of vision. He ascribed the trouble to the fact that the mind of the student is directed to the passing of his examinations, and naturally he devotes himself to the larger subjects, giving attention to the specialties only to the extent necessary to obtain a certificate. Another complaint is that there are few good books of ophthalmology for general practitioners, such books as are available being condensations of the ophthalmology needed by the ophthalmic surgeon, whereas the undergraduate intending general practice needs something different. One examiner for the diploma in ophthalmology complained of the general run of candidates who presented themselves. He said that many of them had no idea of how to answer a written question, having never, apparently, been taught the principles of composition at school; to draw an adequate diagram in illustration of their point was quite beyond them, and manual dexterity was poor. But, as someone else remarked, a man who can draw may be wholly unable to use the ophthalmoscope. One teacher said that he declined to teach the use of the ophthalmoscope to a student who did not possess one of his own, just as, if he were a golfing instructor, he would refuse to teach golf to anyone who did not possess clubs.

The procedure at Oxford interested the Congress. Before the war Oxford medical students took their clinical teaching in London. Now clinical training is being given at the local hospitals, where it is not fettered by tradition and long usage. The ordinary routine of the out-patient department of the eye hospital has been by-passed as likely to be of small service to those not yet qualified, who start with lectures and demonstrations in the use of instruments, practising on one another, and then are given clinical demonstrations on selected cases of the commoner conditions they are likely to meet in practice. It was the general feeling of the Congress that, whatever might be said in criticism of the methods of teaching ophthalmology or of the standard of ophthalmology in general practice, the

G.P., in this field as in others, is a key man. He is first, as a rule, to see any visual abnormality. Therefore it is essential to have properly co-ordinated teaching for his benefit. It is a question not only of the knowledge of ophthalmology desired in the newly qualified G.P., but of the knowledge of general practice desired in the specialist, into whose hands, mainly, the teaching of medical students is committed. In an ideal medical world every consultant would have had some first-hand experience of family doctoring; but, as things stand, it is difficult for most of those who are going to become specialists to pass through a period of general practice without missing the appointments they might otherwise expect. Advanced training in any direction is bound to be through specialties, but in order to counteract the evils of over-specialism some form of co-ordination must be worked out—the kind of teamwork which has already proved of such use in research and in other fields of medicine.

MALNUTRITION IN CEYLON

"Spicy breezes" do not bring the gift of health to Ceylon. The infant death rate among the non-European population is nearly three times and the maternal death rate nearly five times that of England and Wales. Moreover, poor stature and physique abound. That this low physical condition is due to a dietary rather than to a racial factor is shown by an illustrated pamphlet entitled *Nutrition in Ceylon*, published by the Society of Medical Officers of Health in the colony, which mentions that, while the children of the poorer classes are small and stunted in growth, the better-to-do are tall and well built, so that there is nothing inherent in the Ceylonese to assign him a low physical standard. Surveys of the poorer class of school children reveal that 7.7% of them are afflicted by "sore mouth," a manifestation of riboflavin deficiency, and 29% by a skin eruption known as phrynodema ("toadskin"), due to want of vitamin A. Keratomalacia is also a serious affliction among infants and young children, and two-thirds of the many blind children in Ceylon are said to owe their blindness to that cause. A dietary survey carried out in a rural population has shown that 39% of families got less than 2,000 calories per adult unit per day. The diet of the Ceylonese is also ill balanced, containing too few pulses and vegetables and too little animal food. The absence of animal food seems curious in an island with a coast renowned for its abundance of highly nutritious small fish. The Ceylon medical officers are content to state the position: they make definite recommendations, some of which call for the attention of the Government. They urge that rice, the staple diet, which now supplies about 70% of the total calories, should be supplemented by wheat, maize, and millets; also that pulses, sweet potatoes, and yams—all readily grown in Ceylon—should be more used, that more fish should be sold, and more milk provided for young children, while buffalo milk in the form of curd for older children and adults. Attention is also drawn to the importance of education and to the nutritional needs of the expectant and nursing mother and the school child.

Drugs, medical, surgical, and hospital supplies of all descriptions are urgently needed for China, who has five million men in the field and an immense amount of sickness with which to contend owing to the alarming spread of contagious diseases. The Ministry of Shipping provides the necessary shipping space and Lady Cripps United Aid to China Fund is appealing for help in supplying the things, of which our gallant ally is so short. A collecting centre at 121, Westbourne Terrace, London, W.2, has been opened, and shipment of drugs and medicines has already begun. The headquarters of the Fund are at 57, New Bond Street, W.1.

RESUSCITATION WARD IN AN E.M.S. HOSPITAL

BY

DANIEL LAMONT, M.B., Ch.B., F.R.C.S.E.

Interim Surgeon-Consultant, County of Zetland

This description of the accommodation provided for severe war casualties is submitted in the hope that it may be of interest to those who, like myself, have to treat patients suffering from exposure as well as wounds. The layout of the ward is the result of three and a half years' experience of treating such patients, many of whom are, literally, brought straight out of the sea. At one time, before Norway and Denmark were overrun and the then neutral shipping was being constantly attacked, the most appalling injuries were encountered in seamen of diverse nationalities. There might be injured Norwegian, Arab, Greek, Finnish, Swedish, and Icelandic nationals all in one ward at the same time.

When a Danish vessel was torpedoed in the Atlantic on a wild January night in 1940 the chief engineer was blown out of his engine-room when the first torpedo struck, and blown back inboard by the explosion of a second; then part of the cargo fell on top of him. By this time he had sustained compound fractures of both lower limbs, crushed thorax, and fracture of the ribs. He took to the icy sea, where, supported by his life-saving jacket, he was immersed for two hours before being picked up. After a voyage in a small storm-tossed vessel he was landed without the aid of any stretcher at a port on the west side of the Shetland Isles. Before being rushed to hospital he had to be questioned by the intelligence authorities. (However undesirable this may be for a shocked patient, it is necessary; in this case the safety of other ships was involved.) This man survived, but that is more a tribute to his own vitality than to any resuscitative measures, although skilled nursing, which is a vital factor in all shock cases, played its part.

Again, six Arabs, members of the crew of an oil tanker, were adrift in a waterlogged ship's boat for ninety-six hours; all of the men were suffering from petrol-burn injuries, more or less severe, and were without drinking-water. A child on board was supported on the knees of each of the men in turn to prevent her from being drowned in the bottom of the boat. In their case resuscitative measures were the clamant need. A Norwegian seaman escaping from Norway after we came away from Narvik was five days in the sea after his *skøyte* (small fishing vessel) was sunk under him. On being rescued he insisted on accompanying a unit of the Royal Navy to direct this craft to where he had last seen his skipper clinging to a piece of wreckage. During this venture he was shot through the abdomen by a marauding Heinkel. The skipper was found, and the Norwegian sailor had six lacerations of the small bowel repaired when his abdomen was subsequently opened. He now wears the Royal Norwegian Order of Saint Olav.

A pilot of the R.A.F. engaged in air operations during the Vaags combined operation had his left femur shattered by "flak" entering the bottom of his aircraft. In the course of his "evasive action" he struck a rock and the starboard air-screw went out of action. He kept air-borne on one engine for some hundred miles and then came down in the sea. He was picked up, more dead than alive, by the Air-Sea Rescue Section. On admission to hospital gangrene of the limb was already starting. An example of aggravated injury was provided by a sturdy young Westphalian, an *Unteroffizier* air-gunner whose pilot was forced to "crash-land" on an isolated island in the ocean. On making a "pancake" landing the bottom of the aircraft was smashed in, killing the remainder of the air crew and pinning the air-gunner in the wreckage, his lower limbs being severely lacerated and fractured. He was extricated and brought to hospital by a Royal National Life-Boat Institution vessel, which made a ninety-mile trip in a heavy beam sea to effect the rescue. He was suffering from surgical shock, intensified by bad sea-sickness and terror at what lay ahead; before his enforced descent he had succeeded in killing by machine-gun fire the wife and daughter of the islands' light-keeper. The number of such examples of injury *cum* gross exposure is legion, but arising out of these experi-

ences a technique has been evolved for giving the most effective restorative measures with the least possible delay.

General Plan and Equipment

The solutions carried on the dressing trolley may not find general acceptance, but security reasons preclude a free discussion of my choice. Suffice it to say that the types of wounds now being encountered necessitate a preparedness on the part of the surgeon to cope with injuries contaminated by a variety of chemicals, of which phosphorus is but one; picric acid is another. My rule is, when there is an element of doubt, to use distilled water for irrigation of contaminated wounds, particularly those of the eye, until such time as I can have expert guidance from the Ordnance Department, who have at all times shown their readiness to co-operate by providing the services of an analytical chemist.* Apart from that, the simplest materials are used in the resuscitation ward, as all unnecessary interference liable to disturb the patient is discontinued. Cases of frost-bite and of immersion leg are not treated in this ward unless there are concomitant injuries. For these vasomotor disturbance cases a special ward is reserved. In general the line of treatment is elevation of the part and abstention from all frictional treatment or application of heat. Morphine with atropine is freely given, and ultra-violet therapy or actual heliotherapy (when available!) has done good in cases where the penis is involved.

Hiccup is a most distressing symptom in recent immersion derangements, and the morphine-atropine combination appears to help. Thoracic blast injuries from depth-charge or mine explosion are treated in the ward in the sitting posture. Contrary to the experience of some, I use plasma infusion freely. Atropine is given hypodermically, and pulmonary oedema has not obtruded. The effect of the plasma is most gratifying in these profoundly shocked thoracic cases. The ward is adjacent to the operating theatre. Immediately outside the entrance is the poisons cupboard, in which are ampoules of alupon 2/3 gr., atropine, coramine, strophanthin, and eucortone. Sal volatile, a humble but very useful drug in some cases with emotional disturbance, is ready to hand. The type-testing sera and the antitetanic and polyvalent anti-gangrene sera are stored in a calor gas refrigerator outside the door. The blood bank, under the aegis of the Scottish National Blood Transfusion Association, is not far distant. A supply of tetanus toxoid for use in appropriate cases is available.

The ward is constructed of reinforced concrete and is proof against all but a direct hit.

Ward Fittings

1. Thermostatically controlled heating system set to maintain temperature of 68° F.
2. Hand-operated ventilators of "louver" pattern.
3. Electric lighting system from mains supply.

Bed Fixtures and Accessories

1. At the head of each bed on a wooden panel are: (a) Arcus quick-coupling unit connected with Heidbrink control unit attachment on oxygen cylinder of 100 c.f.t. capacity. Incorporated in each unit is a dry-bobbin flowmeter; delivery is by B.L.B. mask.
- (b) Plug for electric blanket, which is insulated from the patient by rubber sheeting; the current is switched on day and night for a few beds only when the ward is unoccupied.
- (c) Plug for aluminium radiant-heat cage with six independently controlled bulbs and thermometer; these cages are so light that any nurse can easily lift them with one hand.
- (d) Plug for hand lamp.
- (e) Bracket at approximate height of 3½ feet above receiving vein for blood-transfusion bottle.
2. Temperature-respiration-pulse chart on which half-hourly observations can be recorded if necessary.
3. Back-rest for sitting posture in thoracic cases.

Ward Furniture and Apparatus

1. Portable x-ray plant for use primarily in abdominal and thoracic wounds; this plant can also be used therapeutically, but this measure is still on trial for cases already infected.
2. Emergency accumulator light of "anglepoise" type.
3. Emergency hurricane lamps.
4. Dispensary basket for transporting bottles of plasma or stored blood from adjacent blood bank.

* Boric acid solution should be avoided in treating eyes if unknown chemicals may be present; extremely dangerous compounds may be formed.

5. Wooden arm-board for each bed for blood transfusion by the arm. The sternal canal may occasionally be used as adjuvant "slow-drip" route when veins are very collapsed and delay is unavoidable.

6. Low stool at bedside for operator (this is important, as it is very fatiguing to bend over these low "emergency" beds for any length of time).

7. Blocks 18 inches high for elevation of the foot of the bed. (These require some arrangement on the upper surface to keep the legs of the bed from slipping when the patient is restless. I have attached "U"-shaped pieces of wood to receive the bed legs.)

8. Hand-washing basin.

9. Dressing trolley, on which are carried: (a) solution of 1/1000 acriflavine rendered alkaline by addition of sodium bicarbonate; (b) solution of sodium bicarbonate, 0.5%; (c) solution of copper sulphate, 2%; (d) solution of copper oleate and trichlorethylene (still on trial for neutralization of external wounds contaminated by phosphorus); (e) normal saline (sterile); (f) distilled water; (g) albucid soluble, butyn 2%, and undine; (h) tubes of flavogel; (i) tourniquets, Esmarch's bandage type; (j) Riva-Rocci blood-pressure apparatus; (k) agglutination tubes charged with a few drops of a solution of sodium citrate 1.5, sod. chlor. 0.9, distilled water 100.0, for direct blood agglutination test; (l) insufflator charged with 3 g. sterilized sulphathiazole powder; (m) Record syringes 1, 5, and 10 c.c.m.; (n) metal and rubber catheters.

Staffing

1. Nursing staff: (A) A receiving sister and assistant nurse superintend putting the patient to bed and remove life-saving jacket and such clothing as is necessary. (B) The theatre sister and radiographer are in attendance.

2. Medical staff: (A) The receiving surgeon conducts a preliminary survey and orders immediate resuscitation methods. He decides the amount of alopon to be injected and the mode of administration. (B) The resident house-officer immediately types blood and carries out direct agglutination tests against the blood of a waiting donor or against the bank blood, whichever is to be used. He also carries out catheterization, if ordered. He may have to estimate blood pressure, haemoglobin percentage, and mean corpuscular volume in a Wintrobe tube after centrifugalization. Blood urea is estimated in a Lovibond comparator, if such investigation is ordered. This colorimetric method is sufficiently accurate for practical clinical purposes; it is also used for estimation of sulphonamide concentration in the blood. (C) A specialist anaesthetist is in attendance and is consulted on the appropriate form of anaesthesia in each case. Boyle's apparatus with CO₂ absorption attachment is mainly used, but regional anaesthesia is sometimes helpful. Pentothal is often used, but the impression here is that it is not so reliable as the evipan of former days. In this hospital the specialist anaesthetist also gives the blood and plasma infusions.

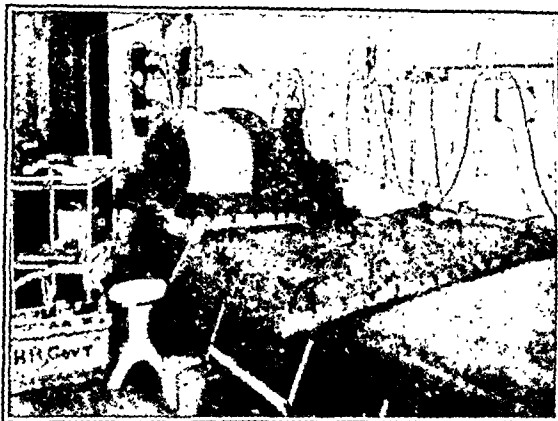
Resuscitation Procedure

As regards resuscitation measures generally, in my view the tendency is to give too much morphine to the shocked patient. In this hospital 2/3 gr. of alopon (equivalent to 1/3 gr. of morphine) is a maximum initial dose. If the patient's pulse is imperceptible at the wrist I content myself with the equivalent of 1/4 gr. or even 1/6 gr. of morphine intramuscularly to begin with. I am then guided by the patient's response to the other measures as to when and in what amount to give another injection subcutaneously (usually in 2, 3, or 4 hours in doses of 1/6 gr.). Eucortone has a limited place in conjunction with morphine in the treatment of these cases. It must be used with great discernment. If the patient is pulseless to begin with and after the lapse of an hour there is no improvement 5 minims of eucortone can be injected intramuscularly. Often the pulse will reappear in five minutes, but if it does not then no further hormone should be given. If improvement does occur a further 10 minims can be administered after another hour. The temperature then will probably rise above subnormal.

Experience has taught us to use oxygen sparingly in those patients who do not have compression-expansion lesions of the lungs. When it is employed the guide is the patient's reaction. If he is intolerant or resentful of it the flow is stopped. Oxygen has a very real value in cases in which there is a combination of gaseous asphyxia and shock caused by "near-miss" detonations. Whole blood is never given by itself to the shocked,

exsanguinated patient; if he requires blood then double the amount of plasma is administered—half before the blood and half after it. If the patient lapses into unconsciousness, strophanthin or 4 c.cm. of nikethamide (coramine) intravenously is given, mostly as a policy of despair. Artificial respiration in the "iron lung" has been tried, but it is too early yet to assess its value. It does seem worthy of further trial because the aeration of the blood is maintained so long as there is any circulation; it requires very careful synchronization in the unconscious patient, of course. The "iron lung" is brought into the ward when required.

The importance of competent nursing of shocked patients cannot be over-emphasized. Warm glucose drinks and sweetened ovaltine are used here when the alimentary tract is intact. The surgeon then carries out such local treatment as he thinks essential. Initial covering of wounds with acriflavine



Photograph, taken under permit by Commandant and reproduced by permission of the Department of Health for Scotland, shows sick-birth attendant, suffering from wounds of the thigh, in resuscitation ward; endmost blanket has been momentarily removed and shock cage transferred towards foot of bed for demonstration purposes.

combined with insufflation of sulphathiazole powder is the routine if a long interval is expected before the patient can be removed to the operating theatre. In eye injuries the appropriate irrigation is gently carried out, and if a foreign body is to be removed and difficulty is anticipated butyn is instilled to add to the comfort of the patient. Burns can be temporarily dressed with flavogel, and if they are not too extensive up to 3 g. of sulphathiazole is insufflated as a temporary measure. Most burns of the limbs will be encased in plaster-of-Paris after operation. When there is some doubt as to the cause of burns all lights are extinguished so that the presence of phosphorus may be detected; reliance should not be placed on odour, as some modern combination explosives are free from all odour of phosphorus. The surgeon personally administers the appropriate initial prophylactic dose of antitetanic and polyvalent anti-gas-gangrene sera. He finds out if he can—though it is often impossible—whether the patient has had tetanus toxoid. Thereafter he enters on the chart the further doses that are to be given and at what intervals. If tetanus toxoid is appropriate to a particular case he gives the "boosting" dose.

The patient remains in the resuscitation ward until the receiving surgeon decides that it is time for him to go to the operating theatre; the distance is short, but a shock cage, with accumulator, is carried on the trolley.

The British X-Ray and Radium Protection Committee issued its first recommendations in 1921, and revised reports followed in 1923, 1927, 1934, and 1938. The problem of adequate protection for the x-ray worker has been substantially eased by the introduction of the self-protected tube and by the "shock-proof" tube and equipment. Account is taken of this in the sixth report, which follows in the main the form of the International Recommendations, and contains a number of alterations and additions based on the experience of the British Committee and of the National Physical Laboratory. Copies can be had from the honorary secretaries of the Protection Committee at 32, Welbeck Street, W.1, or from the director of the N.P.L., Teddington, Middlesex.

COMING-OF-AGE OF HOSPITAL SAVING

The Hospital Saving Association, the great contributory organization for the London area, was inaugurated in 1922 as a result of one of the recommendations of the Cave Commission to inquire into the finances of voluntary hospitals. It was from the beginning a characteristically British blend of self-help and public service, and the double idea of saving the hospitals—for that was the original motive behind the Association and the inspiration of its title—and at the same time of ensuring hospital treatment for the contributor and his family when needed proved immensely fruitful. The H.S.A., which in its first year had 15,000 members, now talks in terms of millions. At a twenty-first birthday celebration held at Westminster Central Hall the chairman, Sir Alan Anderson, was able to announce that the contributors now number nearly two millions and their contributions weekly amount to well over one million pounds a year. Since the H.S.A. started its work over ten million pounds has been paid or set aside, for hospital services, and the total number of patient-days of hospital treatment given to its contributors and their dependants would extend over about 120,000 years. The celebration was attended by the Duchess of Gloucester, the Minister of Health, prominent representatives of the medical and nursing professions, and heads of large business concerns, including the chairman of London Transport, in which are to be found the largest number of contributors in any single employment.

The occasion was something more than an outstanding anniversary; it was a demonstration of faith in the voluntary system. As the Minister of Health said in his brief address, whatever the future may hold in store, no comprehensive service can do without the spirit which has created and sustained the voluntary hospitals. The hospitals themselves, he said, were indispensable to the services which it is hoped to evolve, and equally indispensable are the attitude of mind and constancy of purpose which have been displayed in supporting them. To mark its coming-of-age the Association hit upon the pleasing idea of making an offering to the nursing profession in token of gratitude for the services rendered by hospital nurses to its members. This took the form of a fund for providing scholarships for nurses, and a sum of just over £12,000 was handed to the Duchess of Gloucester for this purpose. The nurse who wishes to qualify for a higher position, such as that of sister-tutor for example, has to relinquish her work during her year of studies, and if she has no private means she is gravely handicapped. It is to meet such a situation that this gift has been conceived.

HARBEN AND SMITH AWARDS

At a meeting of the Royal Institute of Public Health and Hygiene held on July 8 the Harben gold medal was presented by Prof. J. W. H. Eyre, the president, to Sir Henry Dale, President of the Royal Society, and the Smith award (a bronze figure of Hygeia) to Dr. James Fenton, medical officer of health for Kensington.

Mr. W. E. Tanner, chairman of the council, in presenting Sir Henry Dale for the award, referred in particular to his work on acetylcholine, begun in 1914, and quoted the *British Medical Journal* as stating, in 1938, that the brilliant researches of Dale had helped to build up step by step a firm structure on which rested the belief that acetylcholine transmitted the effects of nervous impulses from the nerves to the organs throughout a large part of the body. He also reminded the company that in 1936 Sir Henry Dale shared the Nobel Prize (Nobel Laureateship) for physiology and medicine. He had made the laboratory his field and had always maintained that with the disappearance of the earlier separation and critical rivalry between experimental research on the one side, and empirical observation at the bedside on the other, and with the formation of a common front of advance in medical science, medicine would move towards the creation and maintenance of the conditions of health, not limiting itself to the recognition and treatment of acute or obvious failures and anomalies.

Sir Henry Dale, in response, mentioned the names of former Harben medallists, beginning with Pasteur in 1895, and Sir John Simon in the following year, and continuing with Lister, Koch, Metchnikoff, Gorgas, Ronald Ross, Sherrington, Hopkins, and others. One of the medallists was Baron Kitasato, the Japanese

scientist, who received the medal in 1925. "We should not fail to honour his memory," said Sir Henry Dale, "although his country has departed from its old traditions. Baron Kitasato worked for the health of all mankind."

In presenting Dr. James Fenton for the Smith award (an award created in memory of Sir W. R. Smith) Mr. Tanner said that Dr. Fenton had been M.O.H. of Kensington since 1920. Before that he had held appointments in Shrewsbury, Birmingham, and Southampton. He had been president of the Society of Medical Officers of Health, chairman of the Central Council for Health Education, and chairman of the council of the Royal Sanitary Institute. Reference was made to the fact that the Kensington Borough Council had established under his advice the first municipal clinic for acute (and later for chronic) rheumatism in this country, also to his good work for civil defence.

Dr. Fenton described the work he had done as team work, and said that many who had laboured side by side with him should have shared in the honour. A medical officer of health could achieve little without the support of his local authority, and in that respect he himself had been most fortunate. His local authority had enlarged his interest and stimulated him to introduce measures for the public benefit. It had also afforded him financial help in his studies of public health in America, Africa, and on the European Continent.

Correspondence

Subcutaneous Ligation of Varicose Veins

SIR.—I note with concern two recent articles in the *Journal* advocating the disinterment of the subcutaneous ligation of varicose veins from the shades to which it had been decently committed. Starting an honourable career more than 100 years ago, we find it adolescent in the hands of Davat, who in 1838 was devising ingenious methods for its application (*vide* Ochsner and Mahorner, *The History of the Treatment of Varicose Veins*, 1939). After an adventurous and popular career it was finally laid to rest when the injection treatment of veins became standardized in the present century. Nails from all parts of the world have been driven into its coffin in the shape of the recognition of the recanalization of thrombosed and ligated veins, and of the dilatation of tributaries to replace an excised primary vein. In fact, throughout the literature on the subject it is now generally agreed that in cases showing a positive Trendelenburg sign this re-establishment of circulation renders ineffective any ligation and excision of the saphenous vein below its junction with the femoral vein. In an excellent critical analysis of the results of various operative procedures, Moore and Knapp (*Ann. Surg.*, 1942, 115, 131) by not even mentioning subcutaneous ligation showed that its requiems had been said. They showed that ligation and excision of the saphenous vein actually at its junction with the femoral vein is the only procedure which gives reliable results, their best series being that in which this procedure was combined with a simultaneous injection of sclerosing fluid down the vein. Clinical experience bears this out. Any lesser procedure fails to recognize and deal with the primary cause of the condition—namely, an inefficiency of the valve guarding the upper end of the saphenous vein.

In the treatment of men in the Forces, even more than in civilian cases, the adoption of a method of treatment which is liable to a considerable number of recurrences seems to me an ill-advised policy. What if the recurrence occurs just when the man is most needed for active service over-seas? How shall we explain to him after his recurrence that a second operation is more likely to be successful than the first? In my own experience it is only in such men or in others who have come in contact with them that one meets difficulty in obtaining consent for operation. I feel that more valid reasons and very much more favourable follow-through results are essential before we revert to the procedure of subcutaneous ligation.

Dr. R. R. Foote (*Journal*, July 3, 1943) wisely refers to the subject of pulmonary embolism following operation for varicose veins. The danger of this complication does not seem to be fully recognized in this country. For instance, in Payne's comprehensive article (*Journal*, Oct. 18, 1941) no mention is made of it. Yet in Moore and Knapp's series

of 169 cases there were two deaths from pulmonary embolism, a third case fortunately recovering; whilst in 162 operations for varicose veins at the Peter Bent Brigham Hospital, Boston, between 1913 and 1921, three deaths from this cause were recorded. Pulmonary embolism is thus a very real danger, causing a mortality in these two series of nearly 2%. I therefore fully agree with Foote's conditions that in operations for varicose veins (1) the patient should be ambulant, and (2) the ligation should be at the sapheno-femoral junction—the first in order to maintain the circulation in the femoral vein, the second to avoid clot formation in the saphenous stump (a possible source of a pulmonary embolus) and to destroy unequivocally all the tributaries of the upper end of the saphenous vein.

In the ambulatory method I admit that there is a slightly increased risk of wound infection owing to movement of the dressing, touching the inside of the clothes, etc., but an occlusive dressing, such as a strip of elastoplast, applied on the table and removed only with the stitches, does much to eliminate this. In 130 cases treated on these lines I have seen no case of pulmonary embolism and only five cases in which the hospital stay had to be prolonged beyond the normal 48 hours. This, I think, largely answers Major Goldstone's observations about the saving of hospital bed space.—I am, etc.,

Southend General Hospital.

A. K. MONRO, F.R.C.S.

Lectures on Industrial Diseases

SIR.—The General Medical Council recently decided that medical students should receive training in the subject of industrial diseases. So far as I can discover systematic courses of lectures are not being provided in our medical schools. In the memorandum published in your issue of June 5 it is suggested that "when the medical school is near an industrial centre the theoretical teaching in industrial medicine, which is obviously to play an important part in future medical practice, should be supplemented by visits to neighbouring factories." But where is such theoretical teaching to be found at the present time? In most, if not all, of our teaching centres facilities for visiting factories are certainly not lacking, but the theoretical teaching is. Why this delay in establishing lectureships in this important subject? Is it that competent lecturers with the necessary knowledge do not exist? I admit that it may be difficult to find men who possess the necessary combined medical and legal knowledge to enable them to teach this subject, for a certain amount of legal knowledge is required to teach it properly. In every large centre of medical education, however, surely at least one suitable lecturer does exist. This delay in establishing such lectureships is a great mistake, as a knowledge of industrial diseases is of the utmost importance at the present time and will become of still greater importance after the cessation of hostilities. In this country we always seem to lag behind. In this instance such slowness of action is inexcusable. I sincerely trust that our teaching institutions will wake up and take some definite action in this matter, which to my mind is an urgent one.—I am, etc.,

Edinburgh.

JAMES BURNET.

Cutaneous Hypersensitivity to Sulphonamides

SIR.—I was interested to read the report of Major R. G. Park (July 17, p. 69) on cutaneous hypersensitivity to sulphonamides, and to know that others were experiencing this hypersensitivity in certain individuals.

In a busy casualty department I have used a large amount of sulphanilamide, mostly in the powder form, for dressings. Out of the many scores of patients thus treated I have had 5 in the last four months who have developed an acute exudative dermatitis. At first, not knowing the cause, the sulphanilamide powder was continued with increased amounts. This only made matters worse. On changing the dressing to gentian violet or a triple dye I found that the dermatitis quickly dried and then cleared.

The worst case was a small wound of the left palm with he weeping dermatitis extending over the whole hand. None of the patients was taking sulphanilamide by mouth, and control test applications were not carried out.—I am, etc.,

General Hospital, Rotherham.

A. W. N. DUFF.

SIR.—Perhaps a personal experience will help to give point to the excellent article by Major R. G. Park.

I underwent operation on March 22 for a fistulous condition involving a long and deep incision. The wound was left open to heal by granulation, and a packing of sulphapyridine (M&B 69) in liquid paraffin was employed. This dressing was continued daily up to May, when it was abandoned. The wound eventually healed completely in June, but an area of skin rather more than an inch wide on either side of the scar remained inflamed and intensely irritable, and itching was very general especially around the anus. A slight serous exudate persisted.

On July 14, on the advice of my surgeon, I used *pul. anaesthesin* (May and Baker) to allay the itching, it not being appreciated that I may be suffering from sulphonamide hypersensitivity. As the area continued to be inflamed I tried a dressing of sulphapyridine in paraffin. Next morning I had a violent reaction, characterized by increased and intolerable itching and a profuse exudation from the area, so profuse that pads of gamgee tissue placed over a dry dressing were soaked through. I then stopped all forms of local medication. Within 48 hours the inflammation began to subside, but at the end of this period a well-marked morbilliform eruption appeared in the palms of both hands, itching was general though not intense, and affected the face, knees, and dorsa of both feet.

At the time of writing the area round the wound is still inflamed and irritable, the papular condition of the palms has not subsided, and I have no idea how long this state of affairs will last. It was only by accident that I read Major Park's article and learnt the meaning of my condition. I felt that the general reaction was due to a drug, and I had the choice of three drugs: (a) *dettol*, as I had been having *dettol* baths; (b) *pul. anaesthesin*, used twice; (c) *sulphapyridine*, reapplied after an interval. Major Park's article gave me the explanation.

Two aspects of my case I should like to stress: (a) the profuse nature of the exudate, and (b) the inordinate redness of the area of dermatitis. As Major Park points out, such hypersensitivity may seriously limit the use of these valuable drugs and calls for investigation of the means of desensitization.—I am, etc.,

"MEDICAL."

Transmission of Kala-azar by the Sandfly

SIR.—In your interesting annotation on the transmission of kala-azar (July 10, p. 45) you refer to recent work on the breeding of sandflies. It is not perhaps generally remembered that our present knowledge of the life-history of the insect and the methods of breeding it in captivity are mainly due to the painstaking work of Whittingham and Rook in Malta between 1921 and 1923, who worked there as members of the R.A.F. Sandfly Fever Commission. Their results were published in the *Journal* in December, 1933, under the title of "The Life-history and Bionomics of *Phlebotomus papatasi*."—I am, etc.,

London, W. I.

J. J. CONYBEARE.

Oedema of Extremities at Sea

SIR.—I was interested to read Surg. Lieut. T. B. Barwell's letter on the above subject in your issue of July 17. When I was going out to South America after the last war on a trip via Panama, being very run down I indulged in the usual salt-water baths on board ship. I was much alarmed after a week of these daily baths to find my feet, ankles, and legs very much swollen and oedematous. I naturally examined my urine for albumin, but found it negative. I then began to wash myself with the basin of fresh water provided after the salt-water baths. Very shortly after this the oedema disappeared and never recurred. I drew the attention of the ship's doctor to this and he told me that he had often been consulted by passengers for the same symptoms, but he could give no explanation of the cause of the oedema. Knowing the action of a salt-free diet in reducing oedema I came to the conclusion that the effect of the salt-water baths was responsible for the oedema in my case. I used to take my bath before washing and shaving, and as the weather was very warm I did not dry my body after my bath, thinking that

the salt-water baths would in this way have a more tonic effect. In subsequent sea trips to South Africa, Ceylon, etc., I found many passengers complaining of similar symptoms, and told the ship surgeons to advise them to sponge themselves well with fresh water after their salt-water baths, and in every case this had the desired effect in curing the oedema.—I am, etc.,

Oban.

DUNCAN MACDONALD, M.D., C.M.

H 11 for Cancer

SIR.—The account of the experimental work, conclusions, and implications published by Gye, Ludford, and Barlow in the *Journal* of July 17 may be misleading to some of your readers, and some comment is necessary. The essential part of the correspondence relating to this work is therefore appended, from which it will be seen that the experimental methods used by Gye and his co-workers failed to conform to the conditions laid down.

Imperial Cancer Research Fund,
Mill Hill, N.W.7,
March 30, 1943.

Dear Mr. Thompson,

We have carried our examination of your product called H 11 and of the improved copper-precipitated extract sufficiently far to be convinced that the preparations have no effect on the growth of malignant cells. Our experiments will be carried through to completion before we publish them, but in the meantime I should be greatly obliged if you would let me have any comments on our failure to substantiate your claims.—With kind regards, Yours sincerely,

W. E. GYE,
Director.

Hosa Research Laboratories,
Sunderby-on-Thames,
April 12, 1943.

Dear Dr. Gye,

I have your letter of the 8th instant. I am surprised and disappointed to note that you have failed to obtain inhibitory effects using H 11 extract.

This work has been steadily developed over the last 12 years and some thousands of experiments in mice have been performed by various research workers (the data of which are available) demonstrating beyond all possible doubt the inhibitory action of the extract on the Twort carcinoma. On this basis it has been applied clinically, and evidence of its inhibitory action in the human subject has been produced by over 300 independent members of the medical profession.

As you know, you were asked to use the extract at the request of Sir Alfred Webb-Johnson, who suggested this procedure. I did not need to have its well-established inhibitory action tested for any other purpose, it being, I am glad to say, well beyond the experimental stage, and the proved inhibitory action on both carcinoma and sarcoma in the human being is now the chief matter on which concentration is being made.

Regarding your experiments, I would draw your attention to the following points:

(1) On the basis of your own figures that at least 24 experimental animals have been used, and that you administered the extract without interruption in the dosages stated, the amount of extract supplied to you was only sufficient for a maximum of 24 animals for 21 days. As you must know, this is an inadequate time period for the experiment, particularly in view of the focal reaction referred to in my letter of March 3. Moreover, on the same date I sent you as a guide to your work a graph showing the results obtained by us, which indicated the inhibition as marked by the 39th day. Your experiments should surely have been conducted for at least this time period.

(2) On March 17 a batch of H 11 which was copper-precipitated was sent to you and acknowledged by you on March 18. You wrote to me in a letter dated March 30 that you were convinced that the preparation had no effect on the growth of malignant cells. Thus you had reached this conclusion after the extract had been in your possession for a period not exceeding 12 days. You had therefore ignored my original statement in my letter of March 3 that "in the mouse tumour there is a steady increase in size up to about the 8th–12th day and this is particularly due to the focal reaction." Clearly no inhibitory results could possibly be shown within this time period, and yet at this point you stated you were convinced the extract had no action on malignant cells.

(3) You stated you have not used the Twort carcinoma, as in your opinion others are more suitable; and in your letter of March 30 you suggest I should comment on your failure to substantiate our claims. In my letter of March 3 I wrote, "Our experience so far as the use of the extract on animal tumours is concerned is restricted to the Twort carcinoma." Moreover, our published work

on H 11 extract has related solely to the Twort carcinoma (*Med. Press and Circular*, April 23, 1941). It is obvious therefore that the experiments should have been conducted using the Twort carcinoma. It was, in fact, your predecessor who strongly recommended the tumour to me as the most suitable for this work, and certainly the correlation between the inhibitory effects on these tumours and on human carcinoma has fully justified its use.

(4) Having found, some time ago, one of the inhibitors in H 11 extract to be beta-indol-acetic acid, we have since then increased its concentration by the addition of the sodium salt. A number of independent observers have described the inhibitory action of this substance on somatic growth and malignant growth (carcinoma and sarcoma) in rats and mice. For instance, Tanaka and Tuboi (*Gann*, 1940, 34, 346), using the same tumour as you have been using—namely, carcinoma 63—stated that this compound distinctly retarded the growth of the tumours. Again, Robinson (*Anatomical Record*, 1940, 78, No. 4, Supp., 80 (abstract No. 90)) obtained a similar result. We have been able to confirm the results of these and other workers using beta-indol-acetic acid and its compounds on Twort carcinoma. We surely have a right to assume that if the injections had been given regularly and for a sufficiently long period, according to instructions, equal results would have been obtained.

(5) You state that the injections were mostly intraperitoneal. In my letter of March 3 I stated: "We have found that 1 c.cm. of the extract intraperitoneally twice daily in mice bearing this tumour causes regression in the majority of the tumours"; and so we would naturally have expected you to have carried out the same method. The only method of injection which we have found to be satisfactory is by the intraperitoneal route, and your variable methods of injection may therefore have vitiated the whole experiment, particularly in view of the small number of animals used.

(6) You state that the injections were given without interruption. My knowledge would suggest that at least one group of injections were missed. On March 15 you wrote stating your supply was nearly exhausted, and the letter was received here on March 17. Your laboratories were immediately telephoned and we were informed that you were without any extract at all.

(7) As regards the tissue-culture work, the question is not whether H 11 extract inhibits tissue culture but what is the concentration at which it does not inhibit growth, owing to the concentration of total solids. Obviously any extract can be sufficiently diluted to produce no effect, and, conversely, in the case of an extract such as this, any concentration above a certain value will inhibit. To state that the extract had no inhibitory action *in vitro* would be meaningless.

Your experiments having failed to conform with the conditions for the use of H 11 extract as outlined in my letter of March 3, I am quite prepared, should you so desire, to let you have further supplies for you to use on Twort carcinoma within the conditions laid down, when there can be no question that inhibitory effects will be shown.

In the meantime, my invitation contained in my letter of Feb. 5 is still open, and if you can find time to visit our laboratories the whole of our data is open for your fullest inspection and investigation.—Kind regards, Yours sincerely,

J. H. THOMPSON,
Director of Research.

No further correspondence having been addressed to us by Dr. Gye we were quite unaware of the present communication made by him. Several new facts now emerge from it to which attention is drawn.

(1) The chart of tumours demonstrates a definite growth inhibition as a result of administration of H 11 extract when assessed by the formula given in a paper from the Royal Cancer Hospital (Free) by Boyland (*Biochem. J.*, 1940, 34, 1196).

Ratio: $\frac{\text{Growth rate during second and third weeks}}{\text{Growth rate during first week}}$

Treated Tumours	Control Tumours
1. 0.92	7. 1.5
2. 0.73	8. 1.7
3. 0.99	9. 1.9
4. 2.3	10. 0.8
5. 0.21	11. 15.0
6. 0.77	12. Regressed

Tumour size used in these calculations is the square root of tumour area. This corresponds to the "average tumour diameter" used by Boyland. The figures show that during the second and third weeks the treated tumours grew at a slower rate than during the first week. The control tumours grew nearly twice as fast during the second two weeks as during the first week.

(2) Multiple tumours frequently grow at a rate considerably greater than that of single tumours—a rate we have often found to be more difficult to inhibit by the usual dosages of our extract. It is therefore surprising that Dr. Gye should draw far-reaching conclusions regarding the effect of an extract on experimental tumours when, of the twelve mice used, one carried a regressing

tumour while seven of the remainder had double tumours. Of the six treated animals five carried double tumours while the remaining double tumour was the most rapidly growing tumour in the control group. This was an unfortunate selection, but in these laboratories conclusions would not be deduced from an experiment in which the treated and control groups differed so greatly.

(3) The authors have assessed the health of the mice by weight, changing the method of or stopping injections when "the weight of a mouse began to drop"—whatever that ambiguous expression may mean. At this critical juncture the authors laid aside the prescribed method of injection. The soundness of this procedure when investigating growth inhibitors is open to grave doubt.

(4) No information has yet been obtained to indicate the correct dosage, method of administration, or period of time required to produce inhibitory effects on tumours in animals other than the Twort carcinoma. Incidentally, the statement that "intraperitoneal injection of 1 c.cm. twice daily becomes an ordeal for a 20-g. mouse" is absurd. In these laboratories during the last three years we have injected thousands of mice intraperitoneally with 1 c.cm. twice daily without ill effect. There is no indication that the control mice were injected with equivalent dosages of saline, as they should have been.

(5) In the tissue-culture tests 50% H 11 killed both normal and malignant cells. In 10% H 11 growth rates were equal. The authors fail to record the results with intermediate concentrations, if, indeed, they were tried.

The conclusion was thus reached that the extract had no specific inhibitory action on the growth of tumour cells; certainly no such claim has ever been made by these laboratories. Whatever theory of growth inhibition is held, such an inhibition need not necessarily be accompanied by a cessation of repair processes, as was suggested in your leading article. Our observations have not led us to conclude that there is any "inhibition of growth of skin and hair and of blood cells" when physiological inhibition is at its maximum—namely, following the not uncommon phenomenon of puberty. This fact has apparently been overlooked both by your leader writer and by Dr. Gye himself (*Lancet*, March 14, 1942).

The author of your leading article evidently appreciates our theoretical basis whilst Dr. Gye and his colleagues clearly fail to do so. Nevertheless, your leading article, accepting unreservedly the conclusions of Gye *et al.*, uses them as a criticism of our research. Perhaps the author of your leader should have studied the latter results more carefully, and Dr. Gye might well have investigated our data as he was invited to do.

The fact remains that the tissue-culture experiments did not have controls, since no cultures of normal and malignant cells without H 11 extract were made. Although Gye *et al.* thought it necessary to devote the first half of their article to a description of the care and control employed in their routine methods, yet the remainder of the communication is a demonstration of the failure to employ the necessary conditions laid down and to provide proper scientific controls.

As regards the heavily biased statements made in your leading article we would only at this stage refer to the following important factors:

1. The 51 cases treated at Kingston County Hospital are all described as "advanced . . . usually in poor health . . . with few exceptions they were cases in which operation or radium therapy was considered to be insufficient to eradicate the local disease." Bearing these facts in mind, we suggest a more careful study of the details of the cases presented.

2. Our evidence indicates that H 11 extract, whilst inhibiting growth, does not interfere with repair processes. It will be noted in this connexion that Case 26 is chosen rather than, say, Case 25 or Case 37, although both the latter, having received many more injections than Case 26, are therefore better examples of the argument put forward. But perhaps the writer of the leading article preferred to emphasize a case which, according to Kidd, did not respond to H 11 extract, rather than cases described by Kidd as now "N.A.D. . . general condition very good, no symptoms, no signs of recurrence."

3. There is abundant clinical evidence in data at these laboratories fully substantiating the one and only claim made—namely, that H 11 extract does inhibit tumour growth. The data are open for any qualified persons to investigate, and full investigation has been repeatedly invited.

No claim of "cancer cure" has ever been made by us, although it is true that some cases of histologically proven carcinoma have completely recovered, all tumours having regressed. A comparatively short time period is sufficient to

demonstrate the inhibitory effect, and the statement that "eighteen months is too short a time to reach a firm conclusion that a treatment is of value" is irrelevant. As regards the supposed "fallacy of correlating the growth of oat seedlings with the growth of cancer," attention is drawn to the fact that beta-indol-acetic acid, a known constituent of urine, is an inhibitor of the root growth of plants, somatic growth in animals (Robinson, *Anat. Rec.*, 1940, 78, 166), and of carcinoma and sarcoma in animals (Tanaka and Tuboi, *Gann.*, 1940, 34, 346; Robinson, *Anat. Rec.*, 1940, 78, 80; and others).

The Hosa Research Laboratories operate under a registered charitable Trust and are thus debarred from making profit.—We are, etc.,

J. H. THOMPSON.
P. F. HOLT.
R. FORBES JONES.

Sunbury-on-Thames.

* * In view of the criticisms of Prof. W. E. Gye contained in the above letter we have thought it right to submit a copy of the letter to Prof. Gye so that his answer may appear parallel with it.—ED., *B.M.J.*

SIR,—We are obliged to the Editor for the opportunity of reading the communication of Mr. J. H. Thompson and his colleagues. To us the relevant fact is this: that malignant tumours of mice which we have treated with H 11 continued to grow and killed the mice at the same rate as our untreated controls. Our experiments therefore compel us to conclude that H 11 has no inhibitory action on malignant growth. So far as we are concerned, no calculations, arguments, or complaints alter this fact.—We are, etc.,

Imperial Cancer Research Fund,
Mill Hill, N.W. 7.

W. E. GYE.
R. J. LUDFORD.

SIR,—The papers by the Imperial Cancer Research Fund workers and Mr. H. A. Kidd and your leading article in the *Journal* of July 17 are of great importance. I have no direct or indirect interest of any kind in Mr. J. H. Thompson's work but have had the opportunity in the last three years of seeing something of it. I would, therefore, venture one or two comments.

Even the papers you publish seem to me hardly to justify the wholesale condemnation of your leader. Eleven of Mr. Kidd's cases (Nos. 4, 17, 20, 22, 25, 27, 29, 31, 37, 39, and 40) suggest that the exhibition of H 11 might have exercised some influence. Can further light be shed on this by the comparative analysis of a similar series of cases treated by palliative or radical surgery and/or radium? The experience of our clinicians who have used H 11 in the last two years would also be of value.

As you point out, Mr. Thompson emphasizes, that orthodox methods of treatment should always be used where applicable, no vestige of a claim is made that at present H 11 is a comparable alternative. Whether it ever will be can only depend on observation of its effect on inoperable or recurrent cancer together with the usual laboratory investigations. Prof. Kidd's work on this aspect of H 11 is obviously not encouraged but Mr. Thompson will perhaps adduce his own work on treatment of the Twort carcinoma in mice. In the mean time H 11 cannot be said to militate against the proper treatment of any case of cancer.

Your own observation that H 11 should have some effect on the growth rate of skin and hair is eminently reasonable. Some facts on the rate of growth of the nails and hair in patients treated with H 11 as compared with the normal would not be difficult to secure.

Mr. Thompson is not the only worker to call attention to the presence of growth-inhibitory substances in urine. In fact, Mr. Kidd's paper includes references to some of our work on this subject. It would be a great pity if views on this aspect of the matter prevented investigation of the existence and physiological properties of these growth-inhibitory substances. Their application to the treatment of cancer, however dramatic and whether it proves well founded, is only one aspect of the larger question. I hope that articles will not inhibit interest in growth-inhibitors.—I

Town Hall, Fulham.

J. A.

Bran in the Diet

SIR.—By the introduction of roller milling and of white flour people have been robbed not only of the vitamins and mineral of wheat but of the natural means of moving their bowels. Hence the vast sale of unnatural means of purgation. The Russians work and fight with splendid energy on wholemeal bread and cabbage soup. The scientific advisers to the Ministry of Food have added to the war loaf, as they say, all that is digestible in wheat, but have left out of account the important natural purgative effect of bran. A finely milled whole-wheat loaf is much tastier than war bread; but the millers want us to go back to white bread after the war, and secure again the great profits made from milling—profits which have been made to the detriment of the people's health. The almost universal decay of teeth is one result, and a proper diet, not dentists, will remedy this.—I am, etc.,

Chalfont St. Peter.

LEONARD HILL.

Shortened Puerperium

SIR.—I have read with much interest the letters upon this subject in your issues of May 22, June 5 and 19, and July 3 and 10. In this correspondence too little reference has been made to the interests of the children concerned. The younger children, no less than the elder, of a family require nine months' abundant breast-milk feeding given by an unfatigued mother. This feeding is best secured, as family medical histories suggest, by a four-weeks puerperium with subsequent domestic help for the mother.

Often to-day, of necessity, the "monthly nurse," succeeded by the "nurse to take the baby from the month," must be replaced by a three-weeks stay in a nursing-home (followed by the kindly domestic help of friends) for the mother. Many doctors, I feel, would gladly further a plan, if formulated, by which a four-weeks puerperium could be secured to the average mother so that her infant might the better thrive. The financial cost entailed could well be defrayed by the money mistakenly spent in supplying non-breast-milk and bottles to infants, while attempting the restoration to health of their unrested mothers.—I am, etc.,

HELEN YOUNG.

SIR.—I have been interested as a medical woman in the correspondence about shorter puerperium.

After observing the activity of many African women as early as the day of delivery and the absence of ill effects, it seemed to me reasonable to have a shorter puerperium than the generally approved ten days. After the birth of my first child I got up for a short time on the third and on each succeeding day. There was considerable perineal discomfort, which persisted for at least a month. There had been a second-degree tear and some local sepsis in the wound.

After the second child, two years later, when there was no tear, I got up from the second day onwards for hot baths (at 100° F.) and exercises of chest and abdominal muscles, and gradually progressed from a walk round the room on the 2nd to a routine of easy activity on the 10th day. Fitness at this stage was certainly beyond what one had observed among patients during a term as resident in a maternity hospital. The same procedure was followed after the third confinement, also with excellent effect. On no occasion was there any rise in daily P.T.R. readings.

The conclusion I think is that the symptoms of the patient are a safe guide, that there should never be any feeling of strain, but that, after an uncomplicated delivery, early baths and exercise short of producing fatigue are valuable in restoring muscle tone, regulating milk supply, and avoiding the usual weakness resulting from a longer period of recumbency.—I am, etc.,

Beverly, Yorks.

ADELE NYE, M.B., CH.B.

Obstetrical Forceps for Fibroid

SIR.—On reading the interesting memorandum by Mr. John Stallworthy under this heading (July 10, p. 41) I was reminded of a similar case which occurred in my practice in Midlothian forty years ago.

A coal-miner's wife aged 46 was seen by me as she was having uterine haemorrhage. The bleeding had come on a few days pre-

viously, and was not excessive. The history was that there had been similar attacks, occurring at irregular intervals, each lasting for three or four days, for about four months. She had been an in-patient at a hospital for the same symptom some months before I saw her.

The patient was of good physique but very pale and anaemic. The uterus was the size and shape of a 34-months pregnancy, but there were no corroborative signs of this condition. Per vaginam the os uteri was an inch in diameter, and protruding through it was a lobulated mass, much firmer and more fibrous than a placenta. The diagnosis was a submucous fibroid in process of extrusion.

Liquid extract of ergot π , xxx t.i.d. was prescribed and anti-septic douches ordered. The haemorrhage stopped and did not return. In a few days the mass protruded fully an inch beyond the os. At the end of ten days the mass had descended to within an inch of the vulva, and the cervix could no longer be felt. During this period an offensive discharge was present, with occasional slight rise of temperature, and there were other indications of toxæmia—namely, an ashy-grey colour of the face, and the pulse was quicker than normal and of small volume.

As at the end of this time the patient's condition was not good, chiefly because of toxæmia due to want of drainage of the uterine cavity, it was obvious that the tumour must be removed. She was given two ounces of whisky to drink instead of an anaesthetic, put into the left lateral obstetric position, and Milne Murray's axis traction forceps were applied to the tumour (which fitted them neatly). Moderate traction failed to bring it down, so the forceps were rotated through three-quarters of a circle in order to tear through the pedicle. The whole tumour then came out quite easily with very little haemorrhage. A strip of gauze also came out with the tumour, this having probably been left in the uterus from some previous plugging for haemorrhage.

The tumour had undergone fatty degeneration in parts, and was slightly smaller than a baby's head. The attachment to the fundus uteri was flat and about nine square inches in area. No other fibroids were present. The patient made a good recovery.

—I am, etc.,

Bridgewater.

JOHN H. AYTOUN, M.D., C.M.

The Cult of Negative Health

SIR.—I am indebted to Dr. Pegge for pointing out that my letter of June 19 might be used as an argument against social planning. I imagine that Dr. Pegge had in mind the possibility of its being suggested that I had advocated any kind of work, however boring and fruitless, as a means of avoiding mental ill-health. This was certainly not my intention. The factory hand on a routine job and the working-class mother whose only tap and sink are at the end of the court necessarily have most of their energy used up on a few monotonous activities, but this is emphatically not an environmental situation which demands or even gives opportunity for the use of all their "interests and abilities" as distinct from sheer physical strength. Moreover, this extreme canalization of activity into repetitive tasks inevitably encourages and increases man's lack of awareness of his powers, while at the same time giving him very good grounds for believing that "work" is invariably distasteful and dull. Where the environment stimulates activities, forgotten or unknown powers and interests are discovered. The man of all-round training who has enjoyed the use of many and varied abilities may continue to seek means of employing them under restricted conditions. Where, however, there is a lack both of environmental stimulation and of self-knowledge it is obviously impossible for the individual to get out of the rut unaided. It is this situation which, as Dr. Pegge says, calls for social planning applied to the whole field of human activity.

Nevertheless, at the risk of confusing matters, I feel obliged to say that, if we are to believe our patients, it would seem that any work is better than none. In support of this, I would like to quote an intelligent young woman seen in consultation since my last letter. She has been ill for over two years with acute fears concerning her own body. She has always been physically healthy and has had no previous breakdown.

"I had been a weaver for five years and I had worked my way up until I was weaving worsteds. But I found that was very easy work. The machines look after themselves. I didn't like that. I got very self-conscious—with an idle mind. So I got out of it and went into war work. But no work came in. I had nothing to do for five months. I didn't get my cure—hard work. We had to sit by the machines all day, not reading or knitting. We mustn't

do anything, because, when the manager came in, he had to see that we were willing to work. Then I couldn't eat or sleep and broke down. I've a lot of energy and I ought to be kept occupied."

One could hardly have a better description of the ills wrought by over-investment of energy within the individual owing to refusal of the environment to permit any outlet. The grim irony of a situation in which readiness to work is judged by willingness to remain idle was, I may add, quite unrecognized by the patient.

The thoughtful contributions of Dr. Maberly and Dr. Eates have opened up the subject considerably. Dr. Maberly's comment on the increase of hypochondria and anxiety states during a period in which physical health and economic security have improved is entirely in line with Lord Geddes's observations and my own. It comes to this: although we should like to think that we are rational beings, influenced in our feelings, judgments, and beliefs only by present external reality, this is not and never has been so. No measure of physical or economic security bestowed upon us from without can give us the experience of happiness, well-being, and confidence which is to be gained by the full use of our own powers. That Dr. Eates considers that my "thesis deserves the closest attention" is, I suggest, an unintentional but grim indictment of our present outlook, since, far from being original, it is at least as old as our era. In my humble opinion the parable of the talents (St. Matthew, ch. 25, vv. 14-30) presents, with the utmost precision and detail, this entire problem. But how, in the present complexity of our civilization, shall we find a solution?—I am, etc.,

London, N.W.3.

R. E. LUCAS.

SIR,—I am in complete accord with the letters of Dr. R. E. Lucas (June 19, p. 766) and Dr. A. R. Eates (July 10, p. 55). I am particularly impressed by Dr. Eates's reference to "the disastrous effects upon the health of both body and mind of women who have practised contraception and the severe limitation of the family," and his statement that in his experience the most healthful women have been those with large families. With 50 years' experience behind him he will have no difficulty in proving the truth of this statement. Can Lord Dawson, Lord Horder, and the Family Planning Association as easily prove the contrary?—I am, etc.,

JANE SCOTT CALDER.

Treatment of Venereal Diseases

SIR,—As a venereologist likewise appalled by the way patients are being mistreated in general practice I found Brig. T. E. Osmond's article on the modern treatment of gonorrhoea (July 17, p. 72) very interesting reading. My experience is that the majority of these patients are treated by the medical practitioner unskilled in the treatment of venereal disease. His main aim is the acquiring of large fees, which he can both demand and get from uneasy patients by supplying the initial treatment in the easily administered sulphonamide group of drugs.

The average practitioner is without most of the expensive equipment such as incubator, urethroscope, etc., required for tests of cure; furthermore, after the cessation of urethral discharge he has neither the time nor the interest to carry out final tests of cure, and the patient is discharged under the impression that a cure has been effected. The time has arrived for some form of legislation to prevent medical men who have not obtained recognized postgraduate experience from treating venereal diseases.—I am, etc.,

IAN MCLACHLAN.

Scunthorpe, Lincs. Medical Officer of Health and Venereal Diseases Officer.

Symptomatology of Malaria

SIR,—Since you kindly published my letter on the above subject (July 17, p. 86) I have discovered that the classification of the types of malaria used in hospital was drawn up by Sir Philip Manson-Bahr in his official Army instruction pamphlet for the guidance of medical officers. The classification proved so valuable that its author should be known.—I am,

D. M. M. FRASER.

Practice and Precept

SIR,—According to Dr. Charles Hill (*Journal*, May 22) the Minister of Health proposed that general practice should be conducted on a salaried basis. According to the *Manchester Guardian* (July 13), the Minister of Health as leader of the Liberal National Party, addressing the Post-war Policy Committee, said: "I must make it abundantly clear that we attach the utmost importance to a concerted and effective attempt to give free enterprise and initiative full play in the broad sweep of all our national plans."—I am, etc.,

S. WRAY.

Whole-time Security

SIR,—Your editorial on the forthcoming White Paper advocates a background of security for the whole-time research worker, and, quite rightly, postulates that this essential security depends on the research worker living on a whole-time salary. It is equally imperative that the general practitioner has a background of security—a security lacking now, a security only possible if the G.P., like the research worker, lives on a whole-time salary.—I am, etc.,

MERVYN ABRAHAMSON.

Health Centres

SIR,—It is probable that a majority of general practitioners are opposed to the provision of these centres, but I find a few of our colleagues have failed to consider all the implications. Some regard the centres as a convenient sop to Cerberus—a minimal concession to a general ill-defined desire for change. Perhaps in others there is a hint of petticoat government. Our wives would naturally welcome separation of the practice from the household. The prestige of the Peckham experiment may influence some—though this brilliant investigation in social biology was surely never intended as a blueprint for medical practice. More regular hours of duty and holidays without the worry of a locum must also be allowed their attraction. May I beg those who have been influenced by these or other considerations to allow:

First, the tremendous cost of building, equipping, and maintaining the centres (about 2,500 of them in the whole country on a basis of 10 doctors per centre and about 2,000 patients per doctor)—plus the wasteful duplication of pathological, radiological, and other specialist services as between the centres and the local hospital.

Secondly, that no matter what the initial arrangement may be, these centres will be bound eventually to bring us partly or wholly within local government provisions—surely it would be found in practice that the only competent authority for staffing, maintenance, and finance would be the local council. And this more logically since it is obviously intended that we should discharge some part of the responsibilities of the medical officer of health—particularly in regard to maternity and child welfare, though I am sure that few of us would be willing or qualified to undertake the work and do it efficiently.

Thirdly, that the provision of the centres would mean the end of general practice as we have known it. Until the inevitable collapse of the centralization policy there would be no man among the welter of specialists, medical officers and administrators whose job would be to know the whole patient in relation to his whole environment—a fact of great significance in the present state of medical knowledge, wherein some attempt at integration of scientific findings within their sociological and philosophical background would surely prove most fruitful for future advance. It will be argued that this is too dismal a view of results, but I am personally convinced that it would work out so in practice. Mrs. A would in the first case attend her own doctor at the centre—granted. But on her return visit for observation of progress she would find unfortunately she had picked her own doctor's day off. She would see Dr. B, who might advise some further investigation. At a subsequent visit she would find her own doctor was now absent on a compulsory refresher course (pace B.M.A. and the Interdepartmental Committee on Medical Schools) at Dr. B on holiday, so Dr. C would have to start from scratch. Later perhaps her doctor would be "posted" to another centre—and so on and on.

Lastly, should we not consider the convenience of our patients? Which of our patients would not rather go round the corner and see Dr. Jones at his morning surgery and be back in time to see to the family's lunch, rather than dress up to go down town to the centre and be sorted out like sheep into the appropriate pen?—I am, etc.,

JOHN R. M. SANGSTER,
Capt., R.A.M.C.

Obituary

C. J. S. THOMPSON, M.B.E., Ph.D.

Mr. C. J. S. Thompson, who died on July 14, was born at Liverpool on Aug. 27, 1862. Educated at Liverpool University, he devoted his early days to the study and practice of chemistry and pharmacy, with a special interest in the history of both these sciences. In 1909 he was appointed Curator of the projected Wellcome Historical Medical Museum and came to London to take up his duties. From that date until his retirement in 1926 he threw all his energy into gathering together and organizing the unrivalled collection housed at that time in Wigmore Street, W. In the course of arranging many noteworthy acquisitions he travelled extensively in Europe.

During the last war Thompson raised and trained two voluntary aid detachments of the British Red Cross Society, and established the "Holmleigh" Auxiliary Military Hospital, Harrow, of which he became the commandant. Many hundreds of British wounded passed through the hospital, and on its closing in 1919 Thompson was awarded the M.B.E. for his services. In 1927 the Royal College of Surgeons of England elected him honorary curator of the Historical Section of its Museum in Lincoln's Inn Fields, and in this position he worked untiringly until the collection was almost completely destroyed by enemy action in May, 1941. Fortunately Thompson had by that time finished his work on the *History and Evolution of Surgical Instruments* (New York, 1942), which placed on permanent record some of the Museum's most important exhibits.

The outcome of a life-long study of toxicology, C. J. S. Thompson's *Poisons and Poisoners* (1931) is a standard reference work. Outstanding among many other literary excursions into the byways of medicine, chemistry, and pharmacy was *The Art of the Apothecary* (1929). Already a member of the Royal Society of Medicine, Thompson became in 1936 a Commander of the Order of the Hospital of St. John of Jerusalem. For his researches in the history of medicine he was also elected an Associate of the Royal Academy of Medicine, Turin.

Dr. INEZ MEYER (Mrs. Struckman) died suddenly at her home in West Wimbledon on June 5. She was a student of the London School of Medicine for Women and the Royal Free Hospital, qualifying M.R.C.S., L.R.C.P. in 1926 and later graduating M.B., B.S. Lond. After holding several resident appointments she started in practice in West Wimbledon and still continued at intervals to help in hospital clinical work. In both hospital and private practice her keen interest in all branches of medicine, her sympathetic understanding and friendly cheerful personality were greatly appreciated by her patients and her colleagues, who mourn the loss of an excellent doctor and a valued friend. She was a devoted wife and mother, and to her husband and two young daughters our deepest sympathy is extended.—E. M. H.

The death took place at Reading on June 30 of Dr. CAMPBELL HIGHT, late of Ayr, aged 75. After graduating M.B., C.M. at Glasgow in 1892 he started general practice at Cardonald, later moving south to Wisbech, Worcester, and Reading, where he had practised for the past 28 years. For many years Dr. Hight lectured and examined in first aid and home nursing for the St. Andrews Ambulance Association, the St. John Ambulance Association, and the British Red Cross Society.

Mr. HUGH WRIGHT THOMSON, consulting ophthalmic surgeon to the Glasgow Royal Infirmary and Ophthalmic Institution, died on June 16. He was born in Glasgow in 1873, and from Allan Glen's School went on to study medicine at the University, graduating M.B., C.M. in 1895. He proceeded M.D. seven years later, after holding a number of house appointments at the Royal Infirmary and Glasgow Eye Infirmary. Mr. Wright Thomson had a distinguished military record during the last war, serving in Gallipoli, Egypt, Palestine, France, and Belgium as lieutenant-col., R.A.M.C.(T.), in command of the Lowland

Mounted Brigade Field Ambulance. His services were recognized by the award of the D.S.O. and the Territorial Decoration, and the Order of the Nile, 3rd Class. On returning to civil life he was appointed ophthalmic surgeon to the Bellahouston Hospital under the Ministry of Pensions and medical referee for ophthalmic cases in the Sheriffdom of Lanarkshire; and was also for a time senior oculist to the Glasgow Education Health Service. He had been a member of the B.M.A. for the past 45 years.

Dr. WILLIAM ELSLIE HENDERSON, of Carlton Place, Aberdeen, died on June 26, aged 71. He studied medicine at Aberdeen, Edinburgh, and Dublin, after graduating M.A. of Aberdeen University in 1893, and took the M.B., Ch.B. Aberdeen in 1898 and the D.P.H. of Manchester University in 1911. Before entering the Public Health Service Dr. Henderson had been resident house-surgeon at the Aberdeen Royal Infirmary and surgeon to Kirkcaldy Hospital. He was for some time M.O.H. and school medical officer for the County of Westmorland, and published articles on epidemic poliomyelitis in *Public Health* and on Westmorland school children in the *Caledonian Medical Journal*. In recent years he had served as temporary assistant county M.O.H. for the Lindsey part of Lincolnshire and lived at Horncastle. He joined the B.M.A. in 1898.

We regret to learn from Trinidad of the death of Dr. EDGAR NICHOLAS DARWENT, a very old member of the British Medical Association. Born in 1864, he studied medicine at the University of Edinburgh and graduated M.D. in 1887. In Trinidad he held the posts of resident surgeon at the two hospitals, and after retiring from the Government service had a consulting practice in Port of Spain, from which he retired owing to failing health four years ago. Dr. Darwent was the first chairman of the Northern Division of the local branch of the B.M.A.

Universities and Colleges

UNIVERSITY OF OXFORD

In the Sheldonian Theatre on July 24 a ceremony was held for the second conferment of the degree of M.U.Dr. upon Czechoslovak medical students who have completed their studies in England and passed the special qualifying examination conducted by the Examining Board in England of the Royal Colleges of Physicians and Surgeons. The degrees were conferred by the Vice-Chancellor, the Regius Professor of Medicine, and the Nuffield Professor of Therapeutics in the University of Oxford, which is acting as sponsor for those Czechoslovak universities which are closed under the German occupation.

UNIVERSITY OF EDINBURGH

A graduation ceremony was held on July 14, when the following degrees and diplomas were conferred:

M.D.—Surg. Lieuts. J. J. Crawford and E. L. Thomson, R.N.V.R.
M.B., Ch.B.—T. M. Abbas, T. L. Adamson, W. R. M. Alexander, R. P. Anderson, Catherine O. Bell, W. J. Bell, G. S. P. Birrwise, J. A. P. Bouton, D. C. Boyd, Janet Bruid, J. S. Brown, S. Campbell, J. A. Caskey, Jessica B. Cores, C. M. Cornforth, B. Cruickshank, J. M. Cuthill, J. A. Dick, R. W. Drayton, G. R. H. Drew, T. B. M. Dunn, J. C. Edgar, R. Elliott, Constance M. Evans, Ida M. K. Fenton, Mary G. Findlay, J. B. Gibson, G. T. Goodall, Jessie R. Gray, Sarah K. R. Gray, H. Mack, Guthrie, R. D. Guy, R. R. Hamilton, H. C. Hastings, Lorna H. Heslop, Miriam H. Heston, Elizabeth M. Hislop, D. R. Hughes, D. Hutchison, D. G. Illingworth, W. H. Isles, Isla M. S. Jamieson, J. C. Johnson, Kirsty M. F. Johnstone (née Barker), A. H. D. Leach, J. H. Lawson, D. S. Leitch-Ross, Audrey B. Lennie, W. M. M. Lyon, Margaret MacDonald, H. A. M. Duggie, Margaret M. McIntosh, A. M. MacLachlan, A. M. Macleod, A. D. Macquenn, D. J. L. McWatt, J. G. Martin, T. S. Matheson, M. Mendick, R. C. Milne, Patricia E. Mitchell, A. H. Morrison, J. A. Morton, Agnes P. Muir, W. D. Munro, W. Murdie, Janet T. Murdoch, G. H. Pearson, J. J. Pepper, Margaret G. Proudfoot, R. J. G. Rattrie, Monica M. Renner, Dorothy C. G. M. Reside, C. Rieley, G. I. Robertson, D. W. Robinson, J. Ross, D. Savory, D. I. H. Smith, J. G. Sommerville, R. J. C. Southern, Sheena G. D. P. Spence, Sheila M. Stark, Isabel F. Sutherland, M. Tait, H. B. Taylor, G. H. M. Thornton, A. R. Watson, R. W. Watson, Margaret Watt, Elizabeth G. Watts, T. B. Whiston, J. B. Wilson, L. A. Wilson, Olive Wilson (née MacMillan), Robert D. Young, B.Sc.—Margaret G. Proudfoot, M.B., Ch.B.
D.P.H.—J. B. Brown, J. O. H. Sizze.

1 Commended for thesis. 2 In absentia.

The following prizes were presented:

Entles Scholarship and Leslie Medal, Keith Memorial Prize in Systematic Surgery, and Beane Prize in Anatomy and Surgery: H. T. G. Strathbridge. Scottish Association for Medical Education of Women Prize, Dorothy Gillies Memorial Prize, and Murdoch Brown Medal in Clinical Medicine: Elizabeth M. Hislop. Mount Scholarship in the Practice of Physic: W. Murdie. Buchanan Scholarship in Midwifery and Gynaecology: K. J. R. Cuthbert. James Scott Prize: A. C. Macdonald. Royal Victoria Hospital Tuberculosis Trust Medal: D. J. C. Cunningham. Annandale Medal in Clinical Surgery: P. M. Roome. Parton Prize in Clinical Surgery: G. V. R. Born. Wightman Prize in Clinical Medicine: C. W. Shearer. Murethorn Memorial Scholarship in Clinical Medicine: R. Cruickshank. Gunning Victoria Jubilee Prize in Zoology: D. K. K. E. Kavan. Gunning Victoria Jubilee Prize in Physiology: A. E. Ritchie. Lewis Cameron Undergraduate Prize in Bacteriology: J. M. Leland. Colonel Thomas

Biggam Memorial Medal and Prize in Pathology: J. T. Gray. *MacLagan Prize in Forensic Medicine*: I. M. Richardson. *Cunningham Memorial Medal and Prize in Anatomy*: W. R. St. Clair; prox. acc., R. B. White. *Whiteside Bruce Bursary*: Jean M. Dance. *Vans Dunlop Prize in Botany and Zoology*: D. W. Lyon and Margaret Sirling (equal).

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the College, held on July 20, with Mr. J. W. Struthers, President, in the chair, the following, having passed the requisite examinations, were admitted Fellows:

C. P. Allen, G. W. Baker, D. T. Howell Evans, C. C. M. James, H. Lytton, I. S. McGregor, A. K. Mitting, James Reid, T. R. Simpson, G. F. F. Sinclair, M. Weinlos.

SOCIETY OF APOTHECARIES OF LONDON

At a meeting of the Court of Assistants held on June 22, with Sir Stanley Woodwork, Master, in the chair, Sir Hugh Lett was re-elected as the Society's Representative on the British Postgraduate Medical School; Dr. H. Seaward Morley as delegate to the Representative Committee of the British Medical Association; and Wing Commander R. R. Trail to represent the Society at the 26th Annual Conference of the National Association for the Prevention of Tuberculosis.

The following candidates have satisfied the Examiners in the subjects indicated:

PATHOLOGY, BACTERIOLOGY AND FORENSIC MEDICINE.—J. A. Baldwin, T. L. Benson, D. M. Carnegie, B. A. Gould, D. B. Lawrence, T. Moss, C. D. Sanders, R. M. B. Talbot, R. N. Thackston, W. M. Thomas, B. E. O. Williams.

SURGERY.—S. R. Abrams, A. M. Earle, P. L. G. Cole, C. M. F. Fiducia, I. D. Henderson, J. S. Pegum, A. G. M. Reese, C. D. Sanders, J. H. S. Scarlett, W. Sommer, C. T. Tahil, M. N. Tata, B. E. O. Williams.

MEDICINE.—J. A. Baldwin, R. F. Bates, T. L. Benson, D. M. Carnegie, C. M. F. Fiducia, B. A. Gould, I. D. Henderson, G. R. S. Jackson, D. B. Lawrence, T. Moss, A. M. Rajah, R. M. B. Talbot, B. E. O. Williams, S. Yaffie.

MIDWIFERY.—M. J. Beilin, C. P. Brown, J. D. Henderson, P. S. Hollings, D. B. Lawrence, D. D. Rosewarne, A. J. M. Reese, C. D. Sanders, M. N. Tata, F. R. Walker.

The Diploma of the Society was granted to T. L. Benson, C. P. Brown, D. M. Carnegie, P. L. G. Cole, P. S. Hollings, D. B. Lawrence, P. S. Pegum, A. J. M. Reese, W. Sommer, C. T. Tahil, R. M. B. Talbot, and B. E. O. Williams.

The Services

Major (temp. Lieut.-Col.) G. S. N. Hughes, I.M.S., has been awarded the D.S.O., and Capt. B. P. Tully, R.A.M.C., A. Qadir and R. S. Sahi, I.M.S., have been awarded the M.C. in recognition of gallant and distinguished services in the Middle East.

Capt. H. D. Eddy, R.A.M.C., has been awarded the M.C. in recognition of gallant and distinguished services in North Africa.

Capt. R. E. Johnson, M.B.E., and C. S. Smalley, R.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in Burma.

Capt. E. T. Gilbert, O.B.E., R.A.M.C., has been awarded the D.S.O. in recognition of gallant and distinguished services in the field.

CASUALTIES IN THE MEDICAL SERVICES

Killed as the Result of an Accident on Active Service Overseas.—Squad. Ldr. T. D. R. Aubrey, A.A.F.

Killed.—Capt. A. O. Karstaedt, R.A.M.C.

Wounded.—War Subs. Capt. H. C. W. Baker, R.A.M.C., Lieut.-Col. J. W. Orr, M.C., R.A.M.C.

DEATHS IN THE SERVICES

Surgeon Rear-Admiral Sir ARTHUR REGINALD BANKART, K.C.V.O., R.N., died at Kenbrook, Star Cross, South Devon, on June 19, aged 74. He received his medical education at the University of Edinburgh, whose degree of M.B., C.M. he took in 1892, and in 1905 he passed the D.P.H.Lond. His efficiency is also shown by the award to him of the Gilbert Blane gold medal in 1910. As early as 1899 he was appointed surgeon in Queen Victoria's yacht *Osborne* and was transferred to the new *Victoria and Albert* yacht in 1901, on which he served until July, 1914. On the outbreak of war a month later in that year he was appointed senior medical officer to the battleship *Agincourt*, and once more proved his efficiency at the Battle of Jutland and was noted for early promotion. In 1917 he became medical officer of the Portsmouth Marine Division and in 1919 more joined the *Victoria and Albert* yacht. He was promoted to be surgeon captain in 1920 and surgeon rear-admiral in 1923, and retired at his own request in 1924. At various times he attended members of the Royal Family, and was awarded the M.V.O. in 1898, the C.V.O. in 1911, and the K.C.V.O. in 1923, in addition to being appointed as Honorary Physician to the King. In the course of his distinguished service Admiral Bankart was awarded foreign orders by Turkey, Russia, Greece, and Denmark.

Medical Notes in Parliament

DECLINING BIRTH RATE

The trend of population was debated in the House of Commons on July 16, a discussion being arranged upon the votes for the Ministry of Health, the Department of Health for Scotland, and the Registrar-General's Office. Group Captain WRIGHT, who opened the debate, said it was difficult to interest people in the subject owing to the lack of a Government population policy and the difficulty of obtaining complete statistics. Yet the trend of the population was the base on which Ministers must initiate social improvements during the period of reconstruction. The nation must have a Government population policy and more complete statistics. Britain had over 2,000,000 fewer children under the age of 14 and 2,500,000 more persons over the age of 60 than in the last war. There were 1,500,000 fewer children than at the time of the Boer War and, in fact, fewer children than in any year since 1876, when the total population of the country was 24,000,000. In 1971, though the total population would be approximately the same as now, there would be 50% more people over the age of 45 than there were to-day, and 100% more people over 65. The number of people aged 45 and under would be only 75% of what it was to-day.

The net reproduction rate showed the number of girl children who survived to replace in the next generation the women of reproductive age in the present. Since the early 1930's the net reproduction rate had been about 75%. At that rate the nation must lose a quarter of its population every generation; which could be considered as being a period of 30 years. If the present death rate of those under 45 were halved it would still lose nearly a fifth of its numbers every 30 years. By 1971 the population would have declined by 25%. To prevent a decline it would be necessary to increase the average size of families by one in three at once, which was clearly impossible. Statistics had just been published by the Registrar-General to show that the birth rate for the March quarter had risen to 16.8, the highest for fifteen years. There was no mention that in 1917, after a precipitous decline of 26% during the first three years of the last war, the birth rate was then 17.8. During the last war, in spite of the great prosperity of the people, the birth rate persisted in falling. Not only in this country but almost throughout the world a declining birth rate had gone hand in hand with improved conditions. The most advanced countries, generally speaking, were those with the lowest rates. The removal of the unequal burden on the married man was the key to the whole problem if they agreed that children were a national asset.

Miss RATHBONE said the lowest birth rate of all was found among ministers of religion, doctors, and teachers. They represented the intelligent persons who were not willing to have large families in present circumstances. Only a few municipalities had introduced a scheme of rent rebates in respect of dependent children where the family income fell below a certain standard. Mr. JAMES GRIFFITHS said a large number of women had one child and refused to have another. It was essential to make motherhood safer. Another reason for the fall in the birth rate was that women increasingly desired a career and the social system compelled women to choose between a career and motherhood. A system must be devised whereby both were possible. Mrs. BEATRICE WRIGHT considered that many women were permitted under war conditions to stay at their work too long and to resume it too soon after their babies were born. Family allowances would meet this.

Fertility and Contraceptives

Captain ELLISTON said a modest start in dealing with the problem of declining fertility was made in 1937 when the Government brought in the Population (Statistics) Bill. That Bill had been treated with levity from the moment of its introduction. They were told that there was no evidence of increasing physical sterility, but that there was a deliberate policy adopted by parents to limit their families to one or two so that children could be brought up in greater comfort and security and with greater educational advantages. Some health experts said that by passing a Bill to prohibit the sale of contraceptives the problem would be settled. Others were not sure the availability of contraceptives was wholly responsible for the fall in fertility. Lord Geddes, during a discussion in the House of Lords, had suggested that the decline in fertility was a biological problem and that the germ plasma had ceased to be actively reproductive. Research had been made into similar symptoms in the case of pedigree cattle, and if pro-

cautions were taken with cattle, could not provision be made for research when the preservation of human beings was concerned? Scientists had not yet reported whether the long-term effect of contraceptives rendered women less liable to pregnancy when that condition was desired. These matters called for inquiry by some such body as the Medical Research Council, the Royal Society, or the universities. Dr. EDITH SUMMERSKILL said contraceptives had been prohibited in France for many years, but the birth rate was still declining rapidly. In this country the woman in industry had to go on working until far advanced in pregnancy because she did not receive National Health Insurance benefit. Service allowances were so small that she was forced to remain in industry. Maternity accommodation was overcrowded. The Government had done nothing in these matters.

Sir FRANCIS FREMANTLE said the declining birth rate had resulted in the loss of leaders. But those who condemned contraceptives lent aid to a tendency, which the medical profession knew too well, toward abortion, although not, as in ancient Rome, toward infanticide. Among the younger generation during this war sexual promiscuity seemed almost the rule in large cities. That was the natural result of contraceptives and of the urge of life if there were no spiritual or moral authority against it. The medical profession was alarmed because the use of contraceptives was believed to be responsible, though they did not know to what extent, for some of the unwanted sterility at present. It seemed clear that the virgin womb was affected by contraceptives with a sterilizing result. There was a great deal of unwanted sterility at present. They might discuss whether contraceptives should be distributed to the unmarried under a certain age, or sold only under a definite certificate from the justices or from the medical profession. Lady ASTOR said it had been known for years that out of 600,000 children born 25,000 were stillborn, that 35,000 died before the age of 1, and that 11,300 died between the ages of 1 and 2. Remedies were available for these evils.

"Exceptional" Rate of Last Century

Mr. ERNEST BROWN, replying to the debate, said it was true that information was incomplete as to the numbers of families with one, two, three, or other numbers of children, or as to differences in family patterns exhibited by different occupational groups. That information could be obtained only by a census, which would have been taken in 1941. With families broken up and dispersed as they were to-day, and with the large proportion of parents in the Forces, the information obtainable from a census would be of little value. That inquiry must be postponed until conditions became more settled, and then it would be made. It was a misreading of the problem to regard the reproduction rates of the nineteenth century as normal. The high reproduction rates then experienced in this and other Western nations resulted in exceptional growth of population, which had been characterized as "one of the great population surges of history." In Great Britain the population more than trebled during a hundred years, and thereafter increased to its present size of between 46,000,000 and 47,000,000, with a density in area which was the highest in contemporary record. If the nineteenth-century rate of growth had continued the population by the year 2001 would rise to 111,000,000. A check had to come sooner or later, and it did come. He would not say that that check had not gone perilously far, but there was no justification for expecting a further decline in the birth rate solely by reason of what happened in the different circumstances of the past.

Promise of Government Inquiry

The rate ceased to fall in 1933, and with the improvement in economic conditions after 1932 had shown a small increase since that time. The response of the birth rate to changes in employment had been marked over the whole period of 1924 to 1939. The curve of the birth rate followed that for unemployment with remarkable fidelity, showing that economics had a big effect. Between 1914 and 1918 birth rates fell precipitously, whereas in this war, though small decreases were recorded in 1940 and 1941, they were more than restored in 1942 by a rise to a position not previously reached since 1931. They had had six successive quarters in which there had been increases, and there was a prospect of further material improvement this year. That recovery had been aided by the high marriage rates, and these by raising the proportion of young married women in the population, must have prolonged influence on fertility. The vital statistics affecting mothers and young children had improved. Last year England and Wales had the lowest rates on record for maternal mortality, stillbirths, and infant mortality and the lowest death rate from diphtheria. That was a tribute to the co-operation of Government, local

government, and voluntary effort. In the fourth year of the war young children were healthier, taken all round, than they were in peacetime.

The Government intended to institute an inquiry on the broadest basis into the whole question of birth rate and population. The form of the inquiry and the terms of reference were matters for early decision. No such inquiry would be valuable without the full participation of women, and particularly of women who had experience of motherhood. A census would be taken at the earliest time when the Government was satisfied that it would gain a true result.

The debate then concluded.

Specialists in the Army Medical Services

On July 14 Sir JAMES GRIGG informed Mr. Rhys Davies that there were psychiatrists serving in the R.A.M.C. many years before the war, but the first new appointment after the outbreak of war was made on Sept. 8, 1939. There were 198 now serving. Since the beginning of the war about 23% of those discharged from the Army on medical grounds had been discharged for psychiatric reasons.

Sir James Grigg also informed Mr. Naylor that the following categories of specialists were employed in the Army Medical Services: physician, neurologist, physical medicine, dermatologist, physiologist, pathologist, psychiatrist, venerologist, hygiene, malarialogist, entomologist, surgeon, radiologist, ophthalmologist, oto-rhino-laryngologist, anaesthetist, neurosurgeon, maxillo-facial surgeon, orthopaedic surgeon, and gynaecologist. They were primarily engaged on their specialist duties. If there happened to be a shortage of general duty officers, they might, however, be required in addition to undertake general medical duty.

Detention Barracks Inquiry

Mr. MR. CHURCHILL, in reply to Mr. Bellenger on July 20, said that Mr. Justice Oliver had consented to be chairman of the Court of Inquiry into detention barracks. The other members would be the Bishop of Reading and Lord Moran. These three distinguished men, though belonging to very different vocations, all gained the Military Cross for gallantry in the last war, and were, therefore, acquainted with military matters. The inquiry would be held in private and not under the Tribunals of Inquiry Act, 1921. The report would be published.

Mr. SHINWELL: While not questioning the intelligence or bravery of the distinguished persons to whom the Prime Minister has referred, can he say whether any of them at any time have ever been incarcerated? Mr. CHURCHILL: That has never yet been made an indispensable condition for membership of a public inquiry!

The following are the terms of reference: To inquire into and report on the treatment of men under sentence in naval and military prisons and detention barracks in the United Kingdom, and whether it is in accordance with modern standards and satisfies wartime requirements. The investigation will cover, *inter alia*, the supervision and administration of discipline, medical care, training, welfare, accommodation, feeding, and the suitability and adequacy of the staff.

Pay of Mental Nurses.—Lord SNELL in the House of Lords on July 8 announced that a subcommittee in association with the Rushcliffe Committee would be appointed to draw up agreed scales of salaries and emoluments of nurses in mental hospitals and mental deficiency institutions in the light of the recommendations made by the Rushcliffe Committee. The chairman of the subcommittee would be appointed by Mr. Ernest Brown.

Reasons for Discharge from Army.—On July 13 Mr. HUTCHINSON asked the Secretary of State for War whether he would give instructions that the entry in the discharge papers issued to a soldier discharged as no longer physically fit for service would be so expressed as to make plain the reasons for discharge. Sir JAMES GRIGG replied that the inclusion on the discharge certificate of the specific nature of the disability would, in many cases, be to the detriment of the ex-soldier who in seeking employment was asked to produce his discharge documents. It was therefore considered that no change should be made in the present practice.

Batteries for Deaf-aid Appliances.—Mr. DALTON, replying to Sir Jocelyn Lucas on July 13, said he fully appreciated the importance of maintaining the supply of batteries for deaf-aid apparatus; and he was aware that, owing to urgent war contracts, there had been some shortage recently of certain types of batteries. He hoped that, as a result of arrangements which he had now made, the manufacturers would soon overtake arrears.

Notes in Brief

During a discussion in the House of Lords on the Catering Wages Bill Lord Snell said that hospitals, so far as kitchen staff were concerned, would come under the Bill like any other undertaking.

Legislation is under consideration to give effect to recommendations of the Interdepartmental Committee on the Rehabilitation and Resettlement of Disabled Persons.

Medical News

On June 1 Major-General Norman T. Kirk succeeded Major-General James C. Magee as Surgeon-General of the United States Army, and a few days later addressed the House of Delegates of the American Medical Association at its opening session in Chicago.

The Association of Speech Therapists will hold a conference on Thursday and Friday, Aug. 5 and 6, in the Hastings Hall at B.M.A. House, Tavistock Square, W.C. On Aug. 5 at 11 a.m. Dr. C. Worster-Drought will speak on "Congenital Auditory Imperception and its Relation to Speech Defects," and at 3.15 p.m. Dr. Helen Doris Watson on "Relaxation."

A special general meeting of the British Institute of Radiology incorporated with the Röntgen Society will be held on August 7 at 2.30 p.m. in the Reid-Knox Hall of the Institute, 32, Welbeck Street, W.

At a meeting recently in the Albert Hall Sir Peter Chalmers Mitchell, treasurer of the Joint Committee for Soviet Aid, handed to M. Maisky, the Ambassador of the U.S.S.R. in Great Britain, a cheque for £40,000 towards the Stalingrad Hospital Fund. More money is still needed for this, and contributions should be sent to the Joint Committee, 171, St. Stephen's House, Westminster, London, S.W.1.

The issue of *Archives of Surgery* for May, 1943, is dedicated to Dr. Robert B. Osgood, professor emeritus of orthopaedic surgery at the Harvard Medical School.

The Sixth Addendum to the *British Pharmacopoeia*, 1932 (see *Journal*, June 26, p. 797), will be published on Aug. 1, 1943, and become official from that date.

At the recent conference of the Liberal Party a resolution on "Land and Housing," asking that the Minister of Town and Country Planning should have adequate powers to make and enforce a national plan for necessary reforms, was amended without dissent to include "the progressive elimination of the smoke nuisance."

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week there was little change in the trends of infectious diseases, although measles notifications fell by 572. The returns for diphtheria were 28, acute pneumonia 28, dysentery 27, and scarlet fever 25 fewer than in the preceding week; the returns for whooping-cough rose by 35.

In the counties the largest falls in the measles figures were in Monmouth by 110, in Essex by 96, in Surrey by 70; and the only notable rise was that of Somerset, 38. The 71 cases recorded in Cambridge constituted the largest weekly total recorded in this country during the present epidemic. Since March, when the epidemic was at its height, the geographical distribution has changed, and the disease is now, proportionately, more concentrated in the South. The proportion of cases in the combined divisions of London, South-East, and South-West is now 35% of the whole country, compared with an average of 25% during March, while the proportion for the Yorkshire, North-West, and Northern divisions has fallen from 27 to 20%.

The only variations of note in the trends of the other infectious diseases were 39 fewer cases of scarlet fever in London and 35 more in Yorks West Riding; the notifications of whooping-cough were up by 52 in Yorks West Riding.

The fall of 27 in the notifications of dysentery has brought the total below the 100 level for the first time for eight weeks. A fresh outbreak occurred in the rural districts of Wiltshire, attacking 8 persons. There were 14 more cases in Bristol C.B. The other large returns were London 12 and Yorks West Riding 10.

In *Scotland* the incidence of measles was down by 137, of diphtheria by 45, and of whooping-cough by 39 cases; but that of scarlet fever rose by 8. The number of cases of dysentery remained unchanged at 64, the chief centres of infection being Edinburgh 12, Aberdeen 11, Dundee 10.

In *Eire* the rise in the notifications of measles was due to an outbreak in Co. Kerry, Gort R.D. 18.

The Week Ending July 17

The notifications of infectious diseases in *England and Wales* during the week included: scarlet fever 2,082, whooping-cough 2,150, diphtheria 571, measles 3,054, acute pneumonia 457, cerebrospinal fever 51, dysentery 160, paratyphoid 11, typhoid 11.

INFECTIOUS DISEASES AND VITAL STATISTICS

No. 27

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 10.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	49	4	26	3	3	87	5	37	3	5
Deaths	—	1	—	—	—	—	—	1	—	—
Diphtheria	580	45	118	59	30	768	34	131	50	25
Deaths	13	1	2	1	—	13	1	4	1	—
Dysentery	93	12	64	1	—	155	15	53	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	2	—	—	1	—	3	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	34	4	2	—	—	40	8	2
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	—	—	—	44	—	—	—	—	98	—
Deaths	42	10	8	14	9	45	5	9	4	7
Measles	3,593	168	97	29	3	7,361	737	231	97	201
Deaths	—	—	1	—	—	4	1	5	—	—
Ophthalmia neonatorum	82	3	22	—	—	106	4	29	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	12	—	1	—	—	8	—	5	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal*	502	19	2	—	6	625	39	1	—	5
Deaths (from influenza)	9	1	5	—	—	9	2	—	—	—
Pneumonia, primary	—	15	195	23	2	—	—	172	17	31
Deaths	—	—	8	—	—	—	—	13	—	—
Polio-encephalitis, acute	2	1	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	6	3	2	—	—	5	—	—	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	4	24	—	—	—	—	20	4	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	125	8	18	—	1	182	12	12	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1,959	132	209	40	44	1,297	59	288	51	22
Deaths	—	—	—	1	—	—	—	—	—	—
Small-pox	—	—	—	—	—	—	—	13	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	8	2	4	12	4	4	—	1	7	1
Deaths	1	1	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	2,284	100	94	28	30	1,390	127	21	55	2
Deaths	8	2	3	1	—	3	—	6	—	—
Deaths (0-1 year)	293	43	42	30	28	256	29	67	18	1
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding still-births)	3,591	560	601	194	115	3,574	482	582	158	12
Annual death rate (per 1,000 persons living)	—	—	13.5	12.8	+	—	—	13.1	10.5	+
Live births	6,418	762	995	386	275	6,144	650	872	386	25
Annual rate per 1,000 persons living	—	—	20.3	25.4	+	—	—	18.0	25.8	+
Stillbirths	172	20	28	—	—	215	19	26	—	—
Rate per 1,000 total births (including stillborn)	—	—	—	—	—	—	—	29	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be sent to the Secretary.

TELEPHONE NO. B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES—EDITOR, *Antology Westcent*, London; SECRETARY, *Mediscera Westcent*, London.

B.M.A. SCOTTISH OFFICE: 7, Drumshough Gardens, Edinburgh.

ANY QUESTIONS?

Risks of the Rh Blood Factor

Q.—What steps can be taken to avoid the death of the foetus where the father has the Rh-positive factor in the blood and the mother has not? How is the diagnosis made? Is it necessary to test samples of blood from both mother and father? What is the treatment? Does the treatment begin before the birth of the child? Is it wise to test every pregnant woman (i.e., primipara) for presence of Rh factor in the blood?

A.—At present no method is known of preventing anti-Rh agglutinin in an Rh-negative mother's serum from killing her Rh-positive foetus. It may be that, in future we can isolate a polysaccharide responsible for the specificity of the Rh antigen, its injection into the mother may neutralize her anti-Rh and prevent or diminish its harmful effect on the foetus. Although no treatment is possible before delivery, steps can be taken during pregnancy to insure that proper treatment is available if it is needed when the child is born.

Ideally the Rh position would be investigated in every pregnancy. That a woman is Rh-positive does not mean that she and her children are certain to be free from trouble caused by Rh. Erythroblastosis foetalis has been caused by an Rh-positive mother making an unusual type of anti-Rh which clumps the red cells of all Rh-negative and those of many Rh-positive persons, including the child's. This unusual antibody, anti-Rh, may be formed when the husband and the foetus, as well as the mother, are Rh-positive. Nevertheless, 90% of erythroblastic babies have Rh-negative mothers, and when a woman is known to be Rh-negative it is wise to remember this. Rh may cause erythroblastosis in a first baby, but only very rarely, and there is some evidence that when a first-born is affected the mother is most often Rh-positive. In the immediate future, at any rate, it seems that investigations will be confined mostly to cases where erythroblastosis has occurred or is suspected, or where there has been a series of miscarriages or stillbirths. Only one person in seven is Rh-negative; in one mating in eight the mother is Rh-negative and the father Rh-positive; and in one pregnancy in ten the mother is Rh-negative and the foetus Rh-positive. So it is clear that the Rh factor causes trouble in only a small proportion of the pregnancies in which the Rh groups make trouble possible.

To investigate a case samples of blood from mother, and, if possible, from father and all their children, should be tested for the ABO and Rh factors, and the mother's serum examined for the presence of anti-Rh or other irregular agglutinins. The Rh antigen is detected by the red cells containing it being agglutinated when mixed with anti-Rh sera. Mothers of erythroblastic babies or people who have had transfusion reactions due to Rh form the most convenient source of antisera. Anti-Rh or other unusual agglutinin in the mother's serum is sought by seeing whether the serum will clump red cells from a panel of donors chosen to cover the range of known antigens. Rh tests should be made in tubes and not on a tile or slide; some experience is needed to make and interpret them properly. With a suggestive history, finding that the mother is Rh-negative makes it very likely that erythroblastosis will affect the children; knowing that the father is Rh-positive increases the chances, and if anti-Rh is found in the mother's serum trouble is almost certain. When such findings are made during pregnancy it should be arranged that O Rh-negative blood is available in case either the newly born baby or the mother should need transfusions.

As soon as a diagnosis of erythroblastosis foetalis has been made—and where there is a previous history the cord blood should be examined at once—the child should be transfused with O Rh-negative blood. The blood should be injected into the veins, not into the muscles. The mother's whole blood, although Rh-negative, should not be used, for its plasma will almost certainly contain the harmful antibody. If no other negative blood is available, and if the ABO groups permit, the mother's cells washed free from plasma may be injected. If Rh-negative blood is not available from

any source the child may have blood from a group O donor taken at random, but such blood will usually be Rh-positive and may cause a transient jaundice. It is better to seek a donor among the mother's relatives than to use the father or his relatives—the chance of the donor being Rh-negative is greater.

Treatment of Tapeworm Infection

Q.—I should be very glad of advice on the treatment of a patient with a tapeworm (*Diphyllobothrium latum*). My routine has been to starve her to begin with, then to give alkaline drinks to remove mucus, and finally to administer extract of male fern. This treatment has on several occasions brought away large segments, but the head obstinately remains behind. If the tapeworm wins, I lose a patient.

A.—For two days before specific treatment food should be restricted to coffee, tea, toast-and-butter, breakfast cereals, eggs, and glucose. During these two days 1/2 teaspoonful of sodium bicarbonate stirred into a tumbler of water should be taken four times daily. On the day of treatment sodium sulphate, 200 gr., should be taken in hot water at, say, 7 a.m. This may be followed by a drink of hot tea without milk. At 8.30 a.m., 9 a.m., and 9.30 a.m. 30 minims of extract. filicis liq. should be taken. The patient must lie in bed during this time, and at 11 a.m. a further dose of sodium sulphate should be taken. If this fails to produce the desired effect, recourse may be had to carbon tetrachloride. The same preliminary starvation and purging should be carried out, and 3 c.cm. of the drug and 1 c.cm. of oil of chenopodium emulsified in liq. paraffin (30 c.cm.) should be taken. Carbon tetrachloride is not devoid of danger on account of toxic action on the liver. A saline aperient should be taken within one hour.

Ending Lactation

Q.—When for any reason it is not advisable for a woman to feed a child on the breast, will administration of oestrogens suffice to prevent lactation? What, for example, should be the dosage of stilboestrol in such cases, and for how long should it be given? Similarly, are oestrogens useful in terminating lactation at the usual time, and are supplementary measures advisable or to be preferred?

A.—Lactation can be prevented or suppressed with oestrogens in nearly every case providing the dosage employed is adequate. No supplementary measures are necessary. Begin treatment as soon as possible after delivery and give 5 mg. stilboestrol twice by mouth for the first day. Thereafter reduce the dose at the rate of 1 mg. a day, completing the course of treatment in ten days. Gradual reduction of the dose is important. Oestrogens are equally efficacious in suppressing breast activity at any time after delivery and even when lactation has been in progress for several months.

Sudden Loss of Hair

Q.—A newly retired schoolmaster, aged 64, two years ago and in the space of about 2 or 3 weeks suddenly became completely hairless. There has been no indication that the hair might be growing again since that time, and he still has no need of a razor. Apart from this he is apparently completely fit. Both he and I will be grateful for (a) suggestions for treatment, and (b) indications of the prognosis either with or without treatment.

A.—Total alopecia is usually the result of shock or severe acute anxiety. Apart from the very rare occurrence of Simmonds's syndrome following shock, there is no real evidence that this alopecia occurs via the hypothalamic-pituitary neuro-endocrine mechanism, although one is tempted to advance some such hypothesis. Against it, however, is the absence generally of any other endocrine manifestation. Further, hypogonadism, especially complete castration before puberty, is associated with little or no hair on the face and pubis, but much hair on the head, and a tendency to retain it throughout life. On the other hand, virile men with full sexual potency may go completely bald, and virilized women lose the hair of the head. From the endocrine point of view, therefore, there is a dissociation between the hair of the head and the hair of the face and pubis. From the point of view of treatment, testosterone might be helpful in restoring the hair of the face (and sexual potency if such were lost), but would have no effect on the hair of the head. Thyroid has been given traditionally, but it is doubtful if it is effective. Psychotherapy is indicated.

Hodgkin's Disease

Q.—A boy of 12 suffering from lymphadenoma has been relieved by operation followed by x-ray treatment. X-ray treatment is now suspended and the possibility of vaccine treatment is being considered, as this has been under trial for some time. Can you supply information as to the nature of the vaccine and where it may be obtained?

A.—Coley's fluid was probably the first bacterial inoculation used in the treatment of Hodgkin's disease and it is still occasionally employed. A few successes have been reported. The fluid contains

the combined toxins of *Streptococcus erysipellatis* and *B. prodigiosus*, and it should be obtainable from any large pathological laboratory. It is injected daily, in the neighbourhood of the glands if there is still any lymphadenopathy, in a dose of 0.25 to 0.5 minim, and if little or no reaction is obtained the dose is increased by 0.25 or 0.5 minim daily until a rise in temperature of 102° to 104° is reached. The injections are then continued till the reactions calm down and the temperature falls. Over ten years ago the view was advanced that Hodgkin's disease was a form of avian tuberculosis, and an antiserum was prepared by inoculating chickens with lymphadenomatous tissue. This serum was completely ineffective in treatment. More recently Gordon demonstrated the presence of an encephalitogenic agent in the glands in Hodgkin's disease and treated a few cases with a "sensitized vaccine" obtained from material from the glands. It is not generally believed that the encephalitogenic material is a pathogen, for similar material can be obtained from normal human marrow and occasionally from leucocytes. Preliminary reports of the treatment were not encouraging. Details of preparation of the vaccine were given by Gordon (*Proc. roy. Soc. Med.*, 1936, 30, 541), but it is not available commercially.

Visceral Lesions after Muscular Action

Q.—Is there any evidence that the contraction of the abdominal muscles which takes place in the lifting of heavy weights can cause any visceral lesion (such as gastric ulcer) in the male subject, apart from hernia?

A.—The relationship of visceral lesion to injury of the abdominal wall is one which is frequently under discussion in the law courts, usually without much "conviction" on either side. That violent injury to the abdominal wall can damage the underlying viscera is beyond doubt, but this question concerns the effects of muscular contraction. The great mobility of the majority of the viscera within the peritoneal cavity is a provision against injury as a result of muscular action, but with this protective mechanism adhesions might obviously interfere. It may therefore be fairly stated that it is highly improbable that such a disease as gastric ulceration could arise from parietal muscular contraction. But while it is impossible to state categorically that no visceral disease could in any circumstances be produced by muscular action, it is equally impossible to produce incontrovertible proof that such conditions can be so produced. In most cases in which it is alleged that the disease was the result of muscular action the truth is that the first evidence (pain or tenderness) of the onset of the condition was produced by some muscular contraction, but that the disease itself pre-existed. This is often demonstrated in appendicitis.

London Paste

Q.—Is it safe to use "London paste" for reduction or destruction of diseased tonsils?

A.—There is no particular danger in the use of London paste, which is a strong caustic, if care is taken to ensure that it is applied only to the surface of the tonsil and is neutralized by some weak acid after application. It produces a superficial slough, followed by fibrosis and scar formation which seals the crypts and causes retention of secretion in the remainder of the tonsil. Dissection of the tonsil afterwards is therefore much more difficult. Morell Mackenzie (*Diseases of the Nose and Throat*, vol. 1, p. 36, J. and A. Churchill, London, 1880) recommended applications on his spatula for granular pharyngitis. It does not appear that he either attempted to destroy the tonsils with it or recommended this. The answer to the question must be that there is no immediate danger to the patient, but that London paste cannot possibly succeed in a complete removal of the tonsil, leaves remote ill effects, and is not safe for the reputation of a practitioner who employs such a discredited method of treatment.

INCOME TAX

Deduction of Professional Subscriptions

E. B. holds an appointment at an E.M.S. hospital under the Ministry of Pensions. He has claimed to deduct sums paid as subscriptions to the B.M.A. and various other professional associations, but is informed that they are not allowable as he is assessed under Schedule E.

* It is understood that a Government Department does not require its officers to belong to the associations in question, and if so the subscriptions are not allowable for income-tax purposes. The question was before the Court in a similar case (*Simpson v. Tate*) in 1925, and a decision was given in favour of the Revenue's view that such an allowance is prohibited by the strict rule applying to Schedule E assessments. In his judgment Mr. Justice Rowlatt observed: "I think that all subscriptions to professional societies, and all taking in of professional literature, and all that sort of expense which enables a man to keep himself fit for what he is doing, are things which can none of them be allowed."

LETTERS, NOTES, ETC.

Plugging Tooth Sockets

Mr. F. ELLIOTT SMITH, M.R.C.S., L.D.S. (London, W.1) writes: With reference to the reply (July 3, p. 30) under "Any Questions?" to a query as to the treatment of haemorrhage after tooth extraction, may I refer to the reply of Mr. Angelman (Oct. 24, 1942, p. 504) to a series of letters on the plugging of tooth sockets, and ask, as he did, why it is done. Unfortunately, at the time it is effective. The after-effect, at the best, is an open socket to collect food debris; at the worst, an entry for infection with a risk of a "dry socket," which is painful and very obstinate to treat. In the majority of cases digital pressure on the sides of the socket and gentle firm pressure on a pad of gauze, with or without a composition splint, followed, if necessary, by a stitch or two, will stop the bleeding. The patient should be told to keep quiet, avoid stimulants, and not lie flat. With reference to the composition splint, prolonged vertical pressure on a pad is very apt to "mushroom" the socket and tissues again, and therefore the side pressure given by the splint is a help. Styptics and haemostatics are of doubtful value, with the possible exception of calcium prophylactically (a controversial point) and morphine, as part of the treatment. I would suggest, to the dental surgeon—avoid laceration; and to the doctor—that plugging should be forgotten and that pressure and stitching will be effective and better treatment. Haemorrhage due to blood and general conditions will call for different treatment—for example, transfusion given early. The dentist should himself treat the damage done, as the doctor will justly retort.

Two Cases of Epilepsy

Dr. A. W. DAVISON (Stretford, Manchester) writes: The occurrence of incontinence in the two cases of epilepsy referred to in "Any Questions?" (July 17, p. 93), during the attacks, suggests a diagnosis of narcolepsy. Try benzedrine sulph. 10 to 20 mg. or ephedrin. hyd. gr. 1/2 m. et n.

Public Vaccination

Dr. M. F. McDONNELL (Northfleet, Kent) writes: Perhaps in these days of petrol shortage the following suggestion may be of some use to public vaccinators, especially those with large rural districts composed mainly of isolated hamlets. I have found by experience that quite a large proportion of the mothers go out to some form of daily work, and that time and petrol are wasted on fruitless calls at their homes, when one is informed (provided one is lucky enough to find anybody at home) that mother has taken baby to work or "So-and-so's farm," etc. As soon as I am aware of the existence of a baby I send a stamped addressed postcard with the following on the reverse side:

- * Please call to vaccinate baby on
- * I do not wish to have baby vaccinated
- * Baby has been vaccinated by Dr.
- * Please cross out as necessary. Return card immediately.

I might add that more than 60% of the babies in this area are vaccinated.

First Aid for Fractured Spine

Mr. DESMOND MULVANY (Hospital of St. John and St. Elizabeth N.W.8) writes: With reference to Dr. Moir's letter (May 15, p. 614 regarding first-aid treatment for fracture of the spine, I consider that if there is to be any drastic change in the teaching on this subject the suggestion should come direct from the British Orthopaedic Association to the various organizations concerned, and not from any one individual. Alternatively these bodies could submit to the Association the present-day first-aid treatment, with which it is not necessarily familiar, and request that an alternative line of treatment should be drawn up if it was deemed advisable. Personally I consider the present St. John's teaching to be quite satisfactory. It deals with a difficult subject in a most concise and lucid manner; I feel that any further alternative methods would only confuse the issue.

Invasion of Earnigs

Dr. G. STEPHENS (Windsor) writes: In your *Journal* of July 11 p. 62, there is a reply to a question about an invasion of earwig. For many years I had been worried with invasions of these pests. The only relief I found—and it was a perfect cure against the insects in the house—was to paint a continuous line, about one inch in width, completely round the house, with "sticktite" or some other fruit-tree band preparation. If this line comes just below the door step it will not inconvenience anyone. But wireless earth wire and the stems of creepers or trees that may be touching the wall anywhere, must have their own ring of "sticktite."

Exchange of Raincoats

Mr. D. C. DICKSON, F.R.C.S.Ed., 10, Woodlands Road, Middlebrough, writes: Will the surgeon who took the wrong Warwicks Dunlop raincoat at the Royal College of Surgeons meeting (Wednesday, July 21, communicate with me, as I have his coat.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 7 1943

SOME PROBLEMS IN THE CONTROL OF INFECTIOUS DISEASES*

BY

ROBERT CRUICKSHANK, M.D., M.R.C.P., D.P.H.

The mortality from infectious diseases has declined steadily and steeply in the past half-century; yet to-day approximately one death in five is attributable, directly or remotely, to infection. The problem of the control of infectious diseases is a complex one, for "it includes all measures which decrease damage, whether physical, economic, social, or psychological, to the human host as a result of disease, and with no marker to indicate where actual preventive medicine leaves off and good clinical medicine begins." To assess the value of past measures and as a guide to further progress the bulk of infectious diseases in this country may be considered in four main groups: (1) *Acute respiratory infections*—the pneumonias, influenza, and the common cold; (2) *Tuberculosis*; (3) *Intestinal infections*; and (4) *Childhood fevers*—pertussis, measles, diphtheria, and scarlet fever, in that order of importance. But if all other streptococcal infections are added to scarlet fever that group becomes one of the principal causes of invalidity.

This list excludes at least two important groups—infections of the central nervous system, and venereal disease. Cerebro-spinal meningitis and poliomyelitis have each so complex an epidemiological picture that I have no space to discuss them here, while the control of venereal disease is such a controversial problem just now that I propose to leave it alone.

Acute Respiratory Infections

The Pneumonias.—There has been an irregular but appreciable decline in deaths from pneumonia since the beginning of the century, more so in the adult age groups than in the young and not at all among the aged; yet some 40,000 deaths are still attributable yearly to pneumonia and bronchitis. The introduction of sulphapyridine in 1938 brought high hopes that pneumonia would cease to be one of the captains of the men of death; but, in fact, deaths from this infection during 1939-41 were for England and Wales still 88% of the average figure for the previous four pre-sulphonamide years—1934-7 (Martin, 1942).

It may be assumed that most primary pneumonia in this country is due to infection with the pneumococcus, and pneumococcal pneumonia occurs in two clinical forms—lobar pneumonia, which is an infectious disease of older children and adults, and bronchopneumonia, which is largely an auto-genous infection of the very young and the very old. Hospital figures show a reduction in the case fatality of sulphonamide-treated lobar pneumonia to about one-third of pre-sulphonamide days; whereas in all Scotland, where deaths from lobar and other forms of pneumonia are differentiated, mortality from lobar pneumonia in the years 1939-41 was still three-fifths that of the 1934-7 period. These figures suggest that cases are being treated more effectively in hospital than in the home. If that be true—and too often the practitioner gives too small a dose for too short a period—then more hospital pneumonia units might well be established in industrial towns where the infection is prevalent. The factors which affect prognosis in lobar pneumonia, such as age of patient, infecting pneumococcus type, extent of lung involved, and bacteraemia, are

more readily determined in hospital, where appropriate dosage can be more easily arranged.

Such scanty data as exist on the sulphonamide therapy of bronchopneumonia indicate that a considerable reduction in mortality has been effected among hospital cases of primary bronchopneumonia in children; yet the figures from Scotland show that in the sulphonamide years there has been only a 15% reduction in mortality from "other forms of pneumonia," compared with a 40% reduction in lobar pneumonia. The explanation of this remarkable disparity is perhaps to be found in the differences between the two infections. Lobar pneumonia is an exogenous infection of lung tissue by a highly invasive pneumococcus in a healthy child or adult who either lacks some specific antibody or whose resistance is temporarily impaired, as by fatigue or an antecedent cold. The sulphonamides seem to be most effective against actively invasive pathogens, and this factor, together with the ready response of healthy tissues to infection, helps the individual to overcome the invading pneumococcus. Bronchopneumonia is usually an autogenous infection in a poorly resistant individual by pneumococci of low virulence. The infection affects primarily the mucous membrane of the bronchial tree, where the organism is badly placed to stimulate production of antibody and is less accessible to the drug. Moreover, the tissues of the very young and the very old are perhaps less able to kill a pathogen which the sulphonamide can only prepare for destruction. Thus the factor of non-specific resistance probably plays an important part in the successful administration of a chemotherapeutic substance.

The bronchopneumonia of the aged may often be an unavoidable terminal infection, but there is something far wrong with a nation's health which allows bronchopneumonia to kill every year 7,000 to 8,000 children under the age of 5 (see Table). Mortality from pneumonia at this age is four to

Table showing Deaths in Children, 0-5 years; England and Wales, 1938

	0-6 mths.	6-12 mths.	1	2	3	4-5	0-5
Pneumonia ..	2,943	1,961	1,581	514	256	167	7,452
Enteritis ..	2,129	891	275	39	36	24	3,414
Tuberculosis ..	118	258	414	264	196	127	1,377
Measles* ..	65	327	538	235	136	88	1,389
Pertussis ..	281	263	323	95	76	29	1,072
Diphtheria ..	25	48	107	215	296	320	1,011
Scarlet fever ..	2	8	26	46	25	49	156

* 1938 was a measles year.

seven times greater in industrial and working-class districts than in residential areas. Thus poverty is a principal predisposing cause; but which factor in poverty—poor nutrition, poor hygiene, poor environment, or way of life—is most important we do not know. Certainly rehousing does not *per se* improve matters much, and anyone who has read *Our Towns* (1943) will realize how difficult it will be to eradicate slum habits, with their evil influence on the health of young children. The higher infant mortality rates of the Northern industrial areas are largely due to an excess of deaths from respiratory infections, and here the harsher climate is an important contributory factor; yet Huddersfield has shown that these adverse conditions can be overcome. Provision for earlier and more frequent hospital treatment of young children

* A Chadwick Lecture, given on March 16, 1943.

with measles and pertussis in the industrial North would probably help to lessen this appalling mortality from bronchopneumonia.

Influenza.—Many of us are wondering if there is any likelihood of a pandemic of influenza in this Second World War similar to that which happened in 1918. The 1918 pandemic—the first of its kind to coincide with a major war—probably owed its origin to other factors than war-weariness, malnutrition, and the herding together of men; but its spread and its ravages were doubtless facilitated by these abnormal conditions. Any spark, in the shape of men drafted from an epidemic focus to war-stricken Europe, may set the flame alight again. In considering whether anything can be done to forestall or limit a possible pandemic, the following facts are relevant. Influenza is due to a number of viruses, of which two varieties have already been isolated and labelled influenza virus A and B. After a clinical attack, specific antibody, which can be readily detected by a simple test, develops to these viruses; many individuals during an epidemic develop antibody without being clinically affected. Thus by taking blood from representative samples of the population we can tell whether the community possesses a low or a high degree of resistance to the influenza virus. Ordinarily the virus attacks only those individuals with little or no immunity, and it is perhaps disturbing that there has been scarcely any epidemic influenza due to virus A or B in this country since 1937. Vaccines have been prepared from influenza virus A, and in controlled institutional trials they have, when used prophylactically, reduced the incidence of infection by about one-half. But in the presence of a highly virulent strain of pandemic propensities a moderate degree of immunity would probably be insufficient to protect against infection. Burnet and Clark (1942) in their excellent monograph advocate for such a contingency immunization by spraying the upper air-passages with a living but attenuated virus which could be quickly prepared in large amounts in chick-embryo. There is much to do along these lines, and every opportunity and encouragement must be given to laboratory workers to develop some such mode of defence. Until specific prophylaxis becomes practicable, strict quarantine is the only reliable means of protection, and in the event of pandemic influenza on the Continent an attempt to quarantine this island might be worth while; for, if even only partially successful, it might slow down the spread and thereby attenuate the virulence of the virus.

In the presence of a pandemic the wearing of efficient masks by those in close contact with infected cases will afford protection, while bactericidal mists or vapours (sodium hypochlorite, esorcinol, propylene glycol) could be used as aerial disinfectants in public meeting-places. Throat sprays and gargles are useless. With mucous membranes made highly susceptible, secondary infection is the great danger in influenza, so that initial cases should be isolated early, preferably in their own homes. Herding together of patients, as was done in 1918, courts disaster from secondary bronchopneumonia due to cross-infection with the streptococcus, staphylococcus, etc. If institutional treatment is unavoidable, wards must be kept well ventilated, beds widely spaced, and floors and bed-linen treated with oil (Van den Ende and Thomas, 1941). Best results in 1918 were claimed by those who nursed patients in the open with only a canvas canopy over their heads. There was little secondary pneumonia in the summer epidemic wave of 1918.

The Common Cold.—American analyses have shown that each of us has an average of three colds a year. Much invalidity from otitis media (10% in children under 5), sinusitis (6.6% in older patients), bronchitis (one-third of the cases), and pneumonia is directly attributable to the common cold. If colds have a varied aetiology, there is strong supportive evidence for an elusive filterable virus as a causative agent (see Browning, 1942): experimentally only chimpanzees have been successfully infected, and only one team of workers has aimed to have grown this virus outside the body, so that specific prophylaxis is as yet impracticable. Bacterial vaccines will not reduce the incidence but may lessen the risk of secondary infection. There is some evidence that physical well-being and a comfortable environment increase resistance to the cold. Avoidance of contact with infected persons is virtually impossible, but much can be done by education and propaganda

to make the ungarded sneeze as much of an antisocial habit as spitting now is. In factories and places of entertainment aerial disinfectants may prove to be most useful in preventing dissemination of the virus. And the public could reduce the risk to themselves and to their neighbours by staying indoors for one or two days when they fall victim to this common plague. It constitutes a great economic problem, which might commend itself to the new Nuffield Foundation.

Tuberculosis

The interruptions in the steady decline in mortality from tuberculosis during the First World War and again in the present one have brought home to us the need for greater and unrelenting attack on this infection, which because of its chronicity presents problems of control very different from those of the acute respiratory diseases. The Government wartime promise of more financial assistance to the families of affected persons is an enlightened step in the right direction. Over 90% of the deaths from tuberculosis result from contact with a case of "open" pulmonary infection, and for important points to remember if the downward trend is to be hastened are:

(i) Although most of the population are infected few become infective. Unlike most other pathogens, the tubercle bacillus has the peculiar property of burying itself in the body tissues, and on that minority of infected patients whose lesions break down spreads the disease to others. Yet it has been estimated that about 250,000 cases of open tuberculosis exist in the community (Wingsfield, 1942) and a large proportion of these are undiagnosed. Even among diagnosed cases there is an unduly long lag period between the onset of clinical symptoms and sanatorium treatment. In a recent series the average delay was 9 months, distributed as follows: 3½ months between onset of symptoms and reporting to the doctor; 3½ months before the doctor referred the patient to a tuberculosis dispensary and 2½ months before the patient was admitted to a sanatorium. Only 22% of the cases was sputum sent by the practitioner to laboratory for examination (Mann, 1943). Obviously the methods for earlier diagnosis and treatment of open tuberculosis need to be speeded up.

(ii) Tuberculosis is five times as common among intimate contacts of sputum-positive cases as among the general population, and tuberculous fathers are more common sources of infection for their children than tuberculous mothers. Thus the tuberculosis officer must concentrate on the family rather than on the individual, the detection of early infection among contacts becomes an important function of any tuberculosis service.

(iii) The most susceptible ages are infancy and adolescence. Among infants the infection is apt to become generalized and is fatal; a large proportion of the adolescent cases will, if diagnosed and treated early, join the ranks of the infective. Much stricter regard to personal hygiene would reduce the risk of infection to young children, as shown by the fact that no child in the Papworth Colony has developed tuberculosis. Meanwhile active efforts must be made to protect the susceptible children of tuberculous parents, and artificial immunization with vaccines B.C.G. or Wells's vole bacillus may supply the need. Data from American and Scandinavian sources show that B.C.G. vaccine is a safe and relatively effective means of protecting children, nurses, students in intimate contact with tuberculosis. For example Baudouin in an investigation of more than 2,000 children of sputum-positive parents over a period of 11 years found a tuberculosis morbidity of 31 per 1,000 among the vaccinated and 120 per 1,000 among the controls; the corresponding mortalities were 19 and 1,000, against 54 per 1,000 (see Hopkins, 1941). The problem of artificial immunization needs fresh consideration in this country where in the past 10 years our attitude has been too conservative and apathetic. Mass radiography must be used to detect and control early infection in the adolescent. This is a long-term policy, to be properly done the examinations should begin among children leaving school and be repeated at regular intervals.

(iv) Tuberculosis is closely associated with poverty, and nutrition is probably one of the most important factors predisposing to clinical infection. It is therefore essential that milk, one of the best of foods for children, should be cheap, popular, and pleasant as well as safe to drink. The cheap-milk schemes for mother and child and milk for school children must be continued and extended after the war. Milk-bars help to popularize milk beverage, and we may hope with Mellanby (1939) that "to get children instead of milk may come to be regarded as bad just as it is now considered bad for people to have unwholesome food."

The downward trend of tuberculosis probably owes more to decline in poverty and to improved hygienic conditions in the

munity than to the institution of tuberculosis services; for the mortality rates in other respiratory infections have gone down *pari passu* with that of tuberculosis, and tuberculosis has declined at the same rate in countries with and without public health tuberculosis schemes. It is therefore proper to inquire whether the best use is now being made of the tuberculosis service and to stress again that the tuberculosis officer must be social worker as much as expert diagnostician.

Intestinal Infections

Paratyphoid and Bacterial Food-poisoning.—Typhoid fever is not only becoming rare in this country (mortality has fallen in 60 years from 371 to 6 per million) but should now be easier to control, for the Vi-antibody test and new phage typing facilitate detection of sources, usually chronic carriers, of infection (Felix, 1943; Bradley, 1943). On the other hand, paratyphoid has been unduly prevalent in recent years and bacterial food-poisoning has probably also increased. These two infections are perhaps more closely related epidemiologically than paratyphoid is to typhoid (Savage, 1942). Typhoid fever in epidemic form is often water-borne. Paratyphoid is rarely water-borne, and has a summer rather than an autumn prevalence, usually following contamination of milk, cream, or prepared food by a clinically mild case or carrier. Persistent carriers of the *Salmonella* food-poisoning organisms are rare, but healthy and convalescent carriers are much commoner than was previously thought, and it may be that the human host spreads infection as much as the more commonly suspected rodent. The control of these infections is largely dependent on a high standard of personal hygiene among food handlers, together with improved methods for the protection of milk and prepared foods against infection from human or animal sources. The 1938 Food and Drugs Act decrees that persons employed in a room used for the sale of food are required to observe due cleanliness as regards themselves, the room, and all articles in it; while suitable washing-basins with a sufficient supply of soap, clean towels, and clean water must be provided for their use. It will require much patient education by the medical officer of health and his sanitary inspector to get these regulations observed in the spirit as well as the letter. It might help if all persons handling food for sale were warned by prominent notices of the essential necessity for hand-washing after use of the w.c. and for reporting to their employer any attack of diarrhoea, however mild. The protection by impermeable wrappings of prepared foods against soiling by hands, flies, and vermin also needs to be greatly extended.

Bacillary Dysentery.—There has in the past 10 years been an increase in the reported incidence of bacillary dysentery, mainly perhaps because of the wider recognition of its presence in this country. Even so, many mild and atypical infections are neither recognized nor reported. Case-fatality is ordinarily low, and the worst feature of dysentery in temperate climates is its great infectivity. The introduction of new culture media (Hynes, 1942) has greatly improved laboratory diagnosis and has shown how common are convalescent and symptomless contact carriers, who are a particular danger in wartime: the great increase of dysentery among our troops in France from 1916 onwards was probably related to the transfer of men from the Middle East. In civil life the day nursery, the residential school, the infirmary for the aged, and the mental hospital are the most common foci of infection, but the disease is now endemic in many communities. Fortunately, the new intestinal antiseptics sulphaguanidine and sulphasuxidine can be expected to effect both clinical and bacteriological cure, and the practitioner must realize that bacteriological cure is as important for the welfare of the community as clinical cure is for the individual. The disease is largely spread from case to case by infection of food, and good personal hygiene is again the most important means of preventing it.

Gastro-enteritis.—Infantile diarrhoea to-day levies only one-tenth of the toll exacted 50 years ago; but even now, although the dreaded summer epidemics have gone, it ranks second to pneumonia as a cause of infant mortality, with over 3,000 deaths per annum. Epidemiologically it may be summed up as an infection of artificially fed infants living in urban poor-class districts. The bulk of the deaths occur in the first year of life, and there is little doubt that the disease would practically disappear if all mothers breast-fed their babies for

six to nine months. The fact that only 30 to 50% of mothers feed their infants for even three months is due to a variety of causes. A longer period of rest after confinement, more home help, proper feeding of the mother, the care of the nipples before confinement, more frequent and complete emptying of the breasts during feeding to stimulate lactation and prevent infection through milk-stasis, and, in particular, education of both doctors and the lay public about the advantages of breast-feeding, would all help to secure proper lactation and thus save a large proportion of the 3,000 to 4,000 infants who die every year because they are not breast-fed. That is the long-term policy. Meanwhile the problems of the aetiology and treatment of gastro-enteritis require wide recognition and concerted attention from research teams of paediatrician, bacteriologist, and biochemist working in close co-operation. One point may be stressed: if infants with a liability to gastro-enteritis must be admitted to hospital the should be nursed by isolation technique in single rooms.

Childhood Fevers

Deaths from the four most important childhood fevers—pertussis, measles, diphtheria, and scarlet fever—have declined enormously in the past century. In particular, scarlet fever has ceased to be a killing disease, and now causes less than 5% of the deaths from these four fevers, compared with 40% some 80 years ago. The general decline in mortality has not been accompanied by a fall in incidence, and has occurred at different periods and at different rates for these four infection (see Gale, 1942-3). Deaths from scarlet fever fell precipitously between 1860 and 1900; there was an abrupt fall in the death rate from measles after 1915; diphtheria and pertussis have shown a more steady decline since 1900.

Pertussis.—I put pertussis at the top of the list for three reasons: (1) It is second only to diphtheria as a cause of death among children, and attacks about 70% of the child population, compared with 5% for diphtheria. (2) The protracted nature of the infection and its age of attack are such as to cause much debility predisposing to secondary infection. (3) It is a disease which by prophylactic inoculation can be either prevented or so modified as to cease to be a cause of death or a source of anxiety to parents. I prefer the name "pertussis" to "whooping-cough"; for the whoop comes late in the infection, and doctors and parents must be encouraged to suspect the disease long before it develops. Frequent spasm of coughing, congestive in type, occurring at any time of the day or night and unaccompanied by any physical signs in the chest, should suggest pertussis, and call for further examination. A white-cell count and a blood film at this stage will reveal a leucocytosis with a relative lymphocytosis of 60 to 80%. Confirmation can be obtained by use of the cough-plate, which however, is troublesome and time-consuming for the practitioner. A more practicable substitute is required, and a post-nasal swab inoculated on to a plate of Bordet medium along with an appropriate dilution of penicillin to inhibit other bacteria may supply the need (unpublished observation). With such a method doctor or nurse can take the swab in the home clinic, or nursery, and send it for examination in much the same way as is done for diphtheria. Early diagnosis means early segregation, which not only benefits the affected child but reduces the risk of infection to others. Pertussis is difficult and trying illness, for the mother to nurse at home and a larger proportion of cases than at present should be removed to hospital. But in hospital toddlers should not be confined to bed, for plenty of fresh air and exercise to ventilate the lungs are essential for the treatment of pertussis. Collapses and atelectasis are as common complications as bronchopneumonia, and so long as the children are properly clothed and fed they should be outside most of the day and should sleep on open balconies at night. It is important, too, to impress on doctors and parents that a whooping child has usually passed the infective stage. Hospital beds to the required number cannot be provided if the child is isolated until the whoop disappears.

Prevention is better than cure, and prophylactic vaccination against pertussis is now a practicable and reasonably effective procedure (see Cruickshank, 1942a). Most of the field trials of specific prophylaxis have been carried out in America, where

large weekly injections for three, four, or five weeks, totalling 80,000 million to 100,000 million organisms, have been given. This involves administrative difficulties, and lately a well-controlled experiment by Bell (1941) has shown that two 10,000-million doses of an alum-precipitated vaccine at a month's interval will secure as good results as the more frequent weekly injections. Important points in the prophylaxis of pertussis are the use of a smooth-phase organism, large and slowly absorbed doses, and an interval of four weeks or more between the injections. It might seem an obvious forward step to use pertussis vaccine and diphtheria toxoid together for combined immunization against these two infections; but we must remember that the age of attack for pertussis is much earlier than that for diphtheria, and in fact about half the deaths from pertussis occur in the first year of life (see Table), so that immunization should, if possible, begin at the age of 3 months. Mothers welcome the idea of protecting their children against this disease, which they know from personal experience to be a protracted, worrying, and debilitating infection.

Measles.—The mortality from measles, even allowing for the diminishing population of children under 15, is to-day about one-quarter of what it was as recently as 20 years ago. About two-thirds of the deaths occur between the ages of 6 months and 2 years, mostly from secondary bronchopneumonia, so that the main problem in measles is to postpone the age of attack or modify the infection in young susceptible children. Complete protection is possible by the use of pooled convalescent serum given in 5-c.cm. doses within five days of exposure, but, except in hospital, the date of exposure is seldom known and convalescent serum is difficult to obtain, so that this method is not generally applicable. Besides, it confers only temporary protection for two to three weeks. A modified attack by giving a smaller dose of serum is preferable, but the same difficulties confront us. Thus to protect the young child from measles the choice lies between active immunization and avoidance of exposure. Stokes and Rake (1940) have grown measles virus on chick-embryo, and apparently protected monkeys and human volunteers by intranasal or subcutaneous injection of a virus vaccine; Mayer (1941) could not confirm the protection experiments. Research workers in this country will no doubt concentrate some of their post-war energy on this vital problem.

Avoidance of exposure is for the urban child virtually impossible, but some recent work suggests that it may be possible to postpone the age of attack. Measles, as Chapin pointed out many years ago, is an infection spread mostly from school. In Philadelphia irradiation of the ceilings of junior classrooms with ultra-violet light apparently prevented the epidemic spread of measles among the irradiated classes (Wells, Wells, and Wilder, 1942). If in this way measles among school children could be shifted from the younger to the older age groups, the chances are that the younger members of the family would be over the age of 3 years before being intimately exposed to infection brought back from school by their older brothers or sisters.

The increasing tendency to admit children with measles to hospital can only be commended if home conditions are such that the child cannot be properly nursed at home, the case removed early, and preference is given to children under the age of 3 years. The respiratory mucous membrane in measles is particularly susceptible to attack by the haemolytic streptococcus and the pneumococcus, and wards are apt to be overcrowded during an epidemic, so that cross-infection, with resulting otitis media and other complications, is more likely to occur in hospital than at home. If measles is to be nursed in hospital, precautionary measures such as adequate ventilation and bed-spacing and oiling of floors and bed-linen must be taken in order to minimize the risk of secondary infection.

Diphtheria.—The value of active immunization against diphtheria is now generally accepted, and the active campaign initiated in 1940 had already by the middle of 1942 resulted in 73% of school children and 58% of pre-school children in Scotland being inoculated; and as deaths from diphtheria in Scotland in the first three-quarters of 1942 were less than half those in the corresponding period of 1940 it seems that the campaign is already producing results. The need now is

to concentrate on the pre-school child and to make inoculation at the age of 1 year a routine social habit for all children. I should like to draw attention to two points:

(1) Infection by the more actively invasive strains (*gravis* and *intermedius*) may occur in the inoculated. Clinically such infections are usually mild, and could be called diphtheritic tonsillitis, for local inflammation without toxæmia is the characteristic feature. But it is well that both doctor and parent should know that prophylactic inoculation does not necessarily mean complete protection. (2) Diphtheria is a difficult disease to diagnose clinically. If there is any doubt, antitoxin should be given as early as possible, and the practitioner should know that with modern refined antitoxin there is little risk of serum reactions. Arrangements should also be made for doubtful cases to be admitted for observation to hospital. On no account must antitoxin be withheld until the bacteriological report on a swab is received.

Scarlet Fever.—A problem requiring careful thought is whether the notification and hospitalization of scarlet fever is at present justifiable when in many instances the only difference between streptococcal tonsillitis and scarlet fever is that the patient with tonsillitis is immune to the erythrogenic streptococcal toxin and the other is not. Scarlet fever is to-day a mild disease, and where conditions are suitable cases could more often be nursed at home, particularly as in hospital the bulk of the complications are due to cross-infection. Forbes (1936) of Brighton showed that at least as many secondary or return cases followed the case isolated in hospital as did the case nursed at home. Another controversial problem which has considerable economic importance is the value of home disinfection after scarlet fever. The furnishings of a room where a case of streptococcal infection has been nursed are likely to harbour haemolytic streptococci, and when the patient leaves it the room should theoretically be disinfected; but Forbes's figures suggest that the patient is the most important focus, and many of the family contacts will already be infected before he is removed to hospital.

If scarlet fever is now a relatively mild infection the haemolytic streptococcus is still the most common pathogen concerned in cross-infection in hospital wards. Most of the complications of scarlet fever and measles, institutional outbreaks of puerperal sepsis, and secondary infection of wounds, and much of the sepsis in E.N.T. wards, are traceable to cross-infection with this organism. The solution of this problem requires a reorientation in our ideas about sources and channels of spread, and much co-operative effort between medical and nursing staff (see Cruickshank, 1942b).

Improvement in Methods of Control

This bird's-eye view of some of the problems in the control of infectious disease suggests that there is much work to be done, and that more efficient machinery is needed for the purpose. A periodic review of the methods for tackling these problems is essential if progress is to be made. Their solution may be considered under the headings of administration, education, structural improvements, and general preventive measures.

Administration.—The health services must be directed by executive and advisory committees, which will deal intelligently and progressively with the problems of public health without having to worry about local rates and taxes. Each community will be larger than that served by many existing local authorities, and preventive medicine will be intimately linked up with other branches of medicine. In each area there must be a field epidemiologist working in close collaboration with an up-to-date laboratory and with his energies directed to tracing causes of morbidity and mortality in various infections, advising about means for their prevention and control, and educating both practitioners and the public to co-operate with him to this end. How much can be done along these lines was exemplified in Rôchdale, where the medical officer of health, with full co-operation from practitioners, instituted a campaign which resulted in a marked reduction in maternal mortality rates. A more precise example has lately been afforded by the work of Bradley (1943) in tracing to a common source apparently unrelated sporadic cases of typhoid fever. Unfortunately, very few of our medical officers have been trained for this kind of work.

As a bacteriologist I am naturally concerned that an adequate laboratory service should be available in all areas and readily accessible to all practitioners. The parent laboratory should preferably be associated with an infectious diseases hospital of at least 150 to 200 beds and resident medical staff. In sparsely populated areas the I.D. block should be within the curtilage of a general

hospital with a joint laboratory, for public health bacteriology need not be divorced from clinical pathology. The essential point is that there should be a real liaison between practitioner and bacteriologist instead of the impersonal postal service which is still too prevalent.

Education.—A most important factor in the control of infectious disease is education of the public in higher standards of personal and public hygiene. This education begins with the pre-school child, and for the purpose there must be a greatly increased number of nursery schools for children between the ages of 3 and 5. At this age the child can be taught good habits and, more important, may be prevented from acquiring the bad habits which are inevitable so long as slum-life is tolerated. At elementary schools more facilities must be given for the growing child to maintain the good habits which it has learned at nursery school. There is not much point in teaching a child cleanly habits, such as washing the hands after using the w.c. or before taking food, while sanitary arrangements at most schools are so unsatisfactory. For more senior pupils physiology must be taught, either by qualified teachers or by the school medical officer, whose duty it is to look after the health and physical development of the child. Incidentally, medical care of the child is a dynamic, not a static affair, and the same medical and nursing staff should be in close touch with the growing child from birth till he leaves school. Further, the sympathy and active co-operation of the teaching profession are essential for the proper discharge of school medical work. Classes in mothercraft should be run at evening schools for adolescent girls and at welfare centres for those who are already parents. A more extended service of health visitors, who must be specially selected and fully trained nurses, would also help in teaching parents the simple rules of hygiene, while the cinema is an excellent medium for health propaganda. Education of the medical profession will include more preventive medicine in the curriculum and frequent refresher courses for those who are already in practice.

Most of us are ignorant of the best methods for disseminating this new health education, and I should like to commend a more general utilization of the Central Council for Health Education, an independent body supported partly by a grant from the Ministry of Health and partly by financial help from local authorities which make use of its facilities. This body has been studying the principles of health education, and has a team of experts who are ready and willing to give help and advice on the many problems of health education and how they can be "put over" to the lay public.

Structural Alterations.—The first essentials are well-designed labour-saving houses in pleasant surroundings for the poorer classes. But with these must go a determined effort to eradicate the slum way of life, which has again been so terribly indicted in *Our Towns*. "Good food is easier to come by than a good home." To lighten the load of the mother with young children day nurseries may have to be continued after the war, although from the point of view of infection they are not unmixed blessings. If they are to prosper, methods for controlling the spread of infection in day nurseries, and, less urgently, in nursery schools, must be devised. Schools need better ventilation, lighting, and spacing, and adequate sanitary arrangements, including wash-hand basins. Hospitals for infectious disease should contain as a minimum 150 to 200 beds, of which upwards of half must be single-bedded chambers for isolation; wards must be small, containing 4 to 12 beds, and be well supplied with wash-hand basins, sterilizers, and the like.

General Preventive Measures.—The most important of these is better nutrition. To that end every mother of a family must have enough money to buy the necessary food, and must be taught what foods to buy and how best to cook them. In this connexion the Ministry of Food is doing a grand job of work, which must be continued after the war. Improved nutrition does not necessarily protect against infection, but when infection occurs its severity is often modified and the risk of complications lessened if the child's general nutrition is good. For example, deaths from measles between the ages of 1 and 2 years are 18 times as frequent among the poorest classes than among the well-to-do, yet measles attacks the poor and the rich alike, and this great discrepancy in mortality must be attributed to the conditions that go with poverty, of which malnutrition is one of the most important.

Improved methods of dealing with water-supplies and sewage have greatly reduced the incidence of intestinal infections. There has been no corresponding diminution in the incidence of respiratory infections, which present a much more difficult problem, although with our newer knowledge a greater measure of control should be possible. Some—e.g., diphtheria, small-pox, and pertussis—can be specifically prevented by prophylactic inoculation, and it may be that influenza and measles will be added to the group. Meanwhile we must consider whether exposure to air-borne infection can be reduced by preventing the spread of infected dust and by the use of aerial disinfectants. Infected dust in hospitals can be controlled by oiling of bed-linen and floors, a procedure which is particularly desirable in wards where there is a considerable risk of bacterial cross-infection (scarlet fever, diphtheria, and secondary infection in measles and influenza). Aerial disinfectants are probably more

applicable to the control of respiratory virus infections, and the extended use of ultra-violet light, or of bactericidal mists and vapours, in hospitals, schools, cinemas, and other places of assembly might reduce the incidence of such common air-borne infections as the cold, influenza, measles, and chicken-pox.

Conclusion

Chadwick was a great sanitary reformer who impressed on our people the close association between poverty, dirt, and infection. In our day, as in his, poverty, dirt, and may I add ignorance, are still the most important contributors to the ravages of infectious disease. He looked forward to the time when sanitary reforms would eliminate the need for doctors. That day is probably still far distant, but meanwhile we can all, by taking thought, help towards making ours a health-preserving as well as a healing profession.

REFERENCES

- Bell, J. A. (1941). *Publ. Hlth. Rep.*, Wash., 56, 1535.
Bradley, W. H. (1943). *British Medical Journal*, 1, 438.
Browne, C. H. (1942). *Control of Common Fevers*, p. 168, London.
Burnet, F. M., and Clark, Ellen (1942). *Influenza*; Monograph No. 4, Eliza and Walter Hall Institute, London and Melbourne.
Cruikshank, R. (1942a). *In Control of Common Fevers*, p. 139, London.
— (1942b). *Publ. Hlth.*, 56, 17.
Felix, A. (1943). *British Medical Journal*, 1, 435.
Forbes, D. (1936). *Lancet*, 5, 1438.
Gale, A. H. (1942-3). *Proc. roy. Soc. Med.*, 38, 97.
Hopkins, J. W. (1941). *Amer. Rev. Tuberc.*, 43, 581.
Hynes, M. (1942). *J. Path. Bact.*, 45, 193.
Mann, B. (1943). *British Medical Journal*, 1, 283.
Martin, W. J. (1942). *Ibid.*, 2, 540.
Mayer, J. B. (1941). *Arch. Hyg. Bact.*, 128, 285.
Mellish, Sir E. (1939). *Recent Advances in Medical Science*, London.
Our Towns: A Close-up (1943). London.
Savage, W. G. (1942). *J. Hyg., Camb.*, 42, 393.
Stokes, J., and Rake, G. (1940). *Science*, 92, Suppl. No. 2356, p. 10.
Van den Ende, M., and Thomas, J. C. (1941). *Lancet*, 2, 755.
Wells, W. E., Wells, M. W., and Wilder, T. S. (1942). *Amer. J. Hyg.*, 35, 97.
Wingfield, R. C. (1942-3). *Proc. roy. Soc. Med.*, 38, 39.

EARLY TREATMENT OF WAR WOUNDS OF THE UPPER PART OF THE FACE*

BY

MICHAEL C. OLDFIELD, D.M., M.Ch., F.R.C.S.

Major, R.A.M.C.; Hon. Assistant Surgeon,
General Infirmary at Leeds

The functions of seeing, breathing, eating, and the expression of emotion may all be seriously compromised as the result of wounds of the face and require surgical restoration. As, however, this paper is confined to the treatment of severe wounds of the upper part of the face, the function of eating need not be discussed further.

First aid in the field or forward dressing stations may first be described. When a high-velocity missile hits a soldier in the face he often feels only a local burning sensation, but he may be knocked to the ground. He then finds blood pouring from his wounds, and this bleeding is often so profuse that it may interfere with his vision or breathing. When he is picked up, a large dressing is, inserted into and over the wound, and the affected part of the face firmly bandaged. This will usually suffice to stop the bleeding, but it is also of importance to shield his blood-stained and horrifying face from the gaze of other soldiers and patients. Though wounds of the face bleed furiously immediately after they have been inflicted, bleeding as a rule stops spontaneously in quite a short time, especially if a large shell-dressing is firmly applied and morphine is administered early. If blood runs back into the mouth or nose and causes difficulty in breathing, the patient is placed on his side or prone on the stretcher.

At the C.C.S., primary operative treatment and transfusion may be necessary. Facial wounds require more thorough cleansing than others because they are never excised and because it is important to avoid subsequent tattooing and "powder marks." They are washed or even scrubbed with soap and water, and irrigated first with peroxide and then with saline or acriflavine. Pieces of dirty clothing, visible metallic foreign bodies, and completely detached fragments of bone are removed. If a fragment of bone is attached to any

* A short address given in opening a discussion upon the early treatment of wounds of the upper part of the face at a conference of medical officers in the Middle East on Feb. 27, 1942.

soft tissue it must not be sacrificed, because it will probably survive, and its removal will be followed by deformity of the framework and contour of the face. In most cases the wound is filled by means of an insufflator with sulphanilamide powder or, better still if obtainable, sulphadiazine or a mixture of sulphathiazole and sulphanilamide. It is then covered with tulle gras and a large pad of saline gauze.

If there is a perforating wound into the mouth with loss of tissue, skin is sutured to mucosa round the edges of the defect. This requires great surgical confidence and courage, and many will be sorely tempted to draw the wound together under tension with a few big stitches, taking wide bites of the skin. That temptation should be boldly overcome, as this is the worst possible surgical treatment. A facial wound should be sutured only if it is recent and there is no skin loss; in which case fine silk stitches are inserted, taking minute bites of the edges but broad bites of the deeper layers of the skin. In this way accurate apposition and eversion are achieved. Stitches in the face are all removed two or three days after their insertion. If this routine is not feasible the wound must be left wide open; for Nature's scar on the face is far preferable to the one which follows meddlesome surgery. A natural scar can always be repaired later by some plastic procedure, but an operation scar with cross-stitch marks is irreparable. It is important to remember also that successful plastic repair can only be assured if the foundations of contour are restored. Defects in facial contour caused by deformities of the bony framework are repulsive because they often produce caricatures of normal expressions. For instance, a permanent grin on one side of the face is grotesque—provoking horror, which a surface-scar line rarely does, though it may be ugly. The first consideration, therefore, in making any "plastic diagnosis" must be the bony framework. This "plastic diagnosis," so often stressed by Gillies, is the estimation of displacement, or loss of tissue, first in the bony framework or contour supports, secondly in mucosal linings, and last of all in the skin covering. Moreover, the first stage in plastic treatment consists in planning beforehand the order and method of replacement of lost tissue or realignment of normal tissues, in relation also to the framework, lining, and covering of the face.

In applying these principles of plastic surgery four special areas may here be considered: the forehead and frontal sinuses, the orbital region, the nose and ethmoid sinuses, the cheek and maxillary antra.

Forehead and Frontal Sinuses

Wounds of the upper part of the forehead, when associated with fractures of the skull, are treated by the general surgeon or neurosurgeon in the early stages, but cases are often referred some time afterwards to the plastic surgeon, for repair of a deeply cupped scar of the forehead following a depressed fracture. In the plastic treatment of these cases scars are excised and the skin flap is most carefully separated from the underlying dura. The margins of the bony defect are defined on both surfaces. A suitably curved segment of the inner table of the iliac bone, with the smooth concave inner face towards the dura, is then inserted into the defect and fixed in position by stainless-steel-wire sutures. The skin flap is replaced after the contour has been repaired.

In treating a recent wound of the lower part of the forehead involving the frontal sinus, the posterior wall of which is intact, it is advisable to remove all loose fragments of bone and clot from the sinus and to drain it into the nose through a small rubber tube surrounded by a razor-graft taken from the inner arm. In a few cases the forehead wound may then be closed without external drainage, but in most gunshot wounds with severe comminution and loss of tissue this is impossible and the wound must be left wide open.

When the posterior wall of the frontal sinus is fractured and the dura torn, repair of the dura by a fascia lata graft, using a transfrontal approach, is necessary, and the case should be transferred at once to the care of a neurosurgeon.

Orbital Region

In the orbital region, plastic surgery starts after the ophthalmic surgeon has examined the eye and when he has carried out any treatment necessary for the eye itself. In fact,

close co-operation with the ophthalmic surgeon is essential during all stages of plastic repair. Wounds of the orbit will be discussed under the headings of deformities of the bony margins, and deformities involving the soft tissues—i.e., eyebrows, eyelids, eyelashes, and the eye-socket.

Bony Margins.—If portions of the orbital ridges are displaced they should be reduced as soon as possible even if quite loose. If any soft tissue remains attached to these fragments the bone must be retained. On the other hand, if there has been loss of bony tissue or a long delay in replacement it is usually wise to insert a small iliac-bone graft. When the supra-orbital margin is missing the graft is inserted through an incision in the eyebrow; when the infra-orbital plate is defective an incision is made behind the hair line in the temporal region.

Eyebrows are replaced by Wolfe grafts from the post-auricular region on the same side. In making the bed to take these grafts, a small triangle of scar tissue is excised from the medial extremity of the wound and the outer angle is tapered. It is most important to implant the graft so that the hairs are growing downwards and outwards, and it is also wise to warn the patient that the hairs transferred in the graft will all fall out, but will be replaced by others in three months' time.

Upper eyelashes are made by a Wolfe graft from the opposite eyebrow, the lower lashes from the eyebrow on the same side.

Eyelid deformities without severe loss of tissue may be repaired most satisfactorily by excision of the scars, division of all adhesions, and then sliding lateral flaps so that one is fixed above the other. Vertical suture lines in the eyelids should be avoided, and subcuticular catgut stitches are generally used. When, however, there is a severe loss of eyelid skin causing ectropion—for instance, after a burn—skin-grafting is always indicated. In second- or third-degree burns of the eyelids, razor-grafting associated with tarsorrhaphy should be undertaken as soon as possible as an emergency procedure to prevent corneal ulceration. When ectropion results from scar contracture in burn cases, Thiersch grafts should be applied on accurately fitting Stent moulds for the upper lids, and the inner side of the upper arm is the most suitable donor site. When used for the lower lids, however, this type of graft tends to look rather pale or parchment-like. A Wolfe graft taken from the back of the ear gives the best results for the lower lid. When ectropion is established, both upper or both lower lids may be grafted at the same operation, but it is rarely possible to obtain the necessary over-correction if the upper and lower lids on the same side are grafted on the same occasion, except in a patient who has been recently burnt. In burn cases it is most important to over-correct the ectropion and to divide all adhesions, and it is wise to let in one and a half to twice the area of skin which appears to have been lost. In burn cases the usual mistake is under-correction; over-correction is extremely rare. Contraction of the graft occurs always, but "puckering of the graft" may be prevented if grease massage is started 10 to 14 days after operation.

When the eye has been lost and the remaining socket is too small to retain an elegant artificial eye an epithelial inlay is advisable. After the remnants of mucosa have been excised a new skin-lined socket is made by burying a thin razor-graft which is draped over a disk-shaped gutta-percha mould perforated in the centre.

Deformities of Nasal Contour, with Damage of Ethmoid Sinuses

In modern warfare, when armoured vehicles often capsized and motor-cycles collide, serious blows on the centre of the face are common, and result in various types of deformity of the nasal contour frequently associated with damage to the ethmoid sinuses, and a variety of facial wounds.

Fracture of the nasal bones and nasal processes of the maxillae may result from: (i) a direct or forward blow on the bridge of the nose causing it to cave in; (ii) a lateral blow causing lateral deviation and comminution of the nasal processes; (iii) an upward blow on the under-surface of the tip of the nose which results in telescoping of the bridge and septum.

In practice, a combination of two or three of these types of injury is quite often seen in one patient.

The optimum period for replacement of the nasal framework is within 48 hours of the injury, but it can be undertaken quite satisfactorily within four days. Under intratracheal anaesthesia, disimpaction is carried out by the Gillies-Kilner technique. Using Walsham's forceps, both nasal processes are everted, then the septum is straightened and the nasal bones are elevated with Ashe's forceps. Finally, the nasal processes are pressed inwards and the bridge is narrowed. This position is maintained for four to six days by a Safian brace, or by the St. Louis type of mattress suture. Later cases of traumatic nasal deformity require intranasal refracture by means of a Safian saw or a chisel. When the saddle deformity is persistent a small iliac-bone graft is inserted through a columella-splitting incision. Rib cartilage is not suitable for this purpose because it occasionally bends in a most disconcerting manner some months afterwards.

More violent blows on the front of the face cause a circular depressed fracture of the maxillary block. The centre of the face "caves in" and a "dish-face deformity" results. If this is not reduced the patient has a permanently sad expression with hollows under the eyes, and the base of the nostrils sinks inwards, giving the face a negroid appearance. Minor "dish-face" deformities can be reduced by gradual elastic traction applied to the sunken maxilla through upper dental splints by means of a headcap bearing an anterior bar. Severe "dish-face" deformities are often associated with fractures of the base of the skull through the cribriform plate and comminution of the ethmoid cells. Cerebrospinal rhinorrhoea may result and there is a danger of meningitis. In the past it was thought to be advisable to wait until the patient was out of danger before attempting reduction, but usually by this time reduction was impossible. Immediate and forcible reduction with lion forceps has been suggested in some of the cases. Cone and the Montreal school of neurosurgeons in certain cases of cerebrospinal rhinorrhoea advise direct repair of the torn dura from above, using fascia lata and a transfrontal approach.

Wounds and Associated Deformities of Cheek and Maxillary Antrum

The malar bone and zygomatic arch take the full weight of all blows upon the cheek. A blow from the front, if severe enough, drives the malar inwards through the anterior wall of the antrum. The body of the malar, being very strong, is rarely fractured, but its zygomatic, frontal, orbital, and maxillary roots are commonly injured, with the result that the bone itself is not only depressed but also rotated downwards. A severe blow on the side of the face causes the zygomatic arch to cave inwards. Unless seen on the day of the injury, before the swelling of the cheek has occurred, these deformities are usually missed. The symptoms and signs to look for in these cases are: (1) Bleeding from one side of the nose due to haemorrhage into the antrum. (2) Diplopia due to depression of the orbital plate. (3) Pain and numbness in the distribution of the infra-orbital nerve. (4) Bruising of the cheek and subconjunctival haemorrhage. (5) Flattening of the upper part of the cheek, a hollow under the eyes, and fullness of the lower part of the cheek. There is usually a notch palpable on the infra-orbital margin. (6) Interference with mastication is not uncommon. It is due to pressure of the displaced zygomatic arch upon the coronoid process or injury to the temporal muscle near its insertion. This may cause pain on chewing, slight trismus, or, on opening the mouth, deviation of the lower jaw to the opposite side, a position which appears to be one of mandibular rest.

Depressions of the malar or zygomatic arch without an associated external wound are common in mechanized warfare. They should be elevated with a lever as soon as possible, preferably within three weeks of the injury, by the Gillies approach through an incision within the hair line of the temporal fossa.

In later cases a combined temporal and buccal approach is often required. The malar bones require fixation after operation by a sulphanilamide and vaselined-gauze pack in the antrum or by external pin fixation. In the most severe deformities in which there has been loss of bone an iliac-bone graft is inserted behind the cheek through a temporal incision.

Conclusion

Six elementary principles in the early treatment of wounds of the upper part of the face may be emphasized:

- (i) Cleanse the wound most thoroughly with soap and water, peroxide, and saline.
- (ii) Never excise a facial wound.
- (iii) Save the framework of the face even if it is loose; sacrifice a bony fragment only if it is completely detached from all the surrounding tissues.
- (iv) If there has been any skin loss, pack the wound with sulphanilamide powder and leave it open.
- (v) If there has been no skin loss and the wound is recent, insert fine silk stitches and remove them within three days.
- (vi) In the face, never insert a few big stitches under tension; they usually lead to serious septic complications and will always be followed by an irreparable scar, which will remain a disfigurement for life.

I am indebted to Major-Gen. D. C. Monro and Brigadier W. H. Orlivie, consultant surgeons, M.E.F., and Colonel R. R. G. Atkins, officer commanding a general hospital, for permission to publish this discussion. I shall always be grateful to Sir Harold Gillies and Mr. T. Pomfret Kilner, the pioneers of British plastic surgery, for teaching me these principles, which I hope I have interpreted correctly.

SPECIFIC GRAVITY OF THE CEREBROSPINAL FLUID

WITH SPECIAL REFERENCE TO SPINAL ANAESTHESIA

BY

W. ETHERINGTON-WILSON, F.R.C.S.

In 1932, after many months of exhaustive experiments with glass spinal canals (mock spinal analgesia: Etherington-Wilson, 1934, 1935), I came firmly to the conclusion that the best single method of control and accuracy in all types of spinal nerve-root block lay in the technique of *timed vertical ascent*. As time passed, this work has had recognition, and is now known as the Etherington-Wilson technique. Prejudice against the use of hypobaric solutions in the sitting-up position was widespread all over the world, but this boggy has, I believe, in some measure been allayed. Such a technique, however, demands knowledge of the specific gravity of the cerebrospinal fluid in normal individuals and in pathological conditions, and also that of the solution injected. If these two solutions vary to any great extent it might be supposed (rightly) that the technique will not always be reliable. The solution supplied (like nupercaine and others) is, however, of known specific gravity. Cerebrospinal fluid is alleged to have markedly varied readings: extravagant differences are quoted—1.004 to 1.012, and even greater diversities. If such estimates were arrived at by some form of small hydrometer, or there was delay in testing, or no account was taken of the temperature of the fluid at the moment, then such computed answers were inevitable. My experience of the use of a small hydrometer of the usual type was one of difficulty and error: repeated examinations of a single specimen of cerebrospinal fluid would register wide disagreement.

These variable quotations have passed from book to book and have been used in criticism of my technique in spinal nerve-block. Experience of results in over 1,500 spinal anaesthetics did not bear out the truth of such ready, unpractised judgment. In short, the assertion comes rather as a challenge and a stimulant, and involves a duty. Hence the investigation which follows. Contact with others suggests that many anaesthetists still accept the idea that the sp.gr. of the c.s.f. *in situ* at body heat produces an average figure of 1.007 to 1.008. This is not even near the truth, and sp.gr. is, of course, of some importance in certain forms of spinal nerve-block. The sp.gr. of the c.s.f. was tested in 314 consecutive cases, at all seasons of the year, during seventeen months, a great variety of individuals being represented.

Specific gravity beads, carefully tested and cared for, were used for the purpose. All estimations were done personally, the first few being discarded until I felt that some of the tricks, if any, had been mastered. One person only in the theatre occasionally checked the results. Patience, some adeptness, and experience had to be acquired to get results, allowing for a possible margin of error in temperature represented by a reading of 1° F. when using a solution thermometer. A clinical thermometer was also used on occasions as a check, for beads within its range of calibration. As an additional and comparative means of securing accuracy different bead tests were carried out on each specimen.

Apparatus

The specific gravity beads used ranged from 1.000 to 1.008; and each had a distinguishing colour. The greatest care was taken to keep clean and well washed, after use, in distilled water. The same applies to the test-tubes and thermometer. A special rack of six narrow test-tubes having an internal diameter of 3/8 to 1/2 in. were found most useful. They allowed of the collection of 2 c.cm. or less of c.s.f., which rises to a height of about 1½ in. up the tube. Each tube is closed after filling. Four numbered corks were kept on the rack for this purpose. All tubes were dry before use. When not in use, and after cleansing and drying, they were kept locked up and stoppered. A wide-scale Fahrenheit thermometer, tested for accuracy, very narrow, and much longer than the test-tube, was used throughout without change. The end containing the mercury should be of short length. A magnifying glass, apart from its obvious use for noting the thermometer markings, is necessary for watching the bead movements. Hot- and cold-water taps were utilized for heating and cooling the c.s.f. in the test-tubes when trying out a series of beads. Iced water was also used for the heavier beads, but, apart from interest and as a check-up, is not essential. All specific gravities were carefully recorded, with notes appropriate to the case—e.g., age, sex, general condition, pathological state, high blood or c.s.f. urea or sugar or bile, repeated estimations, etc.

Method of Estimation

Cerebrospinal fluid was allowed to drip into the narrow test-tube. The latter was corked if not immediately tested, but all estimates were carried out within 3 to 4 hours. In the series of 314 cases an average of three different beads was used for each fluid. In a great number of cases many more beads were required—as many as eight for one specimen. An average time of 15 to 25 minutes was taken over the testing of each fluid. The use of more than one bead in each test was of course of value as a check against slight errors. Thus, in the average, it was found that with a specimen of c.s.f. at 91° F., 91° F., 83° F., and 74° F. the sp.gr. recorded by the beads was 1.003, 1.004, 1.005, and 1.006 respectively. The sp.gr. was judged correct when the bead remained absolutely motionless, floating and away from the bottom or upper level of the fluid. This is confirmed by tapping or shaking the tube to move the bead and watch its behaviour. When motionless the thermometer, which has been held in the fluid all this time, is immediately read.

Before any readings are begun care is necessary to allow the bead to get well "soaked" in the c.s.f., and any bubbles adherent are easily dislodged by a sharp shake or tap of the test-tube. In many suitable cases the c.s.f. was used for inquiry into the sugar, urea, chloride, and protein content.

Types of Cases

As much variety of individual and circumstance as possible was hoped for and obtained in this consecutive series of 314 cases, spread over from Oct., 1942, to Feb., 1943. Ages varied from 2 and 5 years to 88 and 90 years (see Table). The table also shows the details of sex, healthy or ill, hospital or private patients. Among these cases were local people, some from other parts of the country, foreigners, soldiers; tall, short, thin, obese. Some were well, others suffered from such diverse conditions as pyrexia (various), wasting, anaemia, various degrees of blood loss, emergencies, jaundice, alcoholism, dieting, inoperable carcinoma (abdominal), intestinal obstruction—early, late, and moribund—tuberculosis, early and full-term pregnancy, ascites, vomiting, diabetes, chronic high or low blood pressure, high blood urea, megacolon, gastric stasis, head

injuries, otitic hydrocephalus; some received glucose-saline or blood transfusions. Twenty patients had a second lumbar puncture, at times varying from two days to a few weeks to many months; a second examination of the fluid was carried out for comparison.

Table of 314 Cases

Age :	1-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+	Hosp. Cases	Private Cases	Healthy	Ill	Multiple Myeloma
Males (142)	2	9	8	16	16	32	34	22	3	-	-	-	-	-
Females (172)	1	12	17	28	32	29	34	15	4	-	-	-	-	-
Total (314)	3	21	25	44	48	61	68	37	7	225	89	194	120	20

Results

In this series it was found, in spite even of pathological states which affect the c.s.f., that the sp.gr. of the latter varies only very slightly. From the spinal anaesthetist's point of view the small difference can be disregarded. The ascent of a solution up the spinal canal is but little quickened if the sp.gr. of the c.s.f. is 1.004 at body temperature instead of the average 1.003+. In no patient in this group (apart from big sugar, high urea, or deep olive malignant jaundice) was much appreciable difference noted, and no case was found to have a sp.gr. of 1.004 at normal body temperature. The uniformity of result was so monotonous that I was able to demonstrate that the temperature of the c.s.f. could be forecast when the bead was suspended in midstream and resting. From this lot and continuous series of cases the following points were extracted.

1. The sp.gr. of the c.s.f. at any given temperature is remarkably constant.

2. Variations do occur, but they are slight and are found especially in cases with high c.s.f. sugar. An occasional healthy individual, be he old or young, may show a sp.gr. greater or less than the average (9 cases in 314). Such variations (except in the high sugar content) do not amount to a whole point (i.e., 1.003-1.004). Unfortunately I have not had the opportunity of testing a case in which the c.s.f. sugar was more than 90 mg. per 100 c.c. It was clear, however, from my three diabetic cases in this series that sugar is the most potent cause of the rise in specific gravity. Such a rise will not be found excessive even probably with a content of 200 mg. per 100 c.cm. Moreover, such a case would not knowingly be subjected to operation.

3. Other conditions in which a detectable change was noticeable by means of the bead estimation were:

(a) High blood or c.s.f. urea.—Nine such cases were examined, the highest urea being 428 mg. The sp.gr. was slightly increased in 3 cases but much less marked than in high-sugar cases.

(b) Glucose-saline intravenous drips in two out of six cases showed a slightly higher sp.gr. The remaining four, two or which had blood transfusions, were normal.

(c) Severe vomiting with some dehydration raised the sp.gr. figures in one out of four cases; one case also showed a lower estimate.

(d) Severe blood loss or marked anaemia lowered the probable average sp.gr. slightly.

(e) Intense olive jaundice (malignant), with a tinged cerebrospinal fluid, showed a rather lower sp.gr. than normal in three cases. In other cases in which jaundice was not so marked did not reveal any change.

(f) The lowest reading obtained in the series of 314 cases occurred in a rare surgical condition which will be recorded elsewhere. A man aged 52, on whom I did a gastro-jejunostomy twelve years ago, developed a retrograde acute jejuno-gastro-intussusception in 1942. Diagnosis was easy, being the second attack, operation prompt, and recovery uneventful. Retching vomiting had been severe, but not prolonged enough for dehydration in such a case. No explanation is forthcoming to explain the lowest sp.gr. of the series, which was nearly a whole point variance with the normal average.

In one case of each of the following conditions there was no change from the average sp.gr.: cerebral tumour, cerebral spinal myelitis, and early tuberculous meningitis (c.s.f. protein mg.). Seven c.s.f. specimens were blood-tinged. Twenty lumbar puncture specimens were the same as the first estimations. Attempts to show tendencies to vary owing to age and sex were inconclusive. All that can be said is that in males a larger number of slightly higher specific gravities will be met with than in the females.

gr. was identical in three individuals aged 2, 5, and 90 years—the youngest and oldest of the cases. Apart, possibly, from an undiscovered very high c.s.f. sugar content, no noteworthy change is presented in the c.s.f. specific gravity from the pathological conditions which have been specified. From the spinal anaesthetist's point of view, and especially for those who use a timing technique, such a report may be reassuring.

Conclusions

The specific gravity of the cerebrospinal fluid at normal body temperature remains between 1.004 and 1.003, and is rather 1.003.

The constancy was remarkable in a consecutive series of 14 cases of great variety.

The usual pathological states of the c.s.f. which may be met with can be ignored when spinal nerve-block is contemplated. Much more so is this the case in the healthy subject.

In an experience of over 1,500 spinal anaesthetics by my timing technique there has been no case of loss of control of the ascending hypobaric solution (nupercaine and spino-sine). It has therefore not been any surprise to find that the c.s.f. of the c.s.f. varies in but small degree.

I have to thank Dr. H. A. Fielden for the pathological work at the Torbay Hospital laboratory; and to my anaesthetists, Drs. R. A. Attey and M. Lambie, I am grateful for the collections of cerebrospinal fluid.

REFERENCES

- Etherington-Wilson, W. (1934). *Proc. roy. Soc. Med.*, 27, 323.
— (1935). *Arrest. & Analges.*, 14, 102.

TRAUMATIC ARTERIAL SPASM*

BY

C. W. CLARK, M.D., Ch.M., F.R.C.S.Ed.

The interest created in recent years in this subject by a number of writers—notably, Griffiths (1940), Barnes and Trueta (1942), and Cohen (1940-1)—has prompted me to report this case of traumatic arterial spasm, associated with a closed fracture of the tibia and fibula in the middle third resulting in gangrene and amputation.

Case Report

A gunner aged 30 was struck on the antero-lateral aspect of the middle third of the right leg by a gun limber at 9 a.m. on Feb. 25, 1942. He was admitted to hospital approximately six hours after injury with the leg in a Thomas splint, with traction from his boot to the foot of the splint. X-ray plates revealed a fracture of both bones of the leg in the middle third with practically no displacement. He was taken to the operating-room, where inspection of the leg revealed some swelling at the site of fracture. The patient complained of severe pain at and below the site of fracture, and was given morphine gr. 1/4. He had been given morphine gr. 1/4 an hour and a half before admission.

Under pentothal and cyclopropane anaesthesia the Thomas splint and boot were removed. The circulation in the foot and toes appeared normal, judged by colour and warmth, but no attempt was made to feel pulsation in the dorsalis pedis or posterior tibial arteries. There was no wound or sign of injury in the whole limb aside from the swelling at the fracture site. A Steinmann pin was inserted through the os calcis and, with moderate traction of 15 lb. on a Braun splint with a well-padded wooden cross-bar against the junction of the middle and lower thirds of the thigh, a skin-tight plaster was applied from the toes to the tibial tubercle, incorporating the Steinmann pin. This took only about 15 minutes, and then the traction was released and the plaster carried up to the groin with the knee in flexion. The limb was then placed on a Braun splint with 7 lb. traction, the foot of the bed being elevated.

During the night the patient complained of severe pain in the leg, and was seen by the duty medical officer. There was no swelling of the toes and the circulation appeared normal. He required two injections of morphine gr. 1/4 during the night for severe spasmodic pain in the leg at and below the fracture site.

At 9 a.m. on Feb. 26 the cast was bivalved because of his complaints of pain, and the anterior half removed, leaving the posterior half as a back splint. The circulation in the toes appeared normal, but there was no pulsation in the dorsalis pedis artery. He had anaesthesia from the site of the fracture, distally involving the toes, and had no movement in the toes. At this time he claimed that the foot and toes had felt "dead" immediately after injury. No

sign of any pressure or tightness of the cast on the limb was observed.

At midnight on Feb. 26—39 hours after injury—the anterior tibial compartment seemed to be considerably swollen and tense, but the colour of the toes and the circulation in them appeared satisfactory. He was taken to the operating-room and the anterior tibial compartment was opened by a vertical incision. The muscles were somewhat greyish in colour and did not contract on stimulation. The anterior tibial artery was exposed, and was found to be contracted and pulseless. The artery was stripped of surrounding areolar tissue and freed through most of its course right up to the foramen in the interosseous membrane. Pulsation did not return after this procedure. There was no sign of injury to the artery, and no haemorrhage in the anterior compartment had occurred. The wound was left unsutured, with vaselined gauze dressing.

On Feb. 27 the degree of circulation to the toes had notably decreased; the toes were very cold and somewhat cyanotic, and the anaesthesia remained as previously described. He had a temperature of 101° F. and was still complaining of excruciating pain in the foot and leg.

He was taken to the operating-room again and excision of the dead muscles of the anterior tibial compartment was performed. The muscles were very grey and were obviously completely dead, with no response to stimulation. The only ligature applied was to the anterior tibial artery, which had a very slight ooze from it prior to application of the ligature. The wound was left open, with vaseline packing. At the time of operation the foot had a cadaveric appearance. A posterior incision was made at this operation to determine if the same condition had occurred in the posterior part of the leg. The gastrocnemius contracted readily on stimulation, so the wound was closed.

On Feb. 28, at noon, the toes were discoloured and definite gangrene was present in the foot. The temperature was 101° and the pulse 110, and the patient was still complaining of excruciating pain in the leg in spite of repeated doses of morphine. Amputation was done in the thigh, with a 12-in. stump. No tourniquet was used, and only four ligatures were necessary. No pulsation was present in the femoral artery just above the adductor tubercle, and the artery was very contracted. It was divided above this point, where pulsations could be felt. There was no sign of any injury in the tissues of the thigh or to the femoral artery itself.

Immediate dissection of the amputated leg revealed that the femoral, popliteal, posterior tibial, and peroneal arteries were contracted to the size of a fine string—about one-quarter their normal diameter. The vessels were carefully dissected and opened into their smaller branches; no sign of thrombosis or injury was present in the arteries or veins. There was a slight haemorrhagic exudate along the posterior tibial vessels and nerve. The muscles in the posterior compartment had degenerated. The superficial part of the gastrocnemius was only very slightly greyish in colour, whereas the deeper muscles were markedly grey and degenerated.

The stump healed by first intention and the patient made an uneventful recovery.

Comments

It would appear that this patient had persistent and extensive arterial spasm, affecting not only the main vessels but also the collaterals to such a degree that it resulted in massive death of muscle tissue first, followed by gangrene of the limb, necessitating amputation three days after the original injury. There was absolutely no sign of injury to the femoral, popliteal, tibial, or peroneal vessels. The sympathetic reflex vasospasm set up at the time of injury to the antero-lateral aspect of the leg in the middle third was not relieved by stripping of the anterior tibial artery.

No forcible distraction or manipulation was necessary, and Böhler's frame was not used. It is highly improbable that the method of maintaining position during application of the plaster could have aggravated the vasospasm.

On removal of the plaster there was no sign of pressure or tightness of the cast at any point.

Even after amputation, 75 hours from the time of injury, the vessels on dissection were still in a marked state of spasm.

The symptom of excessive pain on admission of a well-splinted fracture should make one suspicious of traumatic arterial spasm.

The aetiology and treatment of arterial spasm have been adequately dealt with in the references quoted, and a detailed discussion would be out of place in this case report.

REFERENCES

* From the Surgical Division, No. 5 Canadian General Hospital, R.C.A.M.C.

Barnes, J. M., and Trueta, J. (1942). *Brit. J. Surg.*, 30, 74.
Cohen, Sol M. (1940-1). *Guy's Hosp. Rep.*, 90, 201.
Griffiths, D. L. (1940). *Brit. J. Surg.*, 28, 239.

A COMMON CAUSE OF DIARRHOEA, VOMITING, AND DEHYDRATION IN INFANTS

BY

PERCIVAL W. LEATHART, M.B., B.Ch.

*Surgeon to Ear, Nose, and Throat Department, Royal Liverpool
Children's Hospital*

Disease in infants is frequently characterized by diarrhoea, vomiting, and increasing dehydration. Sometimes this condition is due to gastro-enteritis, proved by the discovery of a causative organism in the stools and post-mortem appearances in the intestine. More often, however, no causative organism is discovered, and at necropsy no abnormality is found in the intestine. It is obvious, therefore, in this type—and it is exceedingly common—that the diarrhoea, vomiting, and dehydration are not due to gastro-enteritis, and that such a diagnosis, if made, is incorrect. The object of this communication is to point out a condition in this type of case which, though frequently unsuspected, is commonly present, to describe how it is acquired, and to give reasons for the belief that it accounts satisfactorily for the symptoms.

It is well known that at post-mortem examinations on children who during life had suffered from diarrhoea, vomiting, and dehydration an unsuspected purulent mastoiditis is frequently discovered on both sides. As an explanation it has been suggested that the mastoiditis is a terminal event. But since mastoiditis, if present, as will be shown later, can be diagnosed with certainty two or three weeks before death, this explanation is unconvincing. We are forced, therefore, to the conclusion that many infants dying from diarrhoea, vomiting, and dehydration have had in addition an unsuspected bilateral mastoiditis two or three weeks before death.

Method by which Mastoiditis is Acquired

The Eustachian tube in infants is more horizontal than in adults and, as in them, opens with each act of swallowing. When the child is lying on his back the tube is perpendicular, so that when open, as in swallowing, any foreign liquid in the post-nasal space is free to pass by gravity and suction into the tympanum and mastoid antrum—in this way milk, vomit, or infected mucus is offered an easy entrance. It is well known that a majority of infants suffering from severe diarrhoea, vomiting, and dehydration are well under 1 year old—too young to sit up—and are bottle-fed, often while lying down, in an ideal position for milk or any other liquid to reach the mastoid antrum through the Eustachian tube by gravity and so cause a mastoiditis. Diarrhoea, vomiting, and dehydration, and therefore mastoiditis, however, are not confined to children who cannot sit up and are bottle-fed. It frequently happens that a child who is in hospital suffering from some air-borne infection, after having recovered from it develops diarrhoea, vomiting, and dehydration. These children have been too ill to sit up, so that infected mucus or liquid food vomit in the post-nasal space can easily enter the mastoid cavity, infecting it in the same way.

We may conclude, therefore, that mastoiditis is commonly caused by milk, vomit, or infected mucus entering the Eustachian tube in children who are either too young or too ill to sit up, and are accordingly nursed and perhaps fed while lying on their backs.

Pathology of Diarrhoea, Vomiting, and Dehydration due to Mastoiditis

We have come to the above conclusion that gastro-enteritis is not the cause of diarrhoea, vomiting, and dehydration because this condition is not present. That mastoiditis is the cause is based upon the fact that after operation these symptoms have often rapidly disappeared. The tympanic membrane and mastoid antrum are supplied by parasympathetic nerves from the seventh and ninth cranial nerves. When these nerves are inflamed the nerve endings are stimulated, causing a parasympathetic reflex whose afferent limb travels in the seventh or the ninth nerve, the efferent limb in the tenth, which applies the intestine with secretory fibres. The normal balance between parasympathetic and sympathetic innervation

is upset in favour of the parasympathetic, leading to hypersecretion, evidenced by diarrhoea, vomiting, and dehydration.

Diagnosis

We must remember that an infant cannot tell us that he has earache; that it is impossible to find out by pressure over the mastoid whether he has pain or not; that discharge from the ears is seldom present; that examination of the tympanic membrane is often impossible, and even when a view is obtained the appearances may be equivocal; and, finally, that only very rarely is there a swelling behind the ear. In fact none of the ordinary physical signs associated with acute mastoiditis in elder children is present. Yet in addition to diarrhoea and vomiting a careful examination will elicit additional symptoms and physical signs which allow a diagnosis of mastoiditis to be made with certainty. Perhaps a recent rise in temperature has been noticed; the child has begun to cry out as if in pain; he puts his hand to his head and rolls his head on the pillow, causing a bald patch on the back of his head. On rare occasions a discharge appears from one or both ears. The tympanic membrane, if seen, may be pinched or may lack the normal lustre. Almost invariably the lymph nodes in the posterior triangle of the neck are enlarged so that they roll under the finger. This is the most significant physical sign, and is of greater diagnostic value than the appearance of the tympanic membrane.

It may be said with confidence that if a child suffering from diarrhoea and vomiting has enlarged glands in the posterior triangle and has in addition some of the above physical signs a mastoiditis is present. If this child is losing weight and going downhill in spite of sulphonamides and intravenous salines a mastoid operation is urgently required to save his life. It is not suggested that all cases suffering from mastoiditis require operation; many recover spontaneously, probably helped by sulphonamides and certainly by intravenous saline and blood transfusion. In a certain number, however, if mastoiditis is progressive, and these patients, unless treated surgically, will inevitably die.

Prevention

It has been shown above that mastoiditis occurs chiefly in bottle-fed infants who, being too young to sit up, are fed lying down, and also in elder children suffering from air-borne infection or other illness which has rendered them too ill to sit up. On this account such children have been nursed and perhaps fed in the recumbent position—a position which invites mastoid infection by liquid food, vomit, or infected mucus passing through the Eustachian tube. It is therefore suggested that children should never be fed while lying down, nor should they ever be allowed to lie for a long time on their backs; they should be propped up in bed and constantly changed from side to side if too young or too ill to do so themselves.

The operation in itself is an extremely simple one and can be completed on both sides in about 15 minutes. If the child has no air-borne infection light ether anaesthesia is satisfactory but should there be bronchitis or pneumonia or a suspicion of any form of pneumonitis a local anaesthetic should be given. It must be stressed that the condition, as its aetiology suggests, is nearly always bilateral, and that the best results are achieved by opening both mastoids at the primary operation.

Conclusion

It would appear relevant to state that the remarks made above are the result of work done chiefly at the Royal Liverpool Children's Hospital in co-operation with the physicians and surgeons during the last 20 years. During this period more than 2,000 cases of progressive mastoiditis have been selected for operation; all of them were obviously going downhill, and in the vast majority mastoiditis was proved at operation. Without surgical aid all would have died; after operation approximately 80% recovered. It is clear, therefore, that early operation between physician, general practitioner, and auricular surgeon more complete and more universal the death rate among infants would be materially reduced, possibly even halved. It is stressed that when diarrhoea, vomiting, and dehydration is due to progressive mastoiditis the condition cannot be cured by sulphonamides, intravenous salines, or changes of diet.

Medical Memoranda

Plantar Dislocation of the Fourth Metatarsal

Dorsal dislocation of the head of a metatarsal bone is not infrequently encountered in orthopaedic and surgical practice, but plantar dislocation appears to be uncommon and almost unique. A diligent search of the literature has failed to disclose any report on such a case, and the condition is not mentioned in any of the standard orthopaedic textbooks consulted. The following example came under my observation in Oldmill Hospital, Aberdeen:

CASE REPORT

A soldier aged 28 was admitted to hospital complaining of pain and swelling in the sole of the foot, aggravated by walking. He gave a history of having been at a dance four days previously, and, while leaving the hall, having "slithered down two stairs," landing on the "ball of his right foot." He felt a sudden sharp pain, but was able to walk without much inconvenience for the rest of the evening, and reported for duty as usual next day. At the dance he was wearing light-weight patent-leather shoes of the usual type. During that afternoon he began to complain of a dull pain in the sole of the left foot, which had become somewhat swollen. On the following morning—that is, on the second day after receipt of the injury—he reported to his M.O., who considered that he had a strained ankle. Two days later he was admitted to hospital.

Examination upon Admission.—The patient was a well-built young man in good general health. No abnormality was detected other than the local condition in the left foot. The appearances here were interesting. The foot showed a moderate degree of swelling, and on the bases of the four small toes on their dorsal aspect there was slight bruising, mostly on the outer side. A space was palpable over the head of the fourth metatarsal bone and slight crowding together of the third and fifth toes, which slightly overlapped the fourth. Movement of the toes was quite free. On the sole of the foot was a definite swelling, hard, smooth, regular, fixed, round, localized, and tender. It was diagnosed as the head of the fourth metatarsal dislocated plantar-wards. X-ray examination confirmed the diagnosis. The condition was irreducible by manipulation, so open operation was decided upon.

Operation.—This was done under gas, oxygen, and ether anaesthesia. The usual skin preparation for a bone operation was carried out and a tourniquet applied. An incision was made parallel to the outer border of the foot, in the line of the metatarsal, centred over the head, and with two-thirds of the incision proximal to the line of the metatarsophalangeal joint. The deep fascia was incised and the head exposed. It was embraced by the second and third tendons of the flexor digitorum brevis, by the third lumbrical, and by the third tendon of the flexor digitorum longus, and lay superficial to the transverse head of the adductor hallucis. The tendons were gently retracted and the head levered back into the joint. The capsule was rent, but had not contracted enough to prevent this manoeuvre being successfully effected. The wound was then closed by a few skin sutures and a firm bandage applied.

Post-operative Period.—This was uneventful. Radiography showed the head to be reduced, and clinically the foot resumed its normal anatomical appearance. Swelling subsided, pain was completely relieved, and the wound healed by first intention. After two weeks the foot was allowed to bear weight, and massage and exercises were carried out on the muscles of the calf and leg. In four weeks recovery was complete, and the patient was discharged to a convalescent depot.

DISCUSSION

The mechanism of this injury is hard to explain, and the patient was not helpful in describing exactly what happened when he slipped. That of course is understandable. It was established, however, that he slipped down two steps and abruptly landed on the ball of the affected foot. He considers that his toes were fully "cocked up" at that time and that he leaned forward to recover his balance. It may be possible that full dorsiflexion of the toes accompanied by violent forward swinging of the body on the fixed foot may slip the head of the metatarsal out of position; but this is improbable, and the explanation is unconvincing.

The other foot was completely normal, and there was no reason to suspect weakness of the transverse ligament of the heads of the metatarsals. In short, the mechanism was not worked out to one's satisfaction, but it is felt that the condition is rare enough to merit being reported.

I am indebted to Dr. Harry J. Rae, superintendent of Oldmill Hospital and Medical Officer of Health for Aberdeen, and to Mr. Andrew Fowler, consultant surgeon to the hospital, for permission to publish this clinical memorandum.

GEORGE B. MAIR, M.D., F.R.C.S.,
Surgical Registrar,
Oldmill/Woodend Hospital, Aberdeen.

Reviews

PSYCHONEUROLOGY AND ENDOCRINOLOGY

The 1942 Year Book of Neurology, Psychiatry, and Endocrinology. Neurology, edited by Hans H. Reese, M.D.; Psychiatry, edited by Nolan D. C. Lewis, M.D.; Endocrinology, edited by Elmer L. Sevitzhaus, M.D. (Pp. 768.) Chicago: Year Book Publishers.

The Year Book of Neurology, Psychiatry, and Endocrinology continues its useful career in the volume for 1942, though we miss the admirable introductory summaries formerly given by the editor of each section. That on endocrinology has, however, an interesting note on Prof. Magnus-Levy, who, we are glad to learn, after 50 years' work in Germany has now found a safe haven at Yale, where he had his basal metabolic rate repeated at the age of 76, the first record having been made when he was 26. In that interval his energy output per hour had decreased by 17%—rather more than the predicted amount. In a discussion on the indications for termination of pregnancy for mental disorders the interesting conclusion emerges that the death rate for confusional states (generally associated with bodily strains) is 15 to 20%, but that survival nearly always means recovery, whereas schizophrenic patients rarely recover. In the agitated depressions associated with the menopause treatment with diethylstilboestrol was followed by recovery or marked improvement in 48%, which the editor considers rather a disappointing result—but surely it is an advance? This oestrogen, contrasted with hexoestrol and octofollin, shows a higher toxicity, though in suitable doses all three seem decidedly helpful in the menopausal syndrome. Octofollin, however, has no chemical relationship with the natural oestrogens and is relatively active by the mouth. The best point for interruption of the lateral spino-thalamic tract for relief of intractable pain is stated to be just below the trochlear nerve, because the fibres are most superficial in this part of their course. In the diagnosis of brain tumours great stress is laid on the occurrence of isolated convulsive seizures without signs of increased intracranial pressure. In an interesting discussion on aphasia it is stated that it is unwise to lateralize a lesion solely on its presence, and cases are quoted to support this opposition to the conventional Broca view. On more general psychiatric topics we may refer to the statistical evidence supporting the popular idea that the mobile mechanized type of warfare is less damaging to the mental balance than the static trench type.

The whole volume bears witness to active advance in the subjects dealt with despite the unfavourable conditions under which scientific work not directly connected with war is being carried out.

TREATMENT OF FRACTURES

Fractures and Fracture Treatment in Practice. By Kurt Colsen, M.D. (Pp. 147; illustrated. 12s. 6d.) Johannesburg: Witwatersrand University Press. 1942. Obtainable from the Press, Surgery Department, Medical School, Hospital Hill, Johannesburg.

Management of Fractures, Dislocations, and Sprains. By John Albert Key, B.S., M.D., and H. Earle Cornwell, M.D., F.A.C.S. Third edition. (Pp. 1,303; illustrated. 63s.) London: Henry Kimpton. 1942.

The author of the small book on *Fractures and Fracture Treatment in Practice* tells us that it is written for the use of students preparing themselves for qualifying examinations and of practitioners who need a brief review of the subject. It should serve these purposes admirably. Introduced by the professor of surgery at Johannesburg, who writes that Dr. Colsen has for a number of years now conducted the fracture tutorial class in the University of Witwatersrand, the book is a South African product which should export well. It is clearly written, not overloaded with detail, and well punctuated with simple line drawings which clearly depict what it is intended to illustrate. It consists of two parts: the first nine chapters comprise general considerations such as the forces responsible for fracturing bones, the healing of fractures, the general principles of treatment, complications, and pathological factors. The last eighteen chapters give descriptions of special fractures such as of the clavicle, those round the ankle, the face and jaws, ribs and sternum, etc. The book is essentially practical and not too matter-of-fact; thus we were pleased to read under Colles's

fracture that it was first described by Abraham Colles in 1814, and that the fractures at the ankle are historically associated with the names of Pott and Dupuytren. An index completes this excellent little manual.

The third edition of Key and Conwell's book is welcome if only because of the revision of the chapter on compound fractures which has been made necessary by the introduction of the sulphonamides or, as some of our American friends prefer to call them, "the sulfa drugs." This edition, however, includes other extensive changes, particularly in the sections allotted to fractures of the hip and spine and those of the arm and foot, while a new section on war injuries adds further to its value. The make-up is excellent, printing being clear and the illustrations, particularly the reproductions of radiographs, good. The style of the text makes for easy reading and sustains interest. There are many wise comments such as Osgood's statement (p. 342) that "the key that opens the door of diagnosis is suspicion," and (p. 433) "the frequency with which lesions of the intervertebral disk are suspected and found will vary directly with the interest of the examining physician." The discussion of laminectomy in spinal injuries is well balanced, as is also that on another thorny question—operation for suspected dislocation of intervertebral disks. Few will disagree with the conclusion that "patients with low back pain and sciatica should not be subjected to spinograms and intraspinal operations until conservative treatment has failed to relieve their symptoms." Some older surgeons, remembering experiences of the last war, will be interested to read in the section on war surgery that non-irritating vitallium and stainless steel and the sulphonamide drugs have made it possible to use internal fixation in compound fractures with relative safety. For direct implantation in wounds the authors advise a mixture of sulphathiazole and sulphanilamide. This book is full of information and little fault can be found with any of it. The chapter on fractures of the skull and brain injuries is essentially sound and in line with the high standard of the rest of it. It should be more than ever appreciated now that traumatic lesions are so much in front of us. We have the highest praise for it and can thoroughly commend it to surgeons and practitioners everywhere.

MICROBIOLOGY OF CANNED FOODS

Canned Foods: An Introduction to their Microbiology. By J. G. Baumgartner. (Pp. 157; illustrated. 10s. 6d.) London: J. and A. Churchill, 1943.

For many years the popularity of canned foods in this country has been growing, and now in wartime they have become of national importance. Though a great deal of valuable research work has been carried out by the National Canners' Association in the United States and by the Food Manufacturers' Research Association and other bodies in Great Britain, it still remains true that, owing to the numerous variables concerned, control is not always perfect and wastage occurs, sometimes on a relatively large scale. Dr. J. G. Baumgartner, therefore, need make no apology for the admirable little book he has written on the subject of canned foods. As chief bacteriologist to Messrs. Crosse and Blackwell he has had an admirable opportunity of acquainting himself with modern canning practice. The results of his experience and of his wide reading are set down in a series of well-balanced comprehensive chapters dealing with the microbiological aspect of canning in its widest sense. A short introductory chapter on the general properties of bacteria, moulds, and yeasts is followed by a description of the various methods in current practice for controlling spoilage in canned foods. The technique of processing, which differs, of course, according to the type of food in question, together with the principles on which it rests, is dealt with at some length. There is a most informative chapter on the types of microbial spoilage that may be met with resulting from such factors as bacterial growth in the food before processing, under-processing, or infection through leaking seams during cooling. The effect on the cans of faulty technique in processing, such as may follow over-filling, incorrect retort operation, or under-exhausting, is also described. Laboratory workers will derive much benefit from the chapters on the examination of canned foods and of can seams. The book will be of interest and help to medical officers of health,

sanitary inspectors, and to public health and industrial bacteriologists. It is packed with useful information and will be found worthy of being placed alongside volumes having far more pretentious exterior.

Notes on Books

After its first appearance in 1936 Dr. E. NOBLE CHAMBERLAIN'S *Symptoms and Signs in Clinical Medicine* went through a second edition and three reprintings in the course of five years. Now the third edition is published at 30s. by John Wright and Sons, Bristol, to whose courage and enterprise in overcoming difficulties after repeated destruction of their works, the author pays tribute in his preface. The book remains a very useful introduction to medical diagnosis which should appeal especially to the more advanced student. Its essential clinical character has been carefully preserved but some additional laboratory and scientific investigations are included. There is a chapter on radiology by Dr. P. H. Whital and Dr. Norman Capon has again revised his valuable chapter on the examination of sick children. Dr. Noble Chamberlain acknowledges also his debt to a number of other colleagues for constructive criticism and help in revising various sections. Throughout the book there is evidence of careful sifting of data and correction or rearrangement where necessary. The many and well-chosen illustrations are again worthy of praise.

Wise Eating in Wartime is the title of a booklet prepared for the Ministry of Food by the Ministry of Information (H.M. Stationery Office: 4d.). It consists of fifteen broadcast talks for adults by Dr. CHARLES HILL on what to eat and what to avoid, the aim being to underline those dietetic items which give the maximum amount of nourishment. Dr. Hill spoke regularly on the B.B.C. "Kitch Front" programmes, and two of his earlier series of talks have been published on behalf of the Ministry of Food: *Your Bal Food in Wartime* and *Wartime Food for Growing Children*. This pamphlet completes the circle. By common consent Dr. Hill is master of the art of homely talk over the radio. He makes every point tell, and never forgets that the bulk of his listeners are simple folk who are willing to learn but hate patronage or pomposity; like instruction to be given in words they themselves use, with plentiful spicing of their own kind of humour. The printed version has the authentic ring.

The Ling Physical Education Association (Hamilton House, Bidborough Street, W.C.1) has published a pamphlet (price 2s.) *The Use of Exercise in the Post-War Rehabilitation of Children Occupied Countries*. It was written, at the request of the International Women's Service Groups in Great Britain and of organizations which are training volunteers for various branches of relief work in the occupied countries after the war, by two medical women primarily concerned with children's welfare (Dr. Ol Rendel and Dr. Ursula Shelley), and two specialists in physical education (Miss Mary Lace and Miss Bronwen Lloyd-Williams) who are also members of the Chartered Society of Massage and Medical Gymnastics. One of the contributors had experienced the condition of children in Russia during the last war, and another during the Spanish civil war. The pamphlet has been submitted to authorities with knowledge of relief work abroad, and all have agreed that there is need for advice on the subject, because too much stress cannot be laid on the value of exercises, games, and entertainment for these children when they are released from the enemy's grip and properly nourished. Starving children must first be fed. Next they must be restored to health by every means in human power. Rest and relaxation and well-planned physical education can help in this.

The Medical Officer to the Midlothian Battalion, Home Guard, has written a small, pocket-size booklet entitled *You and Your Comrades*, which gives in 31 pages practical hints on first-aid treatment. The author has borne in mind the special circumstances likely to apply if and when the Home Guard goes into action. The "first field dressing," he says, must always be carried in the special pocket for it at the top of the right trouser leg. This consists of two separate gauze pads attached to 2½ yards of bandage, each wrapped in a white waxed cloth cover. Instructions are given for its use, and also on the treatment of shock, haemorrhage, fracture, wounds, and unconsciousness. Extreme caution is urged in assuming that a man is actually dead. "His breathing and pulse may have stopped and he may be lying limp and inert, and yet often it may happen that life can be restored." Company commanders are advised to provide for two medical orderlies and eight stretcher-bearers for every 100 men, as there is scant chance at the moment of a medical officer being in the field. The booklet is published by E. & S. Livingstone, 16, Teviot Place, Edinburgh, at 4d. a copy.

THE NUTRITIONAL STATE OF STAFF IN A LONDON SECTOR HOSPITAL

BY

HELEN PAYLING WRIGHT

WITH THE TECHNICAL ASSISTANCE OF

J. L. HOSKINS

The following observations upon the nutrition of 22 probationer nurses at a large London teaching hospital evacuated to the country may be of interest. They were made during the first three months of 1943, a time of year at which green vegetables are scarce and fresh fruit unobtainable. The subjects took all their meals in the institution, having no additions to their diet except occasional buns and sweets. The findings on a small group of laboratory staff at the same hospital who received home-prepared diets with full civilian rations are included for comparison. The results for the two groups are given in the following table:

		Vitamin C Excretion in mg.			Urea g. per 24 hrs.	Serum Protein %	R.B.C. in Mills.	Hb%
		Initial Level	After 250 mg. Once	After 250 mg. Daily				
Nurses	Means Coeff. of variation...	13	26	88	17	6.6	4.85	88
		34	106	56	23	9	7	9
Laboratory staff	Means Coeff. of variation...	21	83	141	26	6.8	5.16	102
		13	51	61	20	6	1	3

Blood Findings.—In no instance was the red cell count below the lower limit of normality for women (4.28 mills., Price-Jones *et al.*, 1931). The haemoglobin, determined by the faldane method with apparatus conforming to the B.S.I. standard, gave an average of 88%, which falls below the lower limit of normality (90%, Price-Jones *et al.*), and much below the mean for healthy women of comparable ages (98%). The present findings correspond closely with those of Wills and her colleagues (1942) for a similar group of nurses. Although the degree of anaemia was never gross it might have accounted for the greater sense of fatigue experienced by the more anaemic subjects. It also showed that their iron intake was probably insufficient for this group of young women. The blood findings for the second group were more satisfactory, even allowing for the fact that five of the six subjects were men, and no sign of iron deficiency was present in any of them.

Vitamin C.—Excretion of this vitamin was determined by the method of Harris and Ray (1935). The urine passed during a period of 24 hours was tested as follows. The volume of each voidance was measured, and a 10 c.cm. sample transferred to a bottle containing 2 c.cm. of glacial acetic acid. These samples were collected four times daily, so that estimates could be carried out promptly. The vitamin C excretion was determined on three occasions for each subject: (i) on customary diet; (ii) after one dose of 500 mg. of ascorbic acid given 8 hours previously; (iii) after 250 mg. taken daily for seven days. The initial figures showed that the vitamin C level of all the subjects was low (see Harris and Ray, 1935), though none complained of any symptoms ascribable to this deficiency. After one large dose of ascorbic acid the average excretion rose to within normal limits. The rise in the average was, however, deceptive, as can be seen from the large coefficient of variation; a few subjects responded markedly, while 11 failed to improve appreciably. After treatment for seven days a satisfactory level was reached by all except one, who possibly failed to take the tablets regularly. It may therefore be concluded that the diet taken by these nurses was deficient in vitamin C. Several of them volunteered the statement that they felt better and "more alive" after receiving the ascorbic acid for a week. The results for the group of laboratory workers showed a consistently better rate of excretion. Initially all fell within the lower limit of normality, and after the ascorbic acid supplements their excretion rate rose higher than that of the other group. This shows that their original diets contained a larger amount of this substance.

Urea Excretion.—The estimations of urinary urea were performed on 24-hour samples as a guide to the protein content

of the diets. Calculated on the assumption that urea excretion $\times 2.9$ = protein intake, and neglecting the small loss of nitrogen in the stools, etc., it appears that this group of nurses were receiving about 50 g. of protein daily. This is probably too low an intake (see Gaunt, 1943), especially as a considerable proportion was of vegetable origin and consequently low in certain essential amino-acids. The urea excretion for the second group was considerably higher, the calculated daily protein consumption being 76 g., which should be adequate even though low in animal proteins.

Serum Proteins.—These were estimated by a nesslerization method. In one nurse only (in whom it was 5.8 g. %) was the serum protein below the lower limit of normality. The relatively high level of serum proteins was not unexpected, for with low-protein diets but without starvation they appear to be sustained at the expense of other body proteins.

REFERENCES

- Gaunt, W. E. (1943). *Chemistry and Industry*, 42, 127.
Harris, L. J., and Ray, S. N. (1935). *Lancet*, 1, 71.
Price-Jones, C., Dill, D. B., and Wright, G. P. (1931). *J. Path. Bact.*, 34, 779.
Wills, L., Mackay, H. M. M., Bingham, K., and Dobbs, R. H. (1942). *J. Hyg., Camb.*, 42, 505.

MEDICAL SICKNESS AND LIFE ASSURANCE

The annual meeting of the Medical Sickness, Annuity and Life Assurance Society, Ltd., was held on June 23, Mr. R. J. McNeill Love, F.R.C.S., Chairman of Directors, presiding.

The Chairman said that the new business in the Life Assurance Fund had increased from £141,188 to £267,303, and the total of this Fund now stood at over one and a half millions. All policies for life assurance effected since the outbreak of war bore an exclusion agreed upon by the Life Offices Association that in claims directly or indirectly due to the war the sum assured should not be paid, but the premiums should be returned. The words "indirectly due to war," however, had opened up such a wide field of conjecture and discussion that the directors of the Society had decided in principle that claims directly due to enemy action should follow the exclusion, but that all other claims should be paid in full so far as the funds of the Society allowed.

In the Sickness Fund the premiums were slightly higher, and the year having been moderately healthy, there was only a very slight increase in claims. The funds of the Society had increased by £222,921, and now stood at £2,578,239, which was one and a half millions more than at the time of the Society's jubilee in 1934. The holding in British Government securities, which represented 36% of the total investments, had increased during the year to £955,904. All new money and redemptions were invested in 3% Savings Bonds.

In a reference to the important discussions now taking place on the Beveridge Report, the Chairman said that the proposed abolition of private practice as at present carried out, and the transformation of doctors from the complete freedom they had always enjoyed to the restricted activities of salaried civil servants, opened up a startling prospect. What was to happen to the capital of thousands of doctors which had been invested in the purchase of a practice or a share in a partnership? Members might be assured that the Board was closely following the discussions now taking place so far as the interests of its members were concerned. He ended with an appreciation of the services of the manager and secretary, Mr. Bertram Sutton, and staff.

At a recent meeting of the Association of Industrial Medical Officers Mr. J. L. Smyth, whose work has brought him into contact with industrial doctors, spoke on the education of the industrial medical officer. He said that the doctor in industry must bring to his work a wide knowledge of people, of processes, and of the substances used in various industries, a knowledge which ought to be acquired before he began his work in the factory. It was the doctor's province to see that the human machinery was properly cared for. He should spend time in the works rather than wait for patients to come to him. It was his duty to interpret and bring to the notice of the management the latest results of research in industrial hygiene. A works doctor should not hold the position of referee for the local county court. Dr. Frank Gray spoke on the co-operation between the general practitioner and the industrial medical officer. He said it was important that continuity of treatment should be secured. Industrial medical officers had special knowledge of factory conditions and their effects on health and of the patient as a factory worker, while the general practitioner understood the patient's home circumstances, his family, his diet, his clothing, and, even in wartime, the conditions of life of more than half his day. The Ethical Rules for Industrial Medical Officers drawn up by the B.M.A. were an excellent basis for the co-operation between the two. It was intended that the letter of these rules should not be too rigidly adhered to; it was the spirit behind them that mattered.

HOSPITAL MEALS

A conference on hospital meals, arranged by the Food Education Society, attracted a gathering which packed the theatre of the London School of Hygiene and Tropical Medicine. Mr. ERNEST BROWN, Minister of Health, who presided, said that every hospital of over 100 beds ought to employ a dietitian. When such a person was employed there was a notable improvement in both the nutritive value and the tastiness of meals. He had arranged with the Minister of Labour and National Service that students taking a diploma in dietetics should not be called up until the end of their training. Officers of the Ministry, knowledgeable in kitchen management, continually visited E.M.S. hospitals, and the response of these institutions to his exhortations had been gratifying. Further, there was hardly a hospital which had not since the outbreak of war appreciably reduced the amount of edible food wasted. One hospital during a recent three months had increased its potato consumption by 40% and decreased its bread consumption by 20%.

Lord HORDER, president of the society, said that in this country we were by no means behind Europe and America in dietetics. With the attention now paid in communal restaurants and factory and school canteens to variety and attractiveness in food it would be an anomaly if it were found in any large hospitals that very little had been done to vary the monotony of the meals. But there was always scope for the exercise of more imagination and for new techniques in preparation and service. Sir ALFRED WEBB-JOHNSON, P.R.C.S., said that dietitians should have control not only of their own special kitchens but of the general hospital kitchen as well. It was quite possible to reconcile needs, tastes, and provision, but the problem of food was in some ways more difficult than it had been to an earlier generation, which had a plentiful supply of natural foods. The place of these had to some extent been taken by artificial preparations, the manufacturers of which, to make them attractive, had in some cases deprived them of vital constituents.

Navy and Army Rations

Surg. Vice-Adml. Sir SHELDON DUDLEY, M.D.G. of the Navy, spoke on the sailor's diet in general. The one-time invariable meal of roast beef and plum duff had now given place to a more varied menu. He believed that the sailor's dislike of greenstuff was due to overfeeding in the naval training establishments. In the naval hospitals there were expert dietitians for special diets—eggs, chicken, and fish. No doubt a good many substitutes had now to be used, but care was taken that cooks were well trained and able to select their dishes and garnish them attractively. The Navy did not prove of synthetic vitamins in hospital diets, and the necessary supplements were made with black-currant purée and the like. Special cupboards and trolleys kept the food hot, and continual supervision of the kitchen ensured that it was not over-cooked. He made some civilian mouths water by giving the menu in naval establishments for that particular day: Breakfast: porridge, haddock; dinner: liver and bacon, potato and cabbage, ginger pudding, sauce; tea: bread-and-butter and jam; supper: meat roll, sauce, potatoes. In addition: 1/2 lb. bread, 1 oz. butter (not margarine), 1 1/2 oz. sugar (plus 1/2 oz. to the galley for cooking), 1/2 pint milk, and 2/7 oz. tea.

Lieut.-Gen. Sir ALEXANDER HOOD, D.G.A.M.S., said that the soldier when he went into hospital did not as a rule suffer much impairment of appetite. As an example of the variety of rations issued in the Army with its troops from many quarters of the world he mentioned that in the Middle East the rations were of 35 different types. British soldiers were conservative in their eating habits: it took them a long time to get accustomed to salads, but a few years ago in the Sudan he found a regiment enjoying omelettes and salads at midday and reserving their heavy meal for the evening. Local resources in the Western Desert were not plentiful, but no Army in the history of war had been better fed than the Eighth, and he had never seen a finer-looking set of men. There were four basic types of diet in hospital: ordinary, milk, chicken, and fish; but every hospital carried large supplies of extras such as jellies, powdered soups, and dried vegetables,

and from these there were very few diets that Army cec could not turn out reasonably well. It was only those who had been in West Africa, where potatoes would not grow who knew how the men looked forward to dehydrated vegetables which, thanks to their nutritionists, were being sent out.

Dietetic Deficiencies

Dr. GEORGE GRAHAM said that during the war he had seen six cases of scurvy, one of them in a soldier. But the people who got scurvy nowadays were usually either old men who did their own cooking or women who lived on freak diets. Vegetables were often not looked at because badly cooked but there had been a change in this respect during the war. It might be said that if vegetables looked nice when served they were probably nutritious also. Another thing that had been learned was that cabbages, lettuce, and the like which had been cut for any length of time tended to lose vitamin C. Hospital food should be taken to the laboratory periodical and if there was vitamin deficiency the kitchen arrangements should be investigated. Sir BERNARD DOCKER, president of the British Hospitals Association, considered that, taken as a whole, the charge of poor feeding levelled against hospitals could no longer be sustained. Where a patient required a special diet which was the subject of a medical prescription it was necessary only for the doctor's orders to be observed but in many cases the doctor ordered only a "light diet" and this made it necessary for somebody to use discretion. He also referred to nurses' diet and the recommendation of the Rushcliffe Committee on the desirability of hospital housekeepers, whether nurses or not, being properly trained in dietetics.

Finally, Dr. W. A. LETHBRIDGE of the Ministry of Health referred to the booklet *War-time Feeding in Hospitals*, published by the Ministry, and described the close collaboration of the Department with the hospital authorities on this matter of meals. The Ministry did not encourage the general consumption of synthetic vitamins by people who were or should be in a position to obtain a properly balanced diet.

BEIT MEMORIAL FELLOWSHIPS

The Trustees of the Beit Memorial Fellowships for Medical Research, in their report for 1942-3, note with pleasure the election this year again, as in 1942, of 3 past Fellows to the Fellowship of the Royal Society—namely, I. de Burgh Da Silva (Fellow, 1920-3), W. G. Penfield (1921), and S. Zuckerkandl (1934-7). Out of the 25 present Fellows there are now 15 seconded for whole-time war work.

The following elections have been made, with permission for each Fellow to be seconded at any time for war duties:

4th Year Fellowships (£500 a year).—J. J. D. King, L.D.S., Ph.D., to continue his studies of dental caries and periodontal disease, at the Nutrition Laboratory of the Medical Research Council, London, N.W. P. C. Williams, B.Sc., to continue his studies of natural and synthetic oestrogens, at the Courtauld Institute of Biochemistry, Middlesex Hospital, London University.
Junior Fellowships (£400 a year).—Margery E. M. Cutting, B.Sc., to study the physiological metabolism of organs in infancy, at the Department of Medicine, Cambridge University. A. Kleczkowski, M.D., Ph.D., to study serological reactions in reference to size and shape of antigen and antibody particles, at the Rothamsted Experimental Station, Hertfordshire. G. J. Poplar, M.D., for experimental study of fatty and degenerative changes in the kidney at St. Thomas's Hospital Medical School, London University. Ethel G. Teet, B.Sc., Ph.D., to study the chemical structure of Gram-positive and negative micro-organisms and to develop antibacterial agents, at the Department of Chemistry, Birmingham University.

HOME SERVICE AMBULANCES

"Even in the middle of war, when all else is subservient to the demands of the Services . . . the needs of the ordinary civilian invalid must be met." This is the opening note of the annual report of the Home Service Ambulance Committee of the Joint Council of the Order of St. John and the British Red Cross Society, and then shows how this work has been done. During the twelve months ended Dec. 31, 1942, patients carried numbered 248,689, bringing the total since the start of the service to 2,875,794. The total number of ambulance stations equipped by the committee is 132, and there are 379 affiliated stations. The linking up of ambulance stations throughout the country had very great advantages before the war but these have become more marked with the need for strict economy in the use of man-power, petrol, and transport generally. The committee has continued the arrangement made with the Ministry of Health at the beginning of the war providing mobile x-ray facilities through E.M.S. hospitals in the Greater London area. A twin-unit technique has been developed for orthopaedic work under operating theatre conditions.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY AUGUST 7 1943

THE GOVERNMENT'S MILK POLICY

he rationalization of retail distribution of milk, though resulting in economies in transport and man-power, has in itself created a problem which touches public health very closely. Consumers who previously bought pasteurized milk may now be compelled to accept raw milk, and those who sought to protect their children against tuberculosis of bovine origin by buying tuberculin-tested milk may now be supplied with ungraded milk. Having in the national interest deprived the consumers of their freedom of choice of milk vendor, the Government now feels obliged to ensure that in those areas in which rationalization has been introduced some control at least should be exercised over the quality of the milk supplied. In the White Paper on Milk Policy recently issued the Government proposes to schedule areas in which it will be an offence to sell milk retail unless it is (1) heat-treated as defined by Order, (2) lawfully sold as T.T. milk, or (3) "accredited milk" sold by a retailer who sells the milk from a single accredited herd. The number and size of the areas to be scheduled will presumably depend to a large extent on the availability of pasteurizing plant. In areas of population exceeding 10,000, dairymen are being encouraged to make plans for organizing the heat treatment of milk. Where satisfactory arrangements cannot be made by the trade itself, local authorities will be enabled to install and operate pasteurizing plant. As was advocated in this *Journal* many years ago, the policy is to be adopted of transferring to the Ministry of Agriculture and Fisheries the functions of local authorities relating to the conditions under which milk is produced on the farm. Responsibility for the protection of milk against infection and contamination during transport and distribution will remain with local authorities. This means, in effect, that the agricultural authorities will supervise the production, and sanitary authorities the distribution, of milk. Further, the Government proposes to stimulate the T.T. milk industry by paying a premium of 4d. a gallon direct to the producer and allowing for T.T. milk to be sold to the public at a price only slightly in excess of that for ordinary milk.

Taken together, these proposals constitute a step in advance, though only a small one. They clearly represent a compromise between the Ministry of Health, the Ministry of Food, the Ministry of Agriculture and Fisheries, the National Farmers' Union, and the Milk Marketing Board. The establishment of scheduled areas in which, apart from certain classes of raw milk, only heat-treated milk may be sold, is of importance in showing that, within limits, the Government approves the principle of compulsory pasteurization. Though many medical men are of the opinion that T.T. milk should be pasteurized in order to render it free from the risk of carrying other diseases than tuberculosis, few will grumble at its being permitted to be sold raw in scheduled areas. What everyone, however, who understands the present system of milk designations will regret is that "accredited milk" should be classed along with heat-treated and T.T. milk. Accredited milk is produced under conditions that do not ensure its safety for the consumer, even in respect of tuberculosis. The animals in the herd are submitted to clinical inspection by a veterinary surgeon four times a

year; but, as experience has shown, the veterinary inspector can no more diagnose early tuberculosis of the udder by palpation than a doctor can diagnose early tuberculosis of the lung by auscultation. Bacteriological examination of the milk is as necessary for the one as radiological examination is necessary for the other. But bacteriological examination of accredited milk is restricted to tests for cleanliness; there are no tests for tuberculosis. It is therefore not surprising that, judged by the examination of milk coming into London in 1937, accredited milk is found to contain tubercle bacilli almost as often as ungraded milk. The term "accredited" is a misnomer and conveys to the general public a suggestion of safety which the milk that bears the name is far from possessing. Dr. Esther Carling has performed a public service in pointing this out in her letter to the *Times* of July 19. If the Government cannot be induced to withdraw accredited milk from the list of those to be sold in scheduled areas—and presumably opposition from the farmers will prevent it from doing so—pressure should at least be brought to bear on it to enable local authorities to stop the sale of any milk found to be infected with tubercle bacilli until the offending animal or animals have been removed from the herd. Anomalous though it may seem, tuberculous meat, which would normally be cooked, can be condemned under present sanitary law, whereas tuberculous milk, which is often consumed raw, cannot. If arrangements were made for accredited milk found to contain tubercle bacilli to be temporarily diverted to a pasteurizing plant, then some at least of the damage that it might cause would be avoided. This should not be difficult, because the Government expressly states that there will be no added cost to the producer-retailer in submitting his milk to heat treatment; and that by so doing he will run no risk of losing his customers to larger organizations, as all customers are registered with particular suppliers and no change is possible without the approval of the Ministry of Food. Incidentally, the effect of stopping infected accredited milk from being sold would probably be to encourage producers to go in for T.T. milk or for pasteurization. If raw accredited milk is undesirable for the general public in scheduled areas, it is equally undesirable for school children. Yet the White Paper states that every effort will be made to provide all schools with heat-treated milk, T.T. milk, or milk exclusively from single accredited herds. Again, this last class of milk should be withdrawn. If neither heat-treated nor T.T. milk is available, then the children should be provided with dried milk, preferably flavoured with chocolate.

To most readers of this *Journal* the Government's policy will prove disappointing. It must be remembered, however, that public opinion on the milk problem in this country still remains unstirred. We have grown so accustomed to milk of poor keeping quality, to milk that is often infected with tubercle or *abortus* bacilli, to milk that from time to time becomes adventitiously contaminated with pathogenic organisms of human or other origin, that figures of milk-borne disease no longer have the power to move us. When we think of what milk could be like, and then realize what it is like, we cannot help but be appalled by the extent of popular apathy. Is it surprising that the troops coming from the United States, where so much has been done to furnish a clean, safe milk to the human population, are not allowed to be provided officially with liquid milk in this country? Until we ourselves can look at our milk supply as the Americans look at it, until we educate the public to demand safe milk and to go on demanding it, and until we insist that the health policy of this country shall be dictated by doctors and not by farmers, can we blame the Government if its forward step in milk legislation is but the step of a timid, halting child?

HEALTH AND SOCIAL MEDICINE

A few weeks ago the argument was advanced in these columns that before external authority makes any attempt to regiment or even to reorganize our profession the people of this country should be guaranteed the basic necessities of life in terms of food, housing, clothing, and recreation in return for honest work, with the safeguard against interruption of income which lies at the root of the Beveridge plan. The fact that poverty and bad environment undermine health of body and mind is so widely acknowledged as to be a commonplace of social philosophy. What lacks equal recognition by many who have an itch to construct health programmes is the need for a long-term policy to protect the individual and the community against forces that hamper the full development and maintenance of man's mental and physical capacity. Such a policy was outlined last year by Sir Farquhar Buzzard in a paper on the place of social medicine in the reorganization of health services.¹ Its chief aim, he held, would be to expose the sources and bases whence arise ill-health and disability by investigating the social, genetic, environmental, and domestic factors that affect the incidence of human disease. A second and equally important aim would be to search for and promote protective measures other than those usually employed in remedial medicine. Sir Farquhar argued that the first step forward to the goal was the setting up of professorial departments or institutions of social medicine in close association with hospitals and having a fourfold purpose: (1) To foster research; (2) to reorientate the aims of the medical curriculum in such a direction that the doctor of the future will be trained not only to fight disease but to be an architect of personal and public health; (3) to organize postgraduate training in social medicine; (4) to co-ordinate and guide the activities of social and health services already established or to be established in the future. Hard on the heels of that pronouncement came news that the University of Oxford, with moral and financial support from the Nuffield Provincial Hospitals Trust, had resolved to establish an institute and professorship of social medicine, whose purpose would follow closely the lines indicated by the Regius Professor of Medicine. Action followed decision, and the first holder of the chair, Prof. John A. Ryle, is already working in Oxford at the nascent Institute of Social Medicine.

Recent letters to the *Times* by the two men most closely concerned with Oxford's new departure have brought its aims before a wide public and related them to a topic of the day—that is, to a comprehensive health service according to the Beveridge report. Sir Farquhar Buzzard, writing in the *Times* of July 21, invited attention to broader considerations than such controversial topics as salaried medical service, free choice of doctors, the preservation of the voluntary hospitals system, and changes in the constitution and areas of local government. He recalled that the aim of a comprehensive health service, according to Sir William Beveridge, is to produce and maintain a nation so healthy that it is capable of maximum production, thereby becoming both prosperous and contented. An obstacle now interfering with that objective is the fact that there are not nearly enough doctors to carry out the threefold duties of promoting health, of preventing disease, and of

curing the sick. Doctors, Sir Farquhar says, "simply have not the time necessary to do their job with satisfaction either to the community or to themselves. There are too obvious methods of dealing with this difficulty. The number of doctors must be increased, or their work decreased. The first alternative is a melancholy and defeatist policy the second deserves more careful investigation than it has yet received." It is indeed true that the doctor's time is mostly taken up with minor disorders of health, physical and mental, which though disabling are preventable. No less true is it that their origins are plain for those who have eyes to see. "Staring us in the face is a low and inadequate standard of living caused by bad housing, imperfect supply of air, light, space, and water, ignorance regarding hygiene, food, and drink, evasion of the problem presented by sex and heredity, lack of leisure and recreation, and last, but by no means least, the prevalence of dirt and dirty habits. Turning to the mental side, equally obvious are lack of social security and all the nervous strains and anxieties directly due to this and to the physical and environmental factors already mentioned." The question thus clearly posed is whether to attack the sources of ill-health or to continue indefinitely content with treatment and rehabilitating the unhealthy. Developing his plea for joint and co-ordinated efforts in preventive and social medicine, Sir Farquhar pointed out that the training and qualifying of the requisite number of doctors to deal adequately with the present ill-health of the nation would take ten to twenty years at least; but meanwhile the volume of ill-health might be so greatly reduced by improvement of social conditions that the larger number of doctors might well be superfluous. He ended with these significant words: "We should welcome an improved and comprehensive health service, but only if associated with the pledge to the Government to eradicate as far as is possible the most obvious causes of ill-health."

Prof. John Ryle's letter in the *Times* of July 24 was written to supplement Sir Farquhar Buzzard's advice from the point of view of one whose ideas are in close accord with his. "The majority of doctors have been compelled to the belief that their first function is the treatment of disease or injury and not the maintenance of, or education for, health. Medical students are still largely bred in that belief; they learn little of the foundations, meaning, and measurement of health, and rarely examine a healthy subject. The public for the most part think of the doctor as someone to consult in times of sickness only." Acknowledging the wonderful achievements of the environmental health services, Prof. Ryle had to note that latterly even these preventive services have been compelled by the great mass of our infirmities to take over more and more of the treatment of developed disease, and except in four or five directions they still have relatively small powers for contributing to constructive programmes of social medicine in hygiene. "If examination for health and if training, feeding, housing, and education for health in the armed Forces in wartime are necessary for national defence and survival, surely they must come to be regarded as equally necessary for national efficiency and survival in time of peace. Employer and employee, equally with the High Command and the rank and file, must learn the mutual benefits which can accrue from that health or 'wholeness' (in a bodily, mental, and moral regard) which is a possible goal, and must in time become our first economy." And so the two letters from Oxford converge to the point with which we began, and reinforce our view by weighty reasoning.

¹ *British Medical Journal*, 1942, 1, 703.

DEATH OF THE PRESIDENT

Members of the British Medical Association will learn with deep regret that our President, Sir Beckwith Whitehouse, M.S., F.R.C.S., after attending the meeting of Council at 3.M.A. House on July 28, had a heart attack when beginning his journey home and died soon afterwards in University College Hospital, London. Sir Beckwith, who was in his 61st year, had had a most distinguished career and was professor of midwifery and diseases of women in the University of Birmingham, and gynaecological surgeon to the General and Queen Elizabeth Hospitals, Birmingham. He was an Honorary Member of the Canadian Medical Association and an Honorary Fellow of the American College of Surgeons. He joined the British Medical Association soon after graduation and was honorary secretary, vice-president, and (in 1936) president of the Section of Obstetrics and Gynaecology. The Birmingham Branch made him its president for 1934-5. At the Aberdeen Meeting of the B.M.A. in 1939 Sir Beckwith Whitehouse was appointed President-elect, and but for the war he would have presided over the Association at Birmingham in 1940. He succeeded Dr. Thomas Fraser in the presidential chair in 1942, and the Council at its recent meeting unanimously and with acclamation resolved to recommend to the Representative Body his re-election for the year 1943-4. On behalf of all our fellow members we offer sympathy to Lady Whitehouse and her children in their sudden bereavement. A memoir, with portrait, will appear in next week's *Journal*.

THE NATURE OF INFLUENZA VIRUS

The question of size has always assumed great importance in discussions on the nature of viruses. Larger members like the viruses of vaccinia and psittacosis are almost universally accepted as small living parasites, akin to the bacteria, and their sizes present no obstacle to a structural complexity sufficient for their metabolic activities and adaptative mutations. Indeed, Rivers and his co-workers have shown that the elementary bodies of vaccinia contain, in addition to protein, fat, carbohydrate, and copper, a growth-promoting factor which is probably biotin, and there is good evidence that they multiply like the bacteria by simple binary fission.

Until recently influenza virus was generally considered to belong to this large-size group, its particle diameter being accepted as approximately 100 m μ . Recent papers by Chambers *et al.*,¹ however, present convincing evidence that the virus unit has a diameter of only about 10 m μ and a molecular weight of less than 1,000,000: this would place it among the very smallest of the known viruses, the sizes of which are comparable with large protein molecules. Moreover, their preliminary studies have indicated that the virus protein is no more complicated, chemically, than the infectious agent of tobacco mosaic, which Stanley² showed could be isolated in paracrystalline form. Since Stanley's pioneer work many plant viruses have been crystallized as true three-dimensional crystals, and there is now little doubt that they are chemically pure protein substances. But so long as the animal viruses resist all attempts to obtain them in crystalline form it is perhaps legitimate to consider them of fundamentally different nature from the plant viruses. It may be significant, however, that the infective agent of poliomyelitis, with an estimated particle diameter of about 12 m μ , is considered by some workers to be a non-living protein which can be repeatedly precipi-

tated without loss of infectivity. Whether influenza virus belongs to this group of infectious chemical agents remains to be determined: it is certainly difficult to imagine a chemical substance possessing its powers of adaptation and its antigenic mutability.

One of the greatest mysteries in the epidemiology of influenza is the mechanism whereby the virus survives through long interepidemic periods. Andrewes³ postulated a basic non-pathogenic virus, harboured by normal human carriers, which might under favourable conditions evolve through several grades of increasing antigenic complexity and pathogenicity. Recent work by Shope⁴ on swine influenza points to another interesting possibility. His experiments indicate that the lung worms which commonly infest pigs serve as an intermediate host for the virus, not only while they remain in the pig's lungs but throughout the excretion of their ova and their development through larval stages in the earthworm. The ingestion of earthworms by swine completes the cycle. As earthworms may remain infective up to 32 months, survival of virus from one epidemic to another becomes readily understandable. The most interesting feature of Shope's work, however, is the demonstration that virus, while in the lung worm, whether adult in the pig or larval in the earthworm, exists in a masked form; it is totally non-infective until awakened to activity by some provoking stimulus. Shope thinks that the onset of a swine epizootic is determined, not by the acquisition of the causative virus, but by meteorological or physical conditions which favour virus activation. Although a similar mechanism in human beings seems unlikely, it would be unwise to ignore the possibility. Human epidemics, like swine epizootics, usually occur during a particular season of the year, and epidemic foci often arise simultaneously and apparently independently, suggesting some activation of previously acquired infection rather than direct case-to-case transmission. Much further knowledge of the epidemiology of the disease as well as of the chemical and physical properties of the causative agent is required for a fuller understanding of the nature of influenza virus.

PLANT HORMONES

The concept that specific chemical substances secreted in small amounts by certain organs in the body exercise a profound influence on the growth and shape of the animal form has provided a fascinating chapter in the book of human knowledge. In the last ten or fifteen years, however, an equally fascinating supplement to that chapter has been written, for the growth and form of plants have also been shown to be controlled by specific chemical substances. These plant "hormones" are known as "auxins" (from a Greek word meaning "to grow"), and of them Went and Thimann⁵ have stated "that the auxins play a protean role in the development of plants, and influence a large number of processes both normal and pathological." Though the occurrence of plant hormones has only been securely established in the last ten years or so, Boysen-Jensen⁶ as long ago as 1910 found that, if he cut the tips off *Avena* (oat) coleoptiles and stuck them on again with gelatin and then illuminated only the tips, the tip and the base of the coleoptile curved towards the light. Thus under the influence of light a substance was being produced in the tip which was capable of diffusing through the rest of the coleoptile. This diffusible substance was

¹ *J. exp. Med.*, 1943, 77, 251.

² *Ibid.*, p. 265.

³ *Science*, 1935, 81, 644.

⁴ *Proc. roy. Soc. Med.*, 1942, 36, 1.

⁵ *J. exp. Med.*, 1943, 77, 111.

⁶ *Ibid.*, p. 127.

⁷ *Phytohormones*, 1937. The Macmillan Company, New York.

⁸ *Ber. d. bot. Ges.*, 1910, 23, 118.

obtained from coleoptile tips by Went⁹ in 1926 and 1928. The chemical investigation of this substance was later carried out by Kögl and his collaborators in the years following its isolation by Went. A number of growth-inducing substances have since been obtained from plants. They have all been described as auxins. Eventually all auxins were classified as either auxin "a" or auxin "b." The first was given the chemical name of auxin triolic acid, and the latter was called auxenolonic acid. They both consist essentially of a 5-carbon ring including a double bond and carrying two or three side chains. In 1934 Kögl¹¹ isolated indole-3-acetic acid (hetero-auxin) from urine, and it was found to have a strong growth-stimulating effect in plants. Since then many related chemical substances—naphthalene acetic acid, indole butyric acid, etc.—have been found to have a growth-stimulating function in plants. It is noteworthy, however, that they stimulate growth by causing cell elongation, not cell division. This group of substances is particularly active in stimulating root growth. Mixed with lanolin and rubbed on to a plant they will cause roots to grow on the leaves or stem of a plant or even on the petals of a flower. Such substances are obviously of great value in persuading recalcitrant cuttings to "strike"—e.g., those of the yew, holly, and lemon. Spraying the unpollinated flowers of various fruits with some of these substances causes the fruits to develop without seeds. Seedless tomatoes have been one of the interesting and palatable results of these experiments.

One of the most surprising things about the auxins is their wide occurrence in animal tissues. They are present also in the excretions of the body—in saliva and urine. In the latter there is so much present that human urine has been used for the extraction of pure auxins. Since auxin is a growth-promoting substance it is not surprising that attempts were made to see if it was present in tumours. Extracts of mouse carcinomata, however, proved to be negative. It was observed to have no effect on the growth of tissue cultures, but embryonic extract was found to be rich in it. Auxin increases in amount in the hen's egg during development. This extraordinary parallelism between growth and auxin content is of great interest, but there is no direct or indirect evidence that growth of animal cells is in any way affected by the auxins.

THE SITE OF PARATHYROID ACTION

Does the parathyroid hormone act directly on the bones or does it primarily affect the kidneys? The question is still unsettled. Convincing evidence for both theories has been brought forward in the past, and it is typical of this problem that two recent investigations have led to opposite conclusions. Selye¹² still adheres to the older view—that the parathyroid hormone acts primarily on bone. In his experiments he injected 60 to 100 U.S.P. units of parathyroid hormone into rats 18 to 27 hours after nephrectomy. The animals were killed 32 to 36 hours after the operation, and even in this short time there was histological evidence of osteoclastic absorption of bone. There was, however, no calcification of the soft tissues, apart from calcium deposits detected histologically in the renal tubules of unoperated control rats: this is evidence that calcification of the soft tissues is a secondary action shown only when the kidney cannot excrete all the calcium and phosphate liberated from bone. Similar but much slower osseous absorption was produced by nephrectomy itself. Selye was able to show that this was probably due to a stimulation of the para-

thyroid glands, because it did not occur when they were removed at the same time as the kidneys. All in all, the experiments show that the parathyroid hormone acts on the bone, and that the kidney exerts only a regulatory effect probably depending on the calcium or phosphate concentration in the blood.

The upholders of the renal theory emphasize the fact that when parathyroid injections are given the first sign is an increased excretion of phosphate and a lowering of blood phosphate, and that these effects always precede the rise in serum calcium. Collip, who was formerly an upholder of the bone theory of parathyroid action, has recently swung over to the renal theory. Neufeld and he have shown that parathyroid extracts will not cause a rise in serum calcium in rats, cats, or dogs in which the excretion of urine is prevented either by removal of the kidney or by ligating the renal vessels or ureters. In the rats this treated the normal fall in blood phosphate after parathyroid injection was transformed into a large rise. Confirmatory evidence of the renal site of action was the fact that the rise in calcium and fall in phosphate in the blood after parathyroid treatment in dogs were prevented when posterior pituitary extract was given in large enough amounts to cause anuria, and that in a cat with exteriorized ligated ureters the normal response to parathyroid injections was restored by cutting the ligatures. The rise in serum calcium may be prevented in normal dogs if sodium acid phosphate is given intravenously at a rate that maintains a constant blood phosphate level, which shows that phosphate rather than calcium metabolism is primarily affected. It is noteworthy that Neufeld and Collip did not study the bone histology of their animals, nor did Selye investigate the calcium or phosphorus metabolism of his rats. Finally, to add to the confusion, Fay, Behrmann, and Buck¹³ have reported their failure to demonstrate any effect of parathyroidectomy or parathyroid injections on urinary phosphate or creatinine clearance in dogs.

MEDICINE IN THE FRENCH COLONIES

Through the ages in all countries medical science has struggled for advancement to make the world a better, safer place for man to dwell in. Many medical men have been leaders in the resistance to Germany in the countries she has overrun in Europe. Our Polish allies have organized their medical school in Scotland, with their own medical journal. Now we read, with pleasure and admiration for those Free Frenchmen carrying on the struggle, the first number of the *Revue des Sciences Médicales, Pharmaceutiques et Vétérinaires de l'Afrique Française Libre* from Brazzaville, with an introduction by the Director-General. There are ten papers on a wide variety of subjects both medical and surgical. Of particular interest are the descriptions of the first recorded case of rat-bite fever in French Equatorial Africa and work on trypanosomiasis. Campourcy has found an extremely low infection rate of *G. palpalis* with *T. gambiense* in the Cameroons. Only 44 of 1,166 flies caught in different areas proved to be infective, with a comparative figure of 518 infections among 9,440 natives examined in the same areas. David and Pape, also in the French Cameroons, record two cases of congenital trypanosomiasis, said to be the first ones in which transplacental transmission has been established beyond doubt. The scope and interest of the articles in this first issue have laid a firm foundation for the success of this journal, which represents the spirit of Free France.

⁹ *Proc. Kon. Akad. Wetensch.*, 1926, 30, 10.

¹⁰ *Rev. trav. bot. neerl.*, 1923, 25, 1.

¹¹ *Z. Physiol. Chem.*, 1934, 228, 90.

¹² *Arch. Pathol.*, 1942, 34, 625.

¹³ *Endocrinology*, 1942, 30, 135.

¹⁴ *Amer. J. Physiol.*, 1942, 136, 716.

DIPHTHERIA PROBLEMS

The following is substantially a memorandum on some difficulties in diagnosis, notification, and treatment of diphtheria, prepared by the council of the Fever Group of the Society of Medical Officers of Health.

Artificial immunization has markedly reduced the incidence of diphtheria and minimized the severity of attacks in protected or partially protected individuals. The variation in the classical signs has increased the difficulties of diagnosis in cases exhibiting doubtful throat symptoms, and without evidence of complete immunization, as shown by a negative Schick test, immunity cannot be safely assumed; further diphtheria may occur, though comparatively rarely, in a Schick-negative person. There is a tendency to place undue reliance on the result of swab examination. The bacteriologist cannot distinguish between active diphtheria and the carrier state, and his report must be interpreted in the light of clinical findings. Doubtful cases should be examined for haemolytic streptococci and Vincent's organisms.

Disposal of Cases

Where the practitioner is reasonably certain of the diagnosis an adequate dose of antitoxin must be given at the earliest possible moment, normally in hospital, as it is advisable to give one maximum dose rather than a succession of smaller ones. Only where there has already been delay or there is likely to be delay in admission should the doctor give antitoxin. The fatality rate in diphtheria varies directly with the number of days elapsing between onset of the disease and the administration of an adequate dose of antitoxin. Antitoxin need not be withheld for fear of severe reactions: the modern protein-digested concentrated product rarely gives rise to serum-sickness or related phenomena.

All doubtful cases require continuous observation, during which there should be full bacteriological and clinical investigations; they should be removed promptly to a hospital where appropriate treatment can be given. The procedure adopted in many hospitals to-day is as follows: (1) Where delay in the administration of antitoxin would be dangerous it should be given immediately, before any bacteriological investigation; (2) where a delay of six hours would not be dangerous the Schick test should be performed, swabs taken, and antitoxin given six hours later; and (3) where a delay of one day or more would not be dangerous the Schick test should be performed and swabs taken, and antitoxin deferred until the results are known. In no case should reliance be placed on the swab alone; every suspected case when first seen must either receive antitoxin and be swabbed or must be Schick-tested and swabbed. When in doubt antitoxin should be given.

Doubtful Cases

An individual whose throat or nose is swabbed because of contact with an established case but who has no symptoms must not be classed as a case of diphtheria, notified as such, or sent to hospital merely on account of a positive finding. The procedure for dealing with carriers is fully described in the report of the L.C.C. Departmental Committee on the Nomenclature of Diphtheritic Diseases (1926), in which reference should be made. Routine swabbing of contacts, except in special circumstances—e.g., certain institutional outbreaks—is to be deprecated and should at any rate be restricted to those showing an unhealthy condition of the nasal or pharyngeal mucosa. The waste of effort, time, and material involved is not justified by the very occasional discovery of a healthy carrier.

One of the main functions of an infectious diseases hospital should be the admission of doubtful cases for observation and final diagnosis. The L.C.C. is prepared to issue instructions that "diphtheria observation" will be accepted as an adequate diagnosis for admission to its hospitals, and it is hoped that other hospital authorities will do the same. The public should be taught to realize that the doctor who sends a doubtful case to hospital for investigation is doing better by his patient than the doctor who waits for the result of swab examination. Refusal by hospitals to admit possible cases of diphtheria without a definite diagnosis may compel doctors to notify many about which they are doubtful as actual cases. At present the error in notified diagnosis is very large; it varies in different parts of the country, being in London about 35%. As the Registrar-General corrects only a minority of cases in which the doctor withdraws his notification, the discrepancy between the actual and the published figures of diphtheria incidence is a very serious one. Admission of cases for "diphtheria observation" will go a long way to end this. Medical officers of health of authorities which provide their own infectious diseases hospitals will have little difficulty in dealing with such provisional notifications, and in other cases it should be simple to arrange with the hospital authority and the Registrar-General for regular revision of notifications based on the final diagnosis. If this procedure is adopted a larger proportion of single-bed wards will have to be provided. Newer knowledge of infectivity has already made the large, undivided ward something of an anachronism, and the procedure suggested in this memorandum may help to expedite long-overdue improvements in fever hospital construction.

Nova et Vetera

THE HIPPOCRATICS

Hippocrates is an author revered rather than read. Half a dozen pregnant aphorisms remain in the memories of all physicians, perhaps a score in those of the bookish, but a reader tempted by these purple patches to go to the source is apt to be disappointed. Probably most will read the essay on Ancient Medicine with as much pleasure as a not too technical dialogue of Plato gives, but the collection (even the so-called "genuine" works) contains so much which only one learned in ancient philosophy can understand at all, that interest fails. Just as most know Euclid at second hand (in these days hardly even that), knowledge of Hippocrates must be derivative. Fortunately those familiar with Greek thought, from Galen's time to ours, have written appraisements which the world could read. *Hippocratic Medicine*, by the late Prof. William Arthur Heidel, belongs to this class. The learned author was not a physician, but there is little in this book a physician might not have written. Perhaps he is a little less conscious than a clinician or an epidemiologist would be of the difficulty of identifying the epidemic in *Epidemics*, VI, 7, cap. 1. It is tempting to identify, with Littré, an epidemic cough, followed sometimes by anginas and paralyses, with diphtheria, but the Greek author's insistence upon the frequency of nyctalopia is puzzling. In any case, "spotting" epidemics of the remote past is not much more than an intellectual game, and, as Prof. Heidel says, a description of symptoms, however accurate, is not enough.

Did the Hippocratics Over-simplify?

The value of this study is in relating the Hippocratics to their scientific contemporaries and predecessors and in making a comparison between the ideal physician of that age and of our own. Unlike some scholars, Heidel passes by the—to those not expert philologists—rather tedious questions of authorship and uses the whole Hippocratic corpus as material for his study. Naturally the picture he paints is not unlike those of great predecessors, but he does modify some features. He suggests, for instance, that the speculative element of Greek science and its reliance on analogy have been overstressed, and that actually the Greeks were more empirical than they have had the credit for being. Bacon's contemptuous reference to Aristotle as an experimenter has been taken more seriously than it deserved. "Bacon knew little of the way the human mind actually works and had not reflected on the difference between arriving at conclusions and presenting them for the acceptance of others." Most men who have done real research work (a class to which Bacon hardly belonged) realize that truth. Laplace, who was wont to condense an elaborate investigation into the phrase, "It is easy to see that . . .," gave a not very extreme example of a common practice. The often-praised lucidity of French scientific writers in comparison with Germans is partly due to the omission of steps, although the habit may lead to the danger Horace mentioned—in striving for brevity one becomes obscure. In medical writings the danger is not obscurity but fallacious lucidity; a beautifully written textbook may produce an ill-grounded sense of security. The Hippocratics—as the most famous of their aphorisms proves—knew that risk, but Prof. Heidel thinks that they did over-simplify.

The Ideal Physician

Looking back to that wonderful age it is clear that our ideal and the Hippocratic ideal were the same, not only ethically—that has never been questioned—but intellectually. The Hippocratics insisted on the importance of a complete picture. One does not treat a disease but a sick man, an individual, yet not an isolated individual but a member of a group. One must survey the whole field. That is our view too; but while the Hippocratics had the courage—or the presumption—to believe that the physician's own moral and intellectual resources would suffice to enable him to establish a diagnosis and apply or direct the application of the necessary treatment, we believe that this is not always true. The Hippocratics, of course, used

technicians; but as subordinates, much as a hundred years ago, or even less, physicians availed themselves of the help of chemists and pathologists. Now, on the intellectual plane, the relation is not of master and servant but of joint heirship. Yet it is still true that in the lives of most human beings the relation of physician and patient is fundamentally what it was in the age of Hippocrates. Those who are afflicted or distressed in mind, body, or estate do not look for comfort to groups but to individuals, not to a committee of the College of Physicians or of the Law Society, but to a doctor or a lawyer. That is why the ideal physician of the Hippocratics—the individual wise, learned, but humble-minded, and a lover of his fellow-man—will remain the ideal of us, of our children and our children's children.

M. G.

Correspondence

Immunization against Enteric Group Fevers

SIR.—On reading the article on enteric group fevers in prisoners from the Western Desert as it appeared in the *Journal* of June 12, my attention was riveted by a point which escaped my notice when writing the paper and which ought to be duly recorded. South African troops are inoculated, not with Army T.A.B. vaccine, but with Grasset's T.A.B. endotoxoid. (It will be recalled that at the Annual Meeting of the B.M.A. in Plymouth in 1938 a session of the Epidemic Diseases Section was devoted to a discussion on immunization against enteric group fevers, in which Dr. Grasset and I took part.)

When troops from the Union of South Africa reached the Middle East in 1941 they had been immunized with Grasset's endotoxoid. The opportunity to make a comparison of the respective preparations (endotoxoid and T.A.B.) was too good to be missed, and, with the co-operation of the D.M.S., U.D.F. (Brigadier Orenstein), arrangements were made to continue inoculating and re-inoculating South African troops with endotoxoid, and to collect and compare the results with those from the rest of the Force. These figures have not yet been finally assessed, but there is no doubt that endotoxoid affords a high degree of protection.

A number of the prisoners in the Sidi Hussein camp—i.e., the South African troops—were therefore protected not by T.A.B. vaccine but by endotoxoid. As all others—exact numbers are not available, but they constitute the majority—were inoculated with Army T.A.B., the main argument of my paper is unaffected, especially as Grasset's endotoxoid shares with Army T.A.B. the basic principle of being made from virulent strains of *Bact. typhosum*.—I am, etc.,

J. S. K. BOYD.

Colonel, A.M.S.

M.E.F.

Comparative Value of Phage and Sulphonamides in Acute Bacillary Dysentery

SIR.—The table published by you of the results of the treatment of bacillary dysentery with sulphaguanidine by Cols. N. Hamilton Fairley and J. S. K. Boyd in the Middle East (*B.M.J.*, 1942, 2, 674), and the earlier table of the results of Drs. R. Reitler and K. Marberg with sulphapyridine (*B.M.J.*, 1941, 1, 277), taken in conjunction with my own published results with phage (*Lancet*, 1929, 2, 273), permit of comparing the therapeutic value of these respective agents.

Translating the Reitler and Marberg records and the Compton records into the Fairley and Boyd notation, we get the comparative data of Table I. My publication, which goes back to the early days of phage therapy when one was feeling one's way, records 45 successes out of 62 cases treated, with the administration in the main of only 3 ampoules of phage spread over 3 days (one ampoule immediately, one first thing the following morning, and one the next morning—a totally inadequate dosage in terms of to-day). The table of "clinical records" accompanying the original typescript, which table the *Lancet* was then unable to publish through lack of space, is fortunately still available. To bring the records into line with the ill 1-5 days before treatment group of Fairley and Boyd on the one hand, and, on the other, with 8 or more stools in the 24 hours before treatment in this same group in the series of Reitler and Marberg, elimination has been made of 3

cases whose date of onset was not recorded, of 7 cases ill 6-10 days of 4 cases ill 12 days or more, and of 9 cases with less than recorded motions in the 24 hours before treatment. This leaves 2 cases, in the ill 1-5 days before treatment group of Fairley and Boyd, and with 8 or more stools in the 24 hours before treatment series of Reitler and Marberg, with which to establish the appropriate data concerning phage of Table I.

TABLE I

No. of Cases	Average No. of Stools in 24 Hours before Treatment	Average Time in Days after Treatment before Stools per Day were:		Treatment	Authority
		3-5	2 or less		
39	27.8	4.0	5.3	Sulphaguanidine	Fairley and Boyd (1942)
16	20.5	2.5	3.0	Sulphapyridine	Reitler and Marberg (1941)
22	17.1	2.4	3.1	Phage	Compton (1929)

The Fairley and Boyd records deal only with Shiga cases; the Reitler and Marberg records with Shiga, Flexner-Y, Sonne, Strong and Schmitz infections; while the Compton records represent primarily "bacillary exudate" findings, with, among specimen cultured, the isolation of Shiga, Flexner, Hiss, Sonne, Morgan, Gay-Harris, and Sal. Alex. 5 (Newcastle group) organisms.

For economy of presentation the above table deals only with acute cases, those of the ill 1-5 days group of Fairley and Boyd. The latter's "formed" stool column has been discarded, since the quality of being formed is of little significance in Middle East stool and represents no special criterion of cure. What does this table teach? It indicates the progress of cure, which is seen to be the more drawn out the larger the initial number of stools. If we define as index of improvement the ratio of the number of stools in the 24 hours before treatment to the number of days to reach normal limits, then the table permits us to calculate the comparative rate of improvement in the different series. When these calculations are made we get the data of Table II.

TABLE II

	Improvement Index. Daily Rate of Return of Stools to Levels per Day of:	
	(a) 3-5	(b) 2 or less
Fairley and Boyd	6.95	5.24
Compton	7.12	5.51
Reitler and Marberg	8.20	6.83

Table II. shows that the quickest daily rate of return to the status quo ante occurs in the sulphapyridine series of Reitler and Marberg, the phage series of Compton coming in second best, and the sulphaguanidine series of Fairley and Boyd a close third. I may be contended that the relatively slower rate of cure in the Fairley and Boyd series was because their cases were Shiga infections. But this contention can almost certainly be dismissed as an explanation, since it in no way holds true for the four Shigas in the Reitler and Marberg series (representing 1/5th of their total cases), where the treatment was with sulphapyridine instead of sulphaguanidine. Here we find a calculated average of 36.25 stool in the 24 hours before treatment for two Shigas ill in the 1-5 day group and two in the ill 6-10 day group (of the Fairley and Boyd table), with a reduction to the level (a) in an average of 3.25 days and to the level (b) in an average of 3.5 days—thereby providing for the Shigas of Reitler and Marberg, treated with sulphapyridine improvement indexes of 11.15 for (a) and 10.35 for (b). The corresponding improvement indexes for the Shigas of Fairley and Boyd, ill in their combined 1-5 and 6-10 days groups, are easily calculated to be: 6.21 for (a) and 4.65 for (b). Based on an average of 24.84 (66) stools in the 24 hours before treatment, with a reduction to the level (a) in an average of 4 (53) days, and to the level (b) in an average of 5.34 (63) days. See the more complete table of the Fairley and Boyd results (*Lancet*, 1942, 1, 20). The numbers in parentheses are those from which averages have been struck. These figures indicate an average return of Shiga stool towards normal at rates practically twice as rapid with sulphapyridine as with sulphaguanidine. Moreover, for infections with classical bacilli other than *B. shiga*, the Reitler and Marberg series provides daily improvement in the number of stools at rates of 8.51 for (a) and 6.47 for (b), thus indicating that their Shiga improved at a relatively more rapid rate with sulphapyridine than did their other cases.

The sulphonamide statistics of Fairley and Boyd, as well as those of Reitler and Marberg, are important: the former as serving 16

explode the myth about any superiority of sulphaguanidine over phage in the treatment of acute bacillary dysentery; and the latter as establishing that sulphapyridine can be the more efficient of the two sulphonamides. The phage statistics here dealt with are for from showing phage at its best, and are quoted for the want of any more recent. They relate to pioneer work by myself when one was feeling one's way with phage and dosage was being worked out. Since then we have not troubled to collect statistics for publication, the Alexandria community having become, and having remained, so phage-minded as to render any further proof of the efficacy of phage unnecessary. With the perfected phage preparations available to-day, and administered every 3 or 4 hours in the acute stage, attacks of bacillary dysentery have become matters of little concern (see Compton, *B.M.J.*, 1941, 2, 280). Whatever may be the merits of the sulphonamides in bacillary dysentery, few practitioners with any genuine experience of good phage preparations will, I think, want to change their accustomed line of treatment with phage for sulphonamides, unless it be in the occasional chronic case that may not respond straightway to phage.

A final word. The Services would appear to have been let down over sulphaguanidine through insufficient supplies. Thus in your report Col. Fairley is reported as saying: "*If supplies were sufficient* [the italics are mine] the therapeutic ideal from the Army point of view was that every dysentery patient should have sulphaguanidine at the earliest possible moment." Now, since, on the showing of the Army's own statistics, sulphaguanidine possesses no advantage over phage in acute dysentery, why should not an enlightened phage policy—even an eleven-hour affair—be now embarked upon? And the more so since inexhaustible supplies of phage could without much difficulty be made available, if the Services so wished, with untold benefit to our fighting men of all three Services.

—I am, etc.,

Alexandria.

ARTHUR COMPTON.

Site of Embolus after Spinal Anaesthetic

SIR.—Major H. Agar in his article on peripheral arterial embolism (July 24, p. 101) makes the point that he employs spinal anaesthesia when performing embolectomy in the lower limbs. He does not say how long before operation the anaesthetic is given.

In the past year I have seen two cases treated by spinal anaesthesia and immediate operation. On each occasion when the vessel was exposed at the judged site of the embolus it was found that the embolus had moved peripherally owing to vasodilatation. I therefore believe a better method is to give a spinal anaesthetic in the ward, leave the patient for at least half an hour, and then redetermine the site of the embolus. By so doing it is possible that it may have moved sufficiently far distally for operation to be unnecessary.—I am, etc.,

St. Thomas's Hospital, S.E.1.

RAYMOND DALEY, M.R.C.P.

Eve's Method of Artificial Respiration

SIR.—Dr. Eve's method of artificial respiration has received welcome and deserved publicity during the past months, but it is unfortunate that so many of its advocates are concerned with apparatus. The method was first used on board a ship on Nov. 6, 1933, at the Falkland-Isles, a few weeks after the publication of Dr. Eve's second paper (*Lancet*, Sept. 30, 1933) and before the brilliance of his simple description had been obscured by a great cloud of witnesses or encumbered by an ever-growing literature on apparatus. My reason for drawing attention to this case is that it remains, to the best of my knowledge, the only one in which Eve's method has been used at sea during the ten years that have passed since the method became available. Until more cases are reported on it does not seem profitable to theorize on apparatus, and it may be excusable to quote what actually happened on this occasion.

Dr. Eve's principle was applied within five minutes of the occurrence of respiratory failure, and artificial respiration was maintained successfully and without effort for two hours, being abandoned only when circulatory failure was added to cessation of natural respiration. Details of this case were published (*J. roy. nav. med. Serv.*, 1934, 4, 20, 365) and the method thus commented on: "Its use in an emergency, in which there may be several cases of asphyxia to deal with at the same time, is only limited by the number of stretchers and hands available for rocking." Had the method at that time been so closely identified with ideas on mechanical appliances as

it is to-day it would probably not have been attempted with improvised equipment, on the score that such substitutes would be too clumsy and ineffective.

In the latest addition to communications on appliances Dr. J. R. Lahiff (July 10, p. 42) has produced an ingenious and simple piece of apparatus, but his suggestion that all stretchers should be so fitted and that this would effect a great saving of life is open to two objections. The number of cases of asphyxia in relation to the total numbers for which stretchers are used is negligible and the universal modification of stretchers for this purpose is not, therefore, reasonable; if, on the other hand, a case of asphyxia occurs in the absence of a stretcher so modified, lives may be lost through the idea gaining ground that the method is impracticable with improvised means. It is relevant to remark that such cases usually occur in wartime in groups, that, therefore, several modified stretchers might be required, and that for this reason the modification of a single stretcher in each ship would serve no good purpose.—I am, etc.,

London, E.C.4.

J. J. KEEVIL.

Adolescent Spondylitis

SIR.—Dr. C. W. Buckley (July 3, p. 4) devotes a considerable proportion of an article on the differential diagnosis of spinal arthritis to that form for which the late Dr. Gilbert Scott proposed the name "adolescent spondylitis." But Dr. Buckley does not confine himself to diagnosis. He gives a paragraph on treatment. As this summary appears to me to be unduly pessimistic, I have been hoping that someone would criticize it in your columns. But as this expectation has not so far been justified, I should like to offer a few remarks. They are based on an experience of some hundreds of cases.

To advise patients in early cases to rest in bed, unless for a very brief period, is to run the risk of their losing movements which they may never recover. Rest of itself will not check the disease, and if proper measures are taken it should seldom be necessary. The most effective treatment is that introduced some ten years ago by Dr. Scott. This has nothing to do with "deep x rays," but consists in the exposure of the whole body to subreaction doses of x rays generated at about 100,000 volts. He called this procedure "the wide field method." If this form of treatment is properly carried out the prognosis in adolescent spondylitis is good, as at least three-quarters of all early cases show a rapid and satisfactory response. Of those which do not, there are, in my experience, some who will nevertheless benefit by vaccines.—I am, etc.,

London, W.

F. HERNAMAN-JOHNSON.

Planning of Medical Education

SIR.—I have reread Prof. F. Davies's article (May 1, p. 547) in the light of his letter (June 26, p. 800). I am tempted to repeat my question: "Are we never to test the student's powers of co-ordinating the anatomy of the body as a whole?" If the answer is in the negative Prof. Davies should say so; if in the affirmative, then how are we to do this if we dispense with the 2nd M.B. examination as he suggests?

It is certainly not true of one university (Birmingham) to say that students of anatomy are "fully engaged right up to the eve of their professional examinations in acquiring new minute details and attempting to revise old ones already noted." Our students complete their dissections by the end of the fourth term, and during the fifth term are wholly engaged in correlating the observations made during the course of their investigations.

Prof. Davies speaks in his original article of students "crawling along" and objects to my reminding him that students do not now do this. Machinery has been instituted to dispose of the inept student without vocational aptitude at the "subacute" stage, and I do not believe that any medical school is likely to revert to the bad old days of the "chronic"; therefore this argument is not relevant.

I entirely agree with Prof. Davies as to the advisability of interviewing candidates, but that this should be undertaken by a committee (with or without representatives from other faculties) is not practicable because of the time involved. Since the results of many of the entrance examinations (Oxford and Cambridge School Certificates) are not declared until the eve of the new session, interviews cannot be postponed until after

these results are known. Thus we cannot wait for the weeding-out process of the entrance examinations, and all candidates must be interviewed. I am about to devote the major part of the summer vacation to this work, which, besides tact and patience, needs enthusiasm. I have most encouraging evidence from entirely neutral sources that this time is well spent. My work is simply to collate details concerning each applicant and to submit these to a selection committee, who make the final choice. In making our decision we have found a searching questionnaire sent to heads of schools most helpful.

I was surprised to learn from Prof. Davies that I am guilty of placing a *premium* on feats of memory. I must confess I do not despise the memory, indeed I realize it forms the basis of all knowledge: *Memoria est thesaurus omnium rerum et custos*. If Prof. Davies only knew how we eschew placing a *premium* upon memory, and if he knew of the efforts made here to discourage students from sharpening this faculty on barren anatomical flints, he would realize that he would be hard pressed to prove his assertion.

At this critical period in the world's history we are as alert to the prospect of the door of opportunity opening before us, perhaps-quite suddenly. We want to be prepared; we are neither self-satisfied nor complacent. We realize that in every walk of life there are wrongs to be righted and improvements to be made. We should, however, be grateful, as we grope forward in the darkness, for the voice that whispers *Festina lente*. We should not mind if when we venture an idea someone is unkind enough to criticize; rather should we

"Welcome each rebuff
That turns earth's smoothness rough,
Each sting that bids not sit nor stand but go!"

Destructive criticism if you like, but offered in response to the invitation given in the last paragraph of Prof. Davies's original article; not unkindly meant, and abundantly justified if by this we may be prevented from taking but one false step.—I am, etc.,

Birmingham.

C. F. V. SMOUT.

The People and State Medicine

SIR,—I fully agree with Dr. J. C. Gillies's spirited reply to the criticisms voiced by the Labour Party (*Supplement*, July 17). At the same time I have, like most of us, including Dr. Gillies, considerable sympathy with the people's case. They are being badly served, not through the fault of the doctors. If the successive Ministries of Health, in their handling of National Insurance matters, had deliberately intended and manoeuvred to bring the panel system into contempt and make it the byword which another of your correspondents rightly says it has become, they could not have done so more effectually than by their policy over the past thirty years. Perhaps it is so much to expect that they should understand either the people or the medical profession in directing our national experiment in State medicine. But even politicians and "pen-pushers" are aware that if a good service is wanted in any department of life it has to be adequately remunerated. By persistently ignoring this common-sense aspect the Ministry of Health has given some colour to the suggestion that it was hoped the panel system would fail and thus create a demand for a State-controlled service. In any case such policy has overreached itself. Whatever the nation wants, it does not want to be put "on the panel."

For the high policy that has directed this "twopence a week" service, misnamed National Health, I have had, though participating in it for fifteen years, little but contempt. I fled from the impossible hypocrisy of it in the Midlands of England to a State service in one of our Colonies, where I formed the opinion that in the matter of medical attention on the whole the Chinese and Indian coolies were getting the best of it. When perforce I returned home to general practice I took care that my panel should be small and so well offset by a prosperous population that I would be financially independent of the restrictions of N.H.I. practice, and so in a position to make no difference, whether in time spent or in remedies employed, between panel and private.

Of course such a policy is the best policy all round. No doctor wants the illness of a contract patient to drag on if it can be cut short. Here a good example of incompetent direction and interference with the doctor by the minions of the Ministries falls due to be publicized. Panel doctors were informed by an expert that liver injections were only to be used in the hyperchromic anaemias.

The treatment for the hypochromic type was iron. Good doctors, in a year's work, save more lives and relieve more serious sickness by injecting liver extract in the forbidden groups than in frank cases of Addisonian anaemia. Even before Prof. Davidson's brilliant work on the nutritional anaemias came out, even before this war brought its insidious attack on certain individual metabolisms which had come to depend on a high animal diet, it was only common sense to give an occasional jag of liver preparation to the debilitated dyspeptic or the milk-fed convalescent. It is, perhaps generally known that a timely injection of liver will prevent and even cut short attacks of angina pectoris; but presumably the Ministry's expert did not know this. Myself, I am still in the humiliating position of having to wangle some liver extract somehow for panel patients who would be the better for it but are not frank pernicious anaemia cases.

To produce more gravamen for my charge: what is the result when a new keen doctor comes to a district and gets a reputation for thoroughness? His panel becomes loaded with chronics and undiagnosed cases from miles round, not to mention the neurotics who are in search of *aliquid novi*. The system has a way of ensuring that the better work a doctor does the more will he be swamped with underpaid contract work. And, since there are only sixteen working hours in the day for most of us, he has no time for the more remunerative work and finds it hard to make a decent living. This means less comfort for himself, shorter holidays (the leisure that sweetens the day has long since gone with the wind), petty economies in the replacement of drugs, dressings, and the expensive tools of his craft, not to mention books. He degenerates into the kind of doctor that the "twopence a week sickness club" legislates for and ultimately gets.

I have often asked myself (having run away from slum practice twice), Is it possible for a man who can live and bring up a family on, say, £1,000 a year to limit his panel to 2,500 and, refusing private practice, make a good job of it? The answer is, No! First, he has the dependants to reckon with, mostly poorly paid practice that gives him little or no help with his financial budget. Secondly, the night-work, thanks partly to the necessity for certificates "on the dot," is more than an ordinary man can stand. Thirdly, he has the consultants to reckon with. These gentlemen, with whom as individuals I have no quarrel, are also in a position of having to earn a living in the few hours left them after the claims of hospital and dispensary work have been satisfied. (Incidentally, do the voluntary hospitals make sure, as they ought, that the approved societies and the Ministry do not exploit their charitable basis?) Now a doctor who has only panel patients, with his frequent demand for hospital beds (often urgently) and for diagnostic help which very often he should not require—for instance, how many panel doctors have time to use a microscope even on a urinary deposit?—such a doctor will not long endear himself to the specialist to the extent of being free of their wards and side-rooms, not to mention their firesides where so much good medical tuition is received and given. And so he, too, will degenerate into the "twopence a week" doctor.

Of this shoddy system the profession has tried up to now to make the best. Doctors have been, I think, very humane and generous almost to the point of hypocrisy in trying to conceal from the panel patient that poorly paid contract practice cannot be run on the same generous lines as private. We have accepted rebuff after rebuff from the Ministry. The last straw has been the inclusion of those with incomes up to £420—many of them on the telephone! That this class is to pay twopence a week for their doctoring is, on the face of it, absurd. We owe, even with a war on, no further loyalty to the Ministry of Health: we have kept silence and smoothed things over too long; the facts should be made public now. With the chance of reorganization before us it is our duty as a profession, no matter whose feelings are hurt. My own policy is now to let my panel patients know the limits of contract practice, throwing the blame where it belongs—on a Ministry that has dealt ungenerously with the doctors and can no longer expect them to deal generously with a system that only good will has made workable for so long. Any considered action the B.M.A. takes will, I am sure, be supported by the majority of panel doctors.

—I am, etc.,

Gaerlochhead, Dumbartonshire.

A. GUTHRIE BADENoch.

Actinomycosis of the Tongue

SIR,—In his interesting account of a case of actinomycosis of the tongue, which got better after treatment with sulphonamides, Dr. A. McCloy (July 24, p. 106) suggests that infection may have originated from a bullock which was suffering from "wooden tongue." This is unlikely, since it has for many years been known that the "wooden tongue" of cattle is due to infection with a bacillus, and the condition is known as "actinobacillosis."—I am, etc.,

London, W.I.

V. ZACHARY COPE.

Education and Health Services Areas

SIR.—In the suggestions for educational reform put forward by the President of the Board of Education county boroughs and county councils were mentioned as administrative areas. Now, while there is no objection to the former, there is undoubtedly strong objection to the latter—the county being the area—as community of interest is absent in such an area, and community of interest is vital for the success of all social organization and services, including education.

I therefore suggest that the county should be replaced by a region based on the university, which is really the true centre of enlightenment in the area served by it. To give examples of what I mean. Round Manchester and Liverpool in the North-West, Leeds, Sheffield, and Newcastle in the North and North-East, Birmingham in the Midlands, Bristol in the West, and Cardiff in Wales, etc., educational areas or regions could be formed which would be really socially coherent and natural, for they would have as headquarters a university, which people would naturally regard as their cultural and educational centre. The university region or area could also be the area for other administrative activities, such as public health and the new State Medical Service, as in it there would be the medical school, the large hospitals, special hospitals, and laboratories with their staffs of highly qualified physicians, surgeons, and specialists. It is with these institutions that the local health centres would be linked, and to their trained staffs that the local practitioners would naturally turn in difficult cases for advice and treatment and, where necessary (through research laboratories and high-powered x-ray units), investigation, it being remembered that ease of access and contiguity are important if these facilities are to be availed of.

The region formed of closely grouped local areas round a large town has another big advantage over the county with its scattered local units. In the Manchester area, for instance, under the county scheme Ashton-under-Lyne's headquarters would be Preston, for Hyde and Stalybridge it would be Chester, and for Glossop, Derby; yet all these towns are within 6 or 7 miles of each other and all except Glossop (which is 12 miles off) are about 6 miles from Manchester. Similarly in the Birmingham area Dudley, Bilston, and Sutton Coldfield would have headquarters at Worcester, Stafford, and Warwick instead of Birmingham with all its comprehensive medical facilities. Arguments of a similar nature would hold for town planning, which has an important part to play in post-war social organization. Are three different town-planning authorities going to plan for the satellite towns of Manchester, and three different ones for those of Birmingham? Surely all this would be fantastic, and in times of revolutionary change present realities should guide us. The county had its uses in feudal days, but feudal days are surely over. Let the Government, then, employ reason and courage in planning for education and health and our civic life.—I am, etc.,

Glossop.

E. H. M. MILLIGAN, M.D.

Health Services in the Future Social Order

SIR.—There are still a number of medical men who, while taking a keen interest in the future of this country's health services, appear to overlook the fact that the fundamental issue is not a purely domestic one. Some of them not only ignore the political aspect of the matter but even seem to adopt a scornful attitude towards anyone whose vocation or discretion it is to notice overriding political considerations.

It is time all medical men took a wide glance at the political arena of which their own present transition is a part. The world, and particularly this country, is moving rapidly towards the attainment of certain social aims, chief among which is the equal enjoyment by all men of at least the essential amenities of life. The provision of such amenities will be increasingly demanded of the State, and the tendency will be to discourage private and subsidiary enterprise in connexion with them. That outcome is no longer just a socialist mirage, but probably represents the actual aspirations of a majority of the present electorate of this country. In any case it is a virtual certainty that in the course of the next twenty or thirty years medical and other essential services will become entirely a State responsibility. The medical profession must

face the fact that, like all other institutions, it is borne on the flow of this political tide. Its internal energy should be used to pilot it in mid-stream rather than dissipated in futile attempts to resist the current. If a complete State service is inevitable in the long run, it would be far better and more dignified for the profession to plan it now than to capitulate to the idea by uneasy stages.

There are people who appear to imagine that we have only to make up our minds what sort of medical service will suit us best and the Government will then pass the necessary laws to put it into force. They urge delay pending demobilization, not in order to consult the wishes of a large section of the community at present abroad; not even with the object of adding a certain amount of medical experience to their own; but primarily because they feel that it is important that the future medical service should provide the sort of professional life desired by the younger generation of doctors who will see the most of it. Others (often heard inquiring "Who started all this?") seem to think that their contentment with their present position provides adequate justification for their opposition to anyone's desire to change it in any way. What such people do not seem to realize is that we shall have to deal with a Government whose mandate is derived from a somewhat wider and less stable body of opinion than that to which they subscribe. Thus the planning of medical and other essential services might not be designed primarily to suit the private interests of those who may be called upon to run them.

The Government must be well aware that both inside and outside the House of Commons there is a highly critical consensus of opinion somewhat impatiently waiting for action to implement their promises of social reform. This majority would be quick to discern any sign that might indicate that it was trying to preserve the *status quo*. In fact the Government's practical intentions in relation to the demanded reforms will naturally be judged by what is achieved in its first attempt to put any of them into operation. It would appear that the new health service is likely to be the first practical example of the sort of social order this Government intends to create. Thus medical reform, far from being a domestic matter, might well provide one of the most important political issues of this decade. The effect of this will be to widen and intensify the scope of every question. For example, whereas retention of private practice might have been tolerated as an anachronism best left to die a natural death, it might now be hailed as a certain indication that the Government intended to cater for sectional interests generally and in a way that would perpetuate the reservation of a super-service in life's essentials for the benefit of a small and wealthier minority. In spite of such possibilities there are many medical men who, while believing that this Government represents them better than any probable alternative, nevertheless persist in urging a policy that might even contribute to its downfall.

However much we may dislike this mixture of medicine and politics it is obvious that the new medical coat will have to be cut according to the political cloth. It would therefore be as well if members of the profession took the measure of the stuff before deciding what range of patterns is available for their future habit.

—I am, etc.,

Ege, Suffolk.

J. SHACKLETON-BAILEY.

Refresher Courses for Service M.O.s

SIR.—For some months now your *Journal* has been debating how to make the medical profession shipshape and seaworthy at the end of the war. There is one suggestion which I believe to be important. When I qualified I took the usual underpaid house post, and was then conscribed at the end of the sixth month. In those six months I had just enough time to heave overboard all the twaddle that one must swot up in order to pass one's finals, and was just beginning to find my feet in medicine when I was called up. Ever since then I have been serving in one of His Majesty's more skittish destroyers, and proud to be a member of her gallant company, but as for medicine—well, if I do an hour's work in the sick bay I congratulate myself on having had a busy day.

Surgical experience of a special kind may be obtained during the war, but few of us will be lucky enough to get a job where medical experience can be obtained to any great extent. It therefore appears to me, Sir, that in these discussions about patients getting better and more elaborate treatment after the war, a thought should be given for the flood of young doctors, who, through no fault of their own, have forgotten all their medicine, and who will descend upon the diseased section of the community with, most of them, neither the time nor the financial stability to take a refresher course. So I suggest that we try to make the State realize the necessity for

continuing our relatively generous Service pay for at least six months after demobilization on condition that we take that time in attending, preferably, refresher courses on medicine and allied subjects specially planned for us (e.g., ear, nose, and throat diseases).

It may be argued that we can easily keep in touch with modern progress from our medical journals and revise the already known from our textbooks. The first, however, requires a postal service infinitely more efficient than our present one (at any rate in this theatre of war); while as for the second—well, most of us have been medical students in the much too recent past for us to revert to reading about diseases without actually seeing them. Finally, it may be said that this is what house appointments are for. The number of these available, however, would be quite insufficient for the demand, nor do I see why a man should be rewarded for the services he rendered on active service and for the enthusiasm he now shows in his profession by the inadequate pay and—so frequently—hopeless living conditions of the average house-officer. In many cases, on the strength of the better Service pay and allowances, he may have married during the war, which would make his getting a house job quite impossible unless he happens to have a private income, and for that lucky man my suggestion is not made in the first place.—I am, etc.,

R. MOYLE,
Surg. Lieut. R.N.V.R.

Radiological Practice in a Comprehensive Medical Service

SIR,—In view of the probability that a comprehensive medical service may be introduced by the Government it is generally felt that the time has arrived when further steps should be taken to safeguard the interests of medical radiologists in such a service. We therefore invite medical radiologists to a mass meeting to be held on Saturday, Aug. 7, at 11 a.m. in the Reid-Knox Hall at 32, Welbeck Street, London, W.1 (by courtesy of the President and Council of the British Institute of Radiology). At this meeting all those interested in the future of radiology will have an opportunity of expressing their views as to the most suitable means of safeguarding their interests.—We are, etc.,

R. E. ROBERTS.
J. DUNCAN WHITE.

London, W.

Medico-Legal

SPACKMAN DECISION: APPEAL OF G.M.C.

HOUSE OF LORDS' JUDGMENT RESERVED

The House of Lords, consisting of the Lord Chancellor (Lord Simon), who presided, Lord Atkin, Lord Macmillan, Lord Tomer, and Lord Wright, heard on July 19, 20, and 21 the appeal of the General Medical Council against the decision of the Court of Appeal¹ which, on June 18, 1942 (reversing an order of the King's Bench Divisional Court²), quashed the direction given by the Council to erase from the *Medical Register* the name of Dr. Eric Spackman. After a decree of divorce had been granted to a Mr. T. C. Pepper in a suit in which Dr. Spackman was cited as co-respondent, the Council, on November, 1941, accepted Mr. Justice Langton's finding of adultery and refused to allow Dr. Spackman, who admitted professional relationship, to call further evidence challenging the issue of adultery, on the ground that such evidence was available and could have been given before the Divorce Court. The issue was whether in those circumstances the Council made "due inquiry" as prescribed by the Medical Act before coming to their decision. Mr. Charles Harman, K.C., and Mr. Douglas Bartley appeared for the General Medical Council. Dr. Spackman was represented by Mr. Cecil R. Havers, K.C., and Mr. Henry C. Dickens.

Mr. HARMAN said that the case raised a point of great importance to the Council, which had to act in a judicial

capacity in dealing with alleged misdemeanours of members of the medical profession. The point was a narrow one in that it turned upon the construction of Section 29 of the Medical Act, 1858, but it also involved the question of natural justice or, as it was called by some, substantial justice. Dr. Spackman complained that natural justice had not been done. The question was whether there had been "due inquiry" as laid down in the section.

The facts were that Mrs. Pepper brought a suit for divorce in 1939 on the ground of her husband's cruelty. The husband put in an answer denying cruelty and cross-petitioned for divorce, alleging adultery with Dr. Spackman during the period 1934-8. The hearing before Mr. Justice Langton occupied ten days. In the result the judge pronounced a decree in favour of the husband on the ground of adultery in 1938, stating that in his judgment the "adultery was not open to any reasonable doubt at all." At the Council inquiry which followed, Mr. Oswald Hempson, for Dr. Spackman, desired to call further evidence to answer the charge of adultery. He admitted that this evidence could have been made available to the Divorce Court, and that if he himself had been conducting the case in that court it would have been called. Mr. Hempson further contended that under Section 29 there was a distinction drawn between a conviction and the judgment of a "civil" tribunal such as a Divorce Court (which was not a conviction), that the Council was not bound by the decision in the Divorce Court, and was entitled to call further evidence. The Council, however, refused to hear the evidence on the ground that it could have been called in the Divorce Court, and that no special circumstances had been shown to exist for admitting further evidence on the adultery issue.

Lord ATKIN said that the charge on which Dr. Spackman was brought to the Council was for committing adultery. How, then, was he to meet it?

Mr. HARMAN said that the essence of the charge was that it was adultery of which he had been found guilty by the Court.

The LORD CHANCELLOR said that in the notice of inquiry sent to Dr. Spackman there was a paragraph which stated that "any answer, admission, or other communication or application which you may desire to make respecting the said charge or your defence thereto" should be sent to the Council's solicitors. The defence might be, "The charge that I committed adultery is untrue. I never did." Could the Council retort by saying, "We cannot allow you to say so because the Divorce Court found you guilty"?

Mr. HARMAN submitted that a body such as the Council was entitled to lay down rules for its practice and to say that where a matter had been considered by the High Court the court's decision should be accepted unless there were special circumstances such as that fresh evidence had been brought forward since the hearing.

Lord WRIGHT: Do you say that the decree is sufficient to establish due inquiry, or do you say it depends on the circumstances of the case?

Mr. HARMAN replied that what was "due inquiry" must depend in every case on the particular circumstances.

Lord ATKIN said that the point here seemed to be that Dr. Spackman wanted to call evidence and the Council would not let him. It seemed a denial of justice.

Mr. HARMAN pointed out that Dr. Spackman had had the opportunity of calling this evidence at the Divorce Court.

Lord MACMILLAN: That is not the point. We are concerned with the conduct of the General Medical Council.

The LORD CHANCELLOR said it was mentioned by the Lord Chief Justice in the Divisional Court that the Legal Assessor of the Council informed Mr. Hempson that it was the Council's practice to accept, *prima facie* at least, the decree nisi as evidence of adultery, and the onus was on Mr. Hempson to show special grounds why the Council should not accept it as such.

Lord ATKIN: I should have thought that was not allowing him to meet a *prima facie* case.

Lord WRIGHT: If witnesses had been called or if only a written statement had been put in and the Council had said, "Well, having read the statement we do not think it helps us at all." would there have been any complaint then?

¹ *British Medical Journal*, June 27, 1942, p. 806.
² *Ibid.*, April 18, 1942, p. 510.

Mr. HARMAN said that it was easy to be wise after the event. He was not denying that it would have been advisable, as things turned out, to have admitted the evidence, but that was not the point. The question was whether there had been substantial miscarriage of justice.

Lord ATKIN: The point is whether there was due inquiry.

Mr. HARMAN said that one could not conceive that if the additional evidence were likely to have been helpful it would not have been called in the Divorce Court in a contested case. It was odd to suggest that while the Council might safely abide by the decision of a petty sessional court on the smallest criminal matter it must not rely on the decision of a division of the High Court. When such a division was specially deputed to try this particular issue of adultery and was eminently qualified to do so, the Council was entitled to rely on the decision of that court. In what circumstances could it be said that the whole issue ought to be canvassed over again? When an accused man wanted to deny the charge afresh he thought the Council might well take as its example the Court of Appeal, and say that this was not a special circumstance entitling the accused to call evidence which was available but was not called at the trial. The right test to apply was whether the decision offended the ordinary man's sense of justice.

Mr. CECIL HAVERS, for Dr. Spackman, said that in almost every profession other than the medical there was a statutory right of appeal from the decision of its disciplinary body, but from the decision of the General Medical Council there was no appeal. He did not criticize the standing order of the Council relating to procedure at inquiries; his criticism was that, having made excellent rules, the Council failed to comply with them. What weight was to be attached to the further evidence was entirely a matter for the Council, but the Council must hear it. In fact the Council did not even allow Dr. Spackman's solicitor to explain the nature of the evidence. According to the Act, due inquiry had to be made by the Council and by nobody else. The Council was no doubt entitled to inform itself of the procedure in other courts of law, but a practitioner confronted with a very serious charge was at least entitled to go before his own tribunal, to affirm his innocence, and to tender witnesses to corroborate his story. The Council did not hold "due inquiry" by ascertaining that a court had made inquiry.

Mr. HARMAN said that he would ask their lordships to hesitate long before adding a further burden to the heavy one already borne by the Council. The Council was entitled to rely on any help given by a decision in the High Court.

Their lordships reserved judgment.

PROOF OF NEGLIGENCE

A doctor was recently sued for negligence in the High Court. The plaintiff was the father of a boy who had been evacuated to Buckinghamshire and had fallen ill with diphtheria. He called evidence that the boy had complained of pain in his neck and throat on Sept. 5, 1940. The doctor did not suspect diphtheria and did not take a swab till the 13th. The pathologist's report took four days to arrive, and during the interval the doctor did nothing. On the 17th the boy was removed to hospital hopelessly ill with diphtheria, and he died two days later. The doctor did not go into the box or call evidence, and his advisers submitted that in the absence of medical evidence, none of which was called by the plaintiff, he ought not to be found negligent. From this proposition Mr. Justice Atkinson dissented most strongly. If it were sound, he said, the medical profession would be in an amazing position and the public would be hopelessly at their mercy. Everyone knew the difficulty of getting a medical man to give evidence against another; a poor plaintiff simply could not do it. The judge said it was the first time in his experience that a medical man charged with negligence had refrained from going into the witness box to explain, excuse, or throw light on what had happened. He awarded £75 damages.

From the available reports of the case it does not appear that the doctor's counsel took the conventional course of submitting, at the close of the case for the plaintiff, that no case had been made out for him to answer, and then of calling evidence if the judge ruled that a case had been made out. He seems to have relied on the absence of evidence of the standard of care and skill required in the particular circumstances. The judge, on the other hand, seems to have considered that by any ordinary standard of care and skill the doctor should have done a good deal more than he actually did.

Obituary

EDWARD PHILIP STIBBE, F.R.C.S.

After several months of suffering borne with that stoicism and cheerfulness so characteristic of him Prof. E. P. Stibbe died on July 24 at the age of 58 in his home at Gerrard's Cross. He was educated at Glasgow, Wyggeston School, Leicester, and Charing Cross Hospital, obtaining the diplomas of L.R.C.P., M.R.C.S. in 1908. For the next six years he worked over-seas, first as Government medical officer in Fiji, and then as a district medical officer in South Africa. During the war 1914-18 he was M.O. at the 1st Northern General Hospital, and in 1919 he became professor of anatomy at the University of South Africa. Returning to this country, he took his F.R.C.S. in 1925 and was senior demonstrator in anatomy successively at Durham, Liverpool, and University College, London, with Elliott Smith. He then went to the London Hospital, and in 1935 he became university reader in anatomy, subsequently proceeding to King's College, Strand, where he was appointed professor of anatomy. Besides many papers on medical, anatomical, and neurological subjects contributed to the *South African Medical Journal*, as well as to the journals here, Stibbe published, in 1930, *A Textbook of Physical Anthropology*; in 1934, *Anatomy for Dental Students*; in 1940, *Aids to Anatomy*. In 1932 he edited *Six Teachers' Anatomy*. He examined in anatomy for the L.R.C.P., M.R.C.S. (1933-8), for the primary F.R.C.S. (1936-41), and for the Universities of Durham and Liverpool, as well as for the Society of Apothecaries. He was a kindly and understanding examiner, as well as a great teacher whose wide experience of medical and surgical practice brought a vitality and interest to his teaching of a subject which is so often treated as mainly academic.

Stibbe (writes a friend) was a loyal son of the Royal College of Surgeons, by whom he was appointed Hunterian Professor for 1936, his lecture on Jan. 27 of that year being one of only four at which the attendance exceeded one hundred. What he regarded as one of his greatest honours was his appointment by the Royal College to be an examiner for the Over-seas Primary F.R.C.S., which was to have been conducted in India and Egypt during the winter of 1939-40. The outbreak of war, however, necessitated the cancellation of these examinations. Stibbe's affection for his students was a very real thing, and when, owing to the war, the medical faculty of King's was evacuated first to Glasgow and then to Birmingham, he it was who became the *paterfamilias*; nothing was too much trouble, either in term or vacation, from organizing vacation work "to help the war effort" to getting out his car at midnight in order to take a student with acute toothache to see a dental surgeon—picking up the dental surgeon *en route*. Of an unusually quiet and retiring disposition, Stibbe was a most lovable man with a profound sympathy and affection for his fellow men; it was a real joy to him to be able to help anyone who was in trouble; he was indeed the personification of Kipling's "thousandth man." The deep sympathy of his many friends goes to his widowed mother and to that gentle lady, his wife, who through all these months has by her own courage and cheerfulness helped to strengthen and comfort both him and his friends. The world is the poorer for the passing of Philip Stibbe.

Mr. GEORGE HAROLD LAWSON WHALE, who died suddenly on June 17, was for a long time surgeon for diseases of the ear, nose, and throat to the National Temperance Hospital and the Hampstead General Hospital. He was born at Woolwich in August, 1876, and was educated at Bradfield College, Jesus College, Cambridge, and St. Bartholomew's Hospital, graduating M.B., B.Ch. in 1902 and proceeding M.D. in 1907. He was a keen golfer, and at Cambridge played tennis for the University. He took the F.R.C.S. in 1912, on his return to civil life after holding a commission in the I.M.S. He then devoted himself to oto-rhinology and became chief assistant in the ear department at Bart's and assistant surgeon to the Metropolitan Ear, Nose, and Throat Hospital. During the last war he served in the R.A.M.C.(T.) as surgical specialist to No. 53 General Hospital, B.E.F. In 1915 he wrote jointly with Sir James Dundas-Grant on injuries of the throat and nose, and four years later he published a book *Injuries of the Head and Neck*, followed by a little work *Modern Treatment of Diseases of the Throat, Nose and Ear*. During the present war Mr. Lawson Whale was appointed by the Ministry of Health to deal with air-raid casualties at the Hampstead General Hospital under

the Emergency Medical Scheme, and in the course of his duties an incident occurred which obliged him to bring an action for libel against a gentleman who made a complaint in writing to the secretary of the hospital in regard to his conduct to certain patients who had been injured in an air raid. After evidence had been heard, Mr. Whale, through his counsel, stated that he was satisfied that the defendant had acted responsibly and throughout in good faith, and as his only object in bringing the action had been to clear his reputation he withdrew it, the defendant on his part expressing regret that the letter he wrote was too strong in its terms. The judge welcomed the settlement, saying he would not like it to be thought that this ending to the case reflected on Mr. Whale in any way.

We regret to announce the death in Cornwall on June 23 of Dr. JAMES ALEXANDER HENDRY, a former chairman of the Buxton Division of the B.M.A. He studied at the University of Aberdeen, graduating M.A., B.Sc., M.B., B.Ch. in 1908, and then, after holding a house appointment at the Nottingham General Hospital, went to Buxton in 1911, where by his ability and devoted attention he quickly won the respect and confidence of his patients. During the last war he served as captain, R.A.M.C., in Salonika, Mesopotamia, and France. Dr. Hendry's sound judgment and sympathy with the sick were recognized by all his colleagues at the Devonshire Royal Hospital, Buxton, and at the Buxton District Hospital; he served both institutions as physician and also as member of the committee of management. The news of his death came as a painful shock to his patients and fellow-practitioners, though it was well known that his retirement from active work had been caused by ill-health.

We regret to announce that Mr. CHARLES BERTRAM THOMSON, F.R.C.S., of Wimborne died on June 29 as the result of a road accident. He had practised many years at Wimborne as a member of the firm of which Sir Kaye Le Fleming is senior partner. He studied medicine at Guy's Hospital, qualifying M.R.C.S., L.R.C.P. in 1899 and taking the F.R.C.S. in 1905, after holding the posts of house-surgeon and obstetric resident at Guy's and clinical assistant at the Evelina Hospital for Sick Children. Among his other local appointments were those of certifying factory surgeon and police surgeon, and he had been M.O.H. for Wimborne and Cranborne Rural District. He joined the B.M.A. immediately after qualifying. Thomson devoted his life to his practice, which was large and widely scattered. The scanty leisure he enjoyed was occupied in the study of botany. He leaves a son in the medical profession, at present engaged on the teaching staff of Guy's Hospital.

Dr. ERNEST A. RAMSDEN, aged 61 years, of Saddleworth, Yorks, died on July 2 after six months' illness. From the Manchester Grammar School he won an Exhibition at New College, Oxford, in 1902, and after graduating as B.A. with honours in physiology was elected to a University Scholarship at Charing Cross Hospital in 1906. After taking the M.R.C.S.Eng., L.R.C.P.Lond. qualification and passing the final examination for the M.B. and B.Ch. degrees at Oxford, he served as a house-physician at that hospital and then joined his brother Herbert in medical practice at Saddleworth, and succeeded him seven years ago as medical officer of health for the Urban Sanitary District of Saddleworth. He was also certifying factory surgeon and medical officer to the Post Office. He acted for some months as a house-surgeon at the Manchester Eye Hospital. He was a good chess player and an enthusiastic member of the local geological society. He was the fifth and youngest son of Dr. W. H. F. Ramsden, the memory of whom is perpetuated in the Dobcross village square by a publicly subscribed fountain bearing as epitaph, "Write me as one that loves his fellow-men" (from Leigh Hunt's "Abou Ben Adhem").

Dr. HAROLD ALEXANDER MITCHELL, medical director of the Evans Biological Institute, Runcorn, died in Liverpool on July 2 at the early age of 52. Born in Canada, the son of a Presbyterian minister, Mitchell was intensely proud of being a Canadian. At the University of Toronto he graduated B.A. and M.D., and also took the diploma M.C.P.S. Ontario. Among his contemporaries were Prof. H. B. Maitland and Sir F. G. Banting. He came to this country with the Canadian Expeditionary Force during the last war, and was a captain in the C.A.M.C. At the end of the war he specialized in pathology and immunology, joined the staff of the Evans Biological Institute, and became honorary pathologist to the Warrington Infirmary. A colleague writes: Mitchell's vigorous mind and great personal energy soon made him a master of the difficult problems connected with the large-scale preparation of biological products. He inspired loyalty and keenness in all who worked with him, and his infectious smile and dry sense of humour will be long remembered. A true democrat, Mitchell

hated the "cobwebs" associated with hoary traditions, and firmly believed that the British Empire would be rejuvenated if the seat of government was removed from London to Toronto. Stamp-collecting was his one great hobby, and he had a very fine collection of stamps of the British Empire. Knowing himself to be a doomed man, Mitchell faced the latter months of a painful illness with heroic fortitude. He leaves a wife and two daughters. Mitchell was a major in the 15th Bn. Cheshire Regt. Home Guard, a Fellow of the Royal Society of Medicine, a member of the Biochemical Society, and joined the B.M.A. in 1923.

We regret to learn of the sudden death in Cairo on July 1 of Dr. AUSTIN WILLIAM BYRNE, expert in public health to the Egyptian Government, who was awarded the C.B.E. last autumn in recognition of his most helpful co-operation with the Medical Services of the British Army in Egypt in securing hospital treatment for prisoners of war. Dr. Byrne studied medicine in Liverpool, graduating M.B., Ch.B. of the University in 1906; he obtained the D.P.H. of Manchester in 1911 and the M.R.C.P. diploma in 1940. He had served in the R.A.M.C. with the rank of captain. During the war, in addition to his post as consultant to the Ministry of Health and technical adviser on quarantine administration under the Egyptian Government, he was appointed liaison officer between the Egyptian Government Medical Service and the R.N., Army R.A.F., and Allied Forces in Egypt. For some years past he had examined in public health and for the diploma in tropical medicine and tropical hygiene of the Medical School of the Egyptian University. In 1930 he recorded his investigation into the occurrence of plague in Alexandria.

Prof. THOMAS JOHN JEHU, M.D., F.R.S.Ed., who died on July 18, had a most distinguished career in the realm of science. Born in Montgomeryshire in 1871, he was educated at Oswestry High School and at the University of Edinburgh where he graduated M.B., C.M., and B.Sc. in Public Health and was medallist in Geology Class. He then went on to Cambridge, winning an exhibition and a foundation scholarship at St. John's College, and gaining first-class honours in Parts 1 and 2 of the Natural Sciences Tripos and a second-class in the Moral Science Tripos. In 1898 St. John's College awarded him the Newcombe Prize for Natural Science and Philosophy; two years later he returned to the University of Edinburgh as Heriot Fellow, and soon afterwards proceeded M.D. Dr. Jehu was lecturer in geology at St. Andrew's University from 1903 until his appointment as Regius Professor of Geology and Mineralogy at Edinburgh in 1914. After his retirement from the chair he was made Professor Emeritus. He was the author of important publications on the lakes of Snowdonia and Eastern Caernarvonshire, and on the glacial deposits of Northern Pembrokeshire and Western Caernarvonshire. A few years ago he carried out geological investigations in the Outer Hebrides with Dr. R. M. Craig, which won them the Keith Prize of the Royal Society of Edinburgh. He was a member of the Royal Commission on Coast Erosion in 1906.

Mr. FRED STOKER, formerly of Harley Street and before then in general practice, died at Loughton, Essex, on July 20. He studied medicine at Newcastle, graduating M.B., B.S. of the University of Durham in 1904, and taking the F.R.C.S. in 1907. In his student days at Newcastle he won three scholarships. He was for some years surgeon to Queen Mary's Hospital and surgeon to the throat and ear department of the Italian Hospital, and at the Annual Meeting of the B.M.A. in 1926 he was honorary secretary of the Section of Laryngology and Otology. After retiring from surgical practice Mr. Stoker devoted his time to gardening and botany and became well known in horticultural circles. He was the author of several books on horticulture, and for the past two years had regularly contributed gardening articles to the *Times*. In 1937 the Royal Horticultural Society, for whose journal he frequently wrote, bestowed upon him its Victoria Medal of Honour.

Dr. FRANK WILLIAM MARTIN, who died at his home in Springburn, Glasgow, was for 12 years attached to the Forensic Medicine Department at Glasgow University and held the post of divisional surgeon to the City of Glasgow Police. He was born at Bodmin, Cornwall, on Nov. 2, 1883, son of Frank Martin, F.S.A., and was educated at the High School and University of Glasgow, graduating M.B., B.Ch. in 1911 and M.D. in 1933. In the last war Dr. Martin served as captain R.A.M.C.(T.A.), was officer-in-charge of the Red Cross Hospital at Springburn, and later served with the 22nd Cavalry Division at Salonika. After the armistice he was medical referee under the Ministry of Pensions and held a number of appointments in and around Glasgow. He was honorary secretary of the Glasgow Eastern Division of the B.M.A. in

1926-9 and had been a member of the Glasgow Local Medical and Panel Committee. For some years he examined in forensic medicine for the University of St. Andrews.

News has been received from New Zealand of the death at Otago on June 21 of Mr. ALEXANDER TODD McCaw, surgeon to the Southland Hospital, Invercargill. He was born on April 9, 1881, son of Hugh McCaw, M.B., and was educated at Otago College of the New Zealand University. He came to England in 1905 and entered the London Hospital, where after qualifying M.R.C.S., L.R.C.P. in 1908 he served as house-surgeon and pathological assistant. Then after further experience at the Seamen's Hospital, Greenwich, he took the F.R.C.S. in 1911, and was for a year senior resident officer at the Bristol Royal Hospital for Children and Women. Mr. McCaw returned to New Zealand to take up surgical practice at Invercargill, and during the last war was in France for two years as captain in the New Zealand Medical Corps. He joined the B.M.A. in 1914 and was chairman of the Southland Division in 1934-6. He was elected F.R.A.C.S. in 1929.

Universities and Colleges

UNIVERSITY OF LEEDS

The University Court has resolved to confer the honorary degree of LL.D. upon Prof. H. S. Raper, F.R.C.P., F.R.S., who has been Brackenbury professor of physiology and director of the physiological laboratories in the University of Manchester for the past twenty years and formerly held the chair of physiology and biochemistry in the University of Leeds. This and other honorary degrees will be conferred on Oct. 27.

UNIVERSITY OF WALES

WELSH NATIONAL SCHOOL OF MEDICINE

The following candidates have satisfied the examiners at the examination indicated:

M.B., B.Ch.—*Surgeons*: S. C. Dymond, A. J. Evans, Elizabeth M. E. Evans, R. G. Evans, J. I. Hughes, F. C. Jenkins, A. E. Jones, C. R. Jones, C. C. Lewis, Gwenda M. Lewis, A. V. Lillywhite, Margaret E. Miller, Ivy M. Morgans, E. R. Price, J. F. Rees, P. H. Thomas, H. D. Walters, I. M. Watkins, A. A. Yauziskis.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

A quarterly meeting of the College was held on July 20 with the President, Dr. Charles McNeill, in the chair. Dr. James Macalister Mackintosh (Glasgow) was introduced and took his seat as a Fellow of the College. Drs. Henry Hunter Corrigan (Isle of Man), Ian Murray (Glasgow), James Innes (Edinburgh), Harry Stalker (Edinburgh), and Alexander Brown (Edinburgh) were elected Fellows of the College.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a quarterly meeting of the Council held in the College House on July 24, with the President, Sir William Fletcher Shaw, in the chair, the following officers were elected to take office in October:

President: Mr. Eardley Holland. *Vice-Presidents*: Mr. William Gough and Prof. Daniel Dougal. *Honorary Treasurer*: Mr. J. P. Hedley. *Honorary Secretary*: Mr. G. F. Gibberd. Mr. William Gilliat was appointed Deputy Honorary Secretary in the absence of Mr. Gibberd on active service. *Honorary Librarian*: Wing Cmdr. F. W. Roques. *Honorary Curator of Museum*: Mr. Alec W. Bourne.

The following candidates were elected to the Membership: J. K. Baker, J. Kruger, Katharine I. Liebert.

The Council was gratified to receive the gift of £1,000 from a Fellow of the College who wished to remain anonymous. It has been given to commemorate the Presidency of Sir William Fletcher Shaw and the honour of Knighthood conferred on him by the King, and the interest from the gift will form a scholarship to be awarded triennially for research.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the final examination, have been admitted L.R.C.P.Ed., L.R.C.S.Ed., and L.R.F.P.&S.Glasg.:

J. E. K. Butchart, J. B. Chetwynd, E. J. Connolly, P. M. Ellison, J. Honis, S. Hollowell, R. H. Johnson, W. S. Joyce, W. B. Kalish, P. D. Kemp, I. Le Vang, W. Levy, V. H. McGettigan, C. McKenzie, A. Marshall, P. Menko, T. S. Moore, H. D. Morgenbesser, C. E. Phillips, C. E. Ratner, W. M. Robinson, C. C. Rollason, A. Simons, B. Saeli, W. R. Steven, N. C. Wollin, M. Ziser.

The following graduates of recognized foreign universities were also admitted Licentiate: W. Hofer, M.D.Vienna, A. Levin, M.D.Munich.

Medical Notes in Parliament

Pensions: New Provisions of Royal Warrant

A debate on pensions and allowances took place in committee of the House of Commons on July 20, when Sir JOHN ANDERSON explained the new arrangements. He said that a very careful review had been made by the War Cabinet after the criticisms and requests put forward in the House and outside. As a result of the changes proposed, it would be found that all reasonable demands had been substantially met. The first and very important change recorded in the White Paper recently issued concerned the onus of proof. The Government proposed to redraft entirely the existing provisions of the Royal Warrant governing the conditions of entitlement to pension. The redraft included certain novel features entirely in the interests of the claimants. They established two presumptions: (1) that a man's condition as recorded on his admission to the Service was, in fact, his condition at that time; and (2) that any subsequent deterioration in his condition was due to his service. It was further provided that there should be no onus of proof on the claimant, and that the benefit of any reasonable doubt should be given to the claimant.

Two other important changes had been made. The word "directly" in the phrase "directly attributable" was omitted and the word "material" in the phrase "material aggravation" and "materially" in the phrase "materially aggravated" were also omitted. These would result in bringing within the scope of the Warrant cases which had hitherto been properly excluded. Any such cases which, under the new terms, became for the first time eligible for pension or grant would be reconsidered at once by the Minister on application. That included old cases which had been rejected. These changes, important as they were, did not go as far as some critics of the Warrant wished, and did not mean an acceptance of the slogan "Fit for service, fit for pension." The only cases that were excluded were those of disablement which were frankly not connected with or attributable to war service, although suffered after the commencement of war service. It would not be possible to stop short at disablements which had occurred during service. Disablements arising after service would have to be brought in, and that would create inequalities and give rise to new grievances. Such cases were proper for consideration under the general social services provisions.

The Question of Accidents

Sir John went on to refer to the sentence beginning: "While the Minister of Pensions would pay regard to any other evidence, including the consensus of medical opinion," and ending with the words: "he will give full weight to the general view expressed above." He said the Government had provided that there should be no onus put on the applicant, that there should be a presumption in his favour, but that, if they found a condition which doctors universally agreed was not attributable to war service, then rebutting evidence would be admissible, and the presumption with which they started might be overborne. With regard to accidents, the Government was giving the fullest application of the doctrine that a Service man placed himself wholly and unreservedly at the disposal of the State during his service, and they were covering everything, with one exception. The exception was the case of a man who went on leave, who was for the time being entirely released from his obligation to the State, and was just as free as anyone else to do what he liked. When soldiers were on foreign service their whole conditions of life would be covered. The Government had not been able to agree to the demand that there should be no distinction between the post-injury marriage and the pre-injury marriage. They had, however, decided to give an extra 10s. a week to the wholly unemployable man, whether single or married, plus allowances at the full rate for his wife and children irrespective of the date of marriage. If the pensionable disablement resulted in the pensioner's death a widow's pension would be granted. That would have to be applied to pensioners of the last war. The case of officers' family allowances would be dealt with by removing the present obligation to prove need. Officers would of course also benefit by some of the other changes that were being made.

General Insurance Provision for Services

Dr. HADEN GUEST said that the changes in the pensions Warrant were very great. Its old-fashioned structure was completely broken up, and the main purpose of the old Warrant was dead. While welcoming the White Paper because of the simplification it would bring in administration, he urged that the State

should accept an all-in liability for every kind of disease and disability of all persons in the Services. The Minister should set up an interdepartmental committee of the Ministry of Pensions and the Services to ascertain what the cost of general insurance provision would be and what the saving in man-power with regard to administrative services. If, as he believed, the amount of time spent in the Services in connexion with this sort of thing was out of all proportion—some said 10%—to the amount expended in war in the line, any economy in man-power would be of immense benefit. This would also be largely an economy in medical man-power, of which there was a great shortage.

Dr. H. B. MORGAN said that some of the work of the Ministry of Pensions had been beyond praise. For instance, the hospital at Roehampton was almost a model for certain institutions in the country. He was, however, rather perturbed about certain conditions in the White Paper. How was the Minister to get the independent medical opinion he desired? Medical views had changed. Medical men were seldom trained in questions of attributability, aggravation, or causation of disease. The difficulty of assessing causation, especially when causation was doubtful or not known, was extraordinary. There was no medical training on that point in this country. A great deal depended on the personal factor, such as on the man chosen or the composition of the appeal tribunals. Until there were "soldiers' friends," chosen by the appellants themselves or their organizations, the appellants would really never get justice, nor would there be really decent administration of pensions.

Scientific Research

In the House of Lords on July 20 the debate on a motion by Viscount Samuel calling attention to the need for the further expansion of scientific research was resumed. Lord DAWSON said that we must recognize the progressive momentum of discovery and invention during the last 60 years. In no like period of history had such vast changes taken place. After the last war research and discovery dropped into oblivion in the public mind, but from the moment this war began science had had full and ample recognition and support in every department of Government. After recalling several of the discoveries in the war, Lord Dawson referred to the close co-operation between the British Empire and the U.S.A. in matters of discovery and research. The results had been pooled, and an unselfish and generous anonymity had for the most part been observed. With the onset of peace there would assuredly be a great surge forward of new methods and of new ways. This country must meet the new needs. An organization would be required to make available the great store of talent which the war had disclosed, and to provide endowments on a correspondingly vast scale.

Speaking of the work of the Agricultural Research Council, the Medical Research Council, and the Department of Scientific and Industrial Research, Lord Dawson said that these bodies, being under the Lord President of the Council, were amenable to Parliament, yet they had that freedom which was essential to successful functioning. Most important of all, there was no administrative machinery between each body and the Minister such as would be the case if that body were enmeshed in the Civil Service and formed part of an administrative department. It was difficult to overstate the importance here science was concerned—and this applied equally to medicine—of preventing the enmeshment of any research body in the close entanglement of a Government Department. One of the chief reasons why these research bodies should receive further support was that they succeeded in combining good order in the work of men of ability with freedom for scientific investigation. He hoped that they would be given a prominent part in any further scheme of research which the Government ought fit to sponsor. It must be said that in the collective minds of the Civil Service there was an imperfect appreciation of understanding of what science stood for. Was not that due to the fact that those who entered the Civil Service under the aegis of science had not the same prospects of rising to the higher posts as those who entered by other portals? How could the Government service expect to get the best brains in science if they treated research and science in that undignified and unfair way? The time had come when the higher posts in the Civil Service should be thrown open to those trained in scientific research. That would attract the best minds, which the present hesitated to enter that service.

Medical Research

Referring to the Medical Research Council, he said its parish was a wide one. It far outstripped what he might call the narrower boundaries of medicine. It embraced the whole of the basic sciences on which medicine was founded, and in the

course of this war it had had a range of activity which would surprise many members of the House. It had whole-time workers on its staff, and had under its control the great National Institute for Medical Research, where large-scale work, requiring investigation by teams, was carried on. The institute had a world-wide reputation. It was recognized as the home of scientific standards the world over, and it was a centre of reference in that respect. It had played a leading part in advancing knowledge, notably in the fields of vitamins and hormones. Further, the M.R.C., through its grantees, supported research in medical schools in the universities and colleges in fact, wherever research was firmly rooted and well provided for. Its idea was to help the individual research worker who had proved his ability. It further co-operated through its committees with industry, notably with the Industrial Health Research Board, and a little while ago it founded a research professorship in industrial diseases at the London Hospital. The M.R.C. was also an admirable intelligence department. It knew where all the workers on the different subjects were, and it had the power to gather them together and rally them for a common purpose. Above all, its influence and its encouragement were far-flung over the whole field of medical progress.

There was no investment which offered better results to the nation than that of discovery and research. We might reckon that disease cost this country about £250,000,000 a year. The progress of discovery diminished the ravages and therefore the cost of disease. Some diseases, like rickets and diseased teeth were passing out of existence. Others, like diabetes, pernicious anaemia, and deficiency diseases, were now under control. Puerperal fever, which not long ago was a constant peril of childbirth, had steadily declined, and pneumonia had lost a large part of its peril and anxiety since the discovery of the sulphonic amides. Again, certain forms of meningitis, previously incurable, were not infrequently cured. Another example was gonorrhoea, which attacked people in the active period of life and caused disablement lasting for weeks. Now, owing to the drug in use, its cure could almost be guaranteed within three days. What was more important, the long-term complication of that disease could be almost entirely avoided. Finally there was penicillin, the discovery and development of which were entirely to the credit of British minds and British research workers. This path of chemotherapy was opening up more widely every month. It was opening up help in the direction of tropical diseases, and had played a great part in the improvement of treatment of wounds in the present war.

Government Research Workers

Lord CHERWELL said that we could not overlook the importance, from the economic point of view, of fostering pure fundamental research. The Government recognized that pure research must be, in a large measure, its responsibility and must be done at the universities; but naturally, as Lord Dawson had said, they also wished to encourage industry to spend money on pure research. It was the Government's policy and intention to increase its aid for research, and it would welcome any developments of industry in a similar direction. He hoped we might see another step forward in the place given to scientific subjects in our schools. The treatment of scientists in the Civil Service had been mentioned, and he frankly admitted that the Civil Service had not hitherto shown due regard for the contribution scientists were making to the nation's welfare. This matter had now been reviewed, and an investigation had been in progress to make sure that the conditions of service, pay, and prospects of Government scientific employees compared favourably with those on the administrative side. He hoped that a definite announcement on these reforms might be made before long. After all, we must preserve a sense of proportion. There were probably not more than a few dozen physicists in this country capable of evolving and developing new applications of, say, the various radio devices on which success in this war very largely depended. Everyone would agree that it was an anomaly to pay them on lower scales than men of equal educational status who, because they had distinguished themselves in what were usually called "humane" subjects, were often given war jobs of much higher status and pay than the scientist.

Mental Health of Recruits

Mr. WOOTTON-DAVIES asked the Minister of Labour what steps were taken when passing men as fit for Army service to ensure that the examining medical boards were fully informed of and took into account any past records of mental instability. Mr. TOMLINSON said that the instructions issued to medical boards provided for inquiry to be made into a man's personal and family history of nervous and mental illness, and for a specialist's opinion to be obtained in cases of doubt. In addition

tion, since October, 1940, every recruit had been asked to complete in writing a questionnaire, which included two questions specially directed to this subject. Since December, 1940, the Department had been notified by the Board of Control of all men who might have become liable for military service by reason of their discharge from Orders under the Mental Deficiency Acts, and in all such cases the man's history was brought to the notice of the medical board. Men who exhibited indications of a high degree of nervous or mental instability, or who had at any period of their lives been certified to be of unsound mind or about whom there was other convincing evidence of past or present insanity were not called up for military service.

Beds for Tuberculous Patients in Wales.—Mr. BROWN, replying to Mr. Ness Edwards on July 15, said it was anticipated that within the next few months at least 800 tuberculosis patients in Wales would be waiting for hospital accommodation. The figure was an estimate, but there was at present a substantial shortage of beds for tuberculosis cases in Wales, as in other parts of the country. The problem was greatly accentuated by the present necessary restrictions on new building, and by the difficulty of providing hospital staff. With the help of the Minister of Labour and National Service, he was actively seeking a solution of this staff problem to make it possible to use a certain number of emergency hospital beds for tuberculosis cases. A number of beds had recently been put at the disposal of the civil authorities.

Maternity Beds in London.—Dr. SUMMERSKILL asked on July 16 whether 200 expectant mothers were refused admission to Queen Charlotte's Hospital every month for lack of accommodation; and what action Mr. Brown proposed. Mr. Brown said substantial numbers of mothers who made inquiries at this hospital had to be refused admission. The arrangement made to compensate for the shortage of maternity beds in London was by provision in the Emergency Maternity Homes established in safer areas for the purpose. Additional maternity beds were being opened in London as fast as adaptation could be carried through and trained staffs secured.

Notes in Brief

The Ministry of Health Standing Committee on Medical and Nutritional Problems, consisting in the main of medical and other officers of the Departments concerned, has, in the two years of its existence, met seventeen times. It has given advice to the Departments concerned on a large number of problems submitted to it.

The estimated numbers of wholesale producers and producer-retailers of milk of tuberculin-tested and attested standard on June 1, 1943, were 2,280 and 1,030 respectively. The corresponding figures for June 1, 1942, were 2,190 and 1,110.

The regulations of the national milk and vitamins schemes have now been adjusted to allow widows and children of Service men to continue to receive free milk and vitamins where they were receiving these commodities free of cost before the death of the husband or father, provided that the normal weekly income from all sources remains unaltered except by the substitution of a pension for the Service allowance. The concession will be extended to widows and children of men who were not Service men where the circumstances are parallel.

The county medical officer of health has informed Mr. Brown that at the end of 1942 the numbers of immunized children in the county districts of Northamptonshire were 8,000 children under 5 and 28,250 children under 15. He pointed out that these figures represent 46 and 74% respectively of the population in the two age groups specified. This information was obtained as the result of a special investigation made by the county medical officer of health. According to information received from the county medical officer of health, 102 children under 15 in the county districts of Northamptonshire were notified as suffering from diphtheria in the period Jan., 1941, to Dec., 1942.

A note on the possible danger from carbon monoxide has been sent recently to every operator of public service vehicles driven by producer-gas. The danger is also explained in the "Manual of Instructions" which will be distributed with each producer-gas unit allocated to operators of goods vehicles.

Arrangements are being made to afford the British Hospitals Contributory Schemes Association an opportunity of expressing its wishes as to the changes in the present conditions of medical service foreshadowed by the Government's acceptance in principle of Assumption B of the Beveridge report.

Mr. Eden said on June 30 that there existed already in this country a Standing Committee on Nutrition, composed of representatives of various Government Departments and scientific bodies, which performed all the functions recommended in this connexion at Hot Springs.

The British Government has agreed to make a further grant-in-aid of £30,000 for the maintenance of medical and surgical teams for work among Chinese troops and civilians in the war zones of China in co-operation with the Chinese Red Cross and the Chinese medical services. The grant on this occasion will be made direct to the Friends' Ambulance Unit.

An antimalarial unit is operating at Mauritius at present, and an engineer is shortly being sent to Mauritius at the Governor's request to prepare, in conjunction with the local authorities, long-range plans for reducing the incidence of malaria. A nutrition unit is also working in the island, and plans for further extension of its activities are awaited.

The Services

Surg. Lieut. D. M. Sheppard and Temp. Surg. Lieut. A. S. Duncan, R.N.V.R., have been awarded the D.S.C. for resolution, enterprise, and fine leadership in a successful encounter with enemy Forces in the Mediterranean.

CASUALTIES IN THE MEDICAL SERVICES

Killed on Active Service in Middle East in July, 1943.—Capt. A. F. Smith, R.A.M.C.

DEATHS IN THE SERVICES

Lieut.-Col. GEORGE M'PHERSON, C.I.E., I.M.S. (ret.), died on July 15 in Switzerland, aged 70. After taking an Arts degree in Glasgow he proceeded to qualify with the M.B., C.M. of the same university in 1895, and he entered the Indian Medical Service in January, 1898. He soon saw active service in China in 1900-2 and in the Aden Hinterland. In 1905 he joined the civil medical department of the Bombay Presidency, where he was in charge of plague measures. In 1911 he took the F.R.C.S.E.d. and was appointed professor of ophthalmology in the Grant Medical College of Bombay. In the war of 1914-18 he was consulting ophthalmic surgeon to the Expeditionary Forces in Mesopotamia and was awarded the C.I.E. for his services in 1918. In 1926 he retired and afterwards lived in Switzerland, in Bellaria, Vevey, and Montreux, where his readiness to help in any difficulties was much appreciated. On the outbreak of the present war he volunteered his services in any capacity, but his age precluded his further military employment. His wife, the daughter of the late John Reynolds of Bristol, survives him, as does his elder brother, Sir Hugh M'Pherson, K.C.I.E., of the Indian Civil Service, who formerly served in Bengal.

Medical News

At the opening of the new academic session at Westminster Hospital Medical School the inaugural address will be delivered by the Right Hon. Ernest Brown, Minister of Health, on Monday, Oct. 4, at 3 p.m. Tea will be served in the school.

The Chadwick Trustees are offering three prizes—one of £100, one of £50, and one of £25 (accompanied, if the Trustees so decide, by a Chadwick medal or medals)—for the best three essays, received before Sept. 1 next, on architectural, engineering, and administrative principles (relative to sanitation and hygiene) which should be observed in the replanning arrangements of war-devastated towns or areas. Information in regard to the scope of the essays, etc., can be obtained by sending a stamped and addressed envelope to the Clerk to the Chadwick Trustees, 204, Abbey House, Westminster, S.W.1.

The Board of Directors of the Finney-Howell Research Foundation has awarded two new fellowships and has renewed three others for research into the aetiology and treatment of cancer. Fellowships, carrying an annual stipend of £2,000, are awarded for one year with the possibility of renewal up to three years. Applications must be made on forms obtainable from The Secretary, 1211, Cathedral Street, Baltimore, Maryland, and must reach the Foundation before Jan. 1 of each year. The appointments will be made in March.

Industrial workers are themselves taking an active interest in measures to promote safety and health, and in some factories health committees have been set up. Where no medical officer is available, however, it is difficult for them to obtain professional and technical advice, and the Leicester Branch of the Socialist Medical Association has been responsible for establishing a local Industrial Health Advisory Council, through which it is hoped that specialist advice on industrial health matters will be available wherever it is required. It is suggested that similar councils might be set up in other areas.

Arrangements have been made between the Ministry of Labour and National Service and the Ministry of Health under which State-registered nurses who on account of disability are not fit to return to their previous nursing work, but who are suitable for employment as sister tutors, health visitors, or industrial nurses, may receive training for that purpose.

Dr. John Robert Kennedy of Dunbeath, who graduated at Aberdeen in 1893 and has practised at Latheron for the past 44 years, has received a presentation from patients and friends to commemorate his jubilee in the medical profession.

EPIDEMIOLOGY SECTION

The King has commanded that the new general hospital under construction by the County Borough Council of Gateshead shall be known as the Queen Elizabeth Hospital. The original plan provided for 220 beds, with a maternity unit of 25 beds. During the war the full plan has been somewhat modified, and the buildings will probably provide altogether some 200 beds. It is expected that the maternity unit will open within the next two months and the general ward accommodation will probably be functioning about the end of the year.

The British Red Cross Society, in its report for the year 1942, announces its willingness to undertake the organization of a national blood transfusion service to come into operation with the end of the war. A number of conferences have been held, one of them attended by representatives of the civil and fighting Services, to prepare the basis for this national organization.

The bequests of the late Mr. R. W. T. Walker of Stirling include (subject to his wife's life interest) £4,000 to the Royal Faculty of Physicians and Surgeons, Glasgow, for further research into rheumatism; £4,000 to the Glasgow Royal Cancer Hospital for research; and £2,500 to Stirling Royal Infirmary if still maintained upon the voluntary principle.

During the past three years there has been an increase in the notification of tuberculosis in Sweden. Swedish health authorities are attempting to check this increase with the help of x rays and by vaccinating with B.C.G. In April-June this year, for example, 85,000 officers and soldiers of the Swedish defence forces were x-rayed. A special attempt is being made to examine in this way the population in the northern parts of the country, where tuberculosis is rife. Ultimately it is hoped to subject the whole population to x-ray examination by using screen photography.

The Association of Certificated Blind Masseurs received the following message from Viscount Dawson of Penn on the occasion of its annual general meeting: "I am delighted to hear such good accounts of the work of the Association and that the demand for the services of blind chartered masseurs and masseuses is so great. It is a tribute to the work the Association is doing, and doing so well." New members of the Association include civilians blinded in air raids during the present war and soldiers and sailors blinded in action.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales the chief features of the returns were rises in the number of cases of scarlet fever by 123, and of dysentery by 67, and falls in the incidence of measles by 539, of whooping-cough by 174, and of acute pneumonia by 45.

With the exception of London and the south-western counties he fall in the incidence of whooping-cough was general, specially in Lancashire and Durham with 45 and 33 fewer cases than in the previous week. The increase in scarlet fever was due to the two counties of Lancashire and London, where notifications went up by 66 and 64. Measles continued to fall in most areas, especially in Lancashire 125, and Kent 69; but in Monmouthshire there were 106 more cases.

The notifications of dysentery went up from 93 to 160 during the week. The larger part of this rise was due to an outbreak in Kent, Eastry R.D., 49 persons being infected. Other centres of infection were Buckinghamshire 14, Amersham R.D. 8, and Salisbury R.D. 6; Caernarvonshire 14—from five administrative areas.

In Scotland a fall was recorded in the notifications of measles by 48, acute primary pneumonia by 50, whooping-cough by 20, scarlet fever by 18. Notifications of measles have dropped to about one-tenth of the level of five weeks ago, and during the present week 39 of the total of 49 were recorded in the two cities of Glasgow 22, and Edinburgh 17. The incidence of diphtheria rose slightly by 13 cases, over one-third of the cases being recorded in Glasgow. The most notable feature of the returns as the increase in notifications of dysentery from 64 to 125. In West Lothian County there was an outbreak of 39 cases, the other principal centres of infection being the cities of Aberdeen, Glasgow, and Edinburgh, with 18, 15, and 12 cases respectively. In Eire 14 cases of diphtheria in Donegal, Inishowen R.D., accounted mainly for the increase of 17 in the incidence of this disease. Of the 32 cases of whooping-cough 18 were reported from Kerry, Caherciveen R.D.

The Week Ending July 24

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,099, whooping-cough 2,081, diphtheria 591, measles 2,486, acute pneumonia 445, cerebrospinal fever 44, dysentery 105, paratyphoid 9, typhoid 10.

INFECTIOUS DISEASES AND

We print below a summary of Infectious Diseases Statistics in the British Isles during the corresponding week last year, for: (a) England and London (administrative county). (c) Scotland. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded are for: (a) The 126 great towns in England and Wales (administrative county). (c) The 16 principal towns in Eire. (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases; a blank space denotes no return available.

Disease	1943				
	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	51	5	20	2	3
Diphtheria Deaths	571	37	131	76	26
Dysentery Deaths	160	7	125	—	—
Encephalitis, acute Deaths	1	—	—	—	—
Erysipelas Deaths	—	29	11	1	—
Infective enteritis or diarrhoea under 2 years Deaths	45	10	9	8	37
Measles Deaths	3,054	155	49	29	6
Ophthalmia neonatorum Deaths	89	2	28	—	7,050
Paratyphoid fever Deaths	11	1	2	—	106
Pneumonia, influenza* Deaths (from influenza)	457	30	10	1	3
Pneumonia, primary Deaths	4	—	—	—	516
Polio-encephalitis, acute Deaths	17	145	10	6	10
Poliomyelitis, acute Deaths	7	1	—	—	—
Puerperal fever Deaths	1	17	—	—	16
Puerperal pyrexia† Deaths	154	9	10	1	—
Relapsing fever Deaths	—	—	—	155	12
Scarlet fever Deaths	2,082	196	191	57	31
Small-pox Deaths	—	—	—	1,558	88
Typhoid fever Deaths	11	1	1	3	—
Typhus fever Deaths	—	—	—	—	1
Whooping-cough Deaths	2,110	117	74	32	34
Deaths (0-1 year) Infant mortality rate (per 1,000 live births)	286	42	43	30	25
Deaths (excluding still-births) Annual death rate (per 1,000 persons living)	3,790	492	517	164	130
Live births Annual rate per 1,000 persons living	6,502	782	938	398	272
Stillbirths Rate per 1,000 total births (including stillborn)	207	27	26	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be sent to the Secretary.

TELEPHONE No.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES—EDITOR, Antiology Westcent, London; SECRETARY, Medisera Westcent, London.

B.M.A. SCOTTISH OFFICE: 7, Drumheugh Gardens, Edinburgh.

ANY QUESTIONS?

Complete Heart-block

Q.—A well-built man of 65 a year ago had a typical Adams-Stokes syndrome, and since then complete heart-block with a regular pulse at 30 to 34 per minute. The blood pressure ranges from 245/95 to 220/90. The arteries are soft, the urine and blood urea normal, and the Wassermann reaction negative. The heart is enlarged; there are no murmurs, and the veins at the root of the neck can be seen to pulsate at double the rate of the radial pulse. He has a mild hypnotic overnight. I have tried various drugs without much effect in relief of his symptoms, which are easy fatigability, shortness of breath on going upstairs, and general slowing down of activity. There is occasional slight oedema of the ankles. Is there any chance that the heart-block may disappear, and what can be done to further this? What other steps can be taken to make the patient comfortable and to prolong his life? The picture is slightly complicated by the fact that for some years he has had asthma and emphysema, the former now much less troublesome.

A.—This man is fortunate in having no recurrence of the Stokes-Adams attacks of a year ago. It used to be thought that when the block became complete the risk of further syncopal attacks was removed. That view was incorrect, though there is probably less likelihood of further attacks when the block has become complete. The systolic blood pressure is usually raised, and one need not regard him as suffering from hypertension in addition to the block. Some cardiac enlargement is also the rule. Further, he should expect to be more short of breath than those without heart-block; the other symptoms are perhaps referable in part to his age. The heart-block will persist and nothing can be done to rid him of it. As the Wassermann reaction is negative, and arteriosclerosis is the usual cause, no specific treatment will benefit him. He may be reassured as to his progress. The risk of recurrence of Stokes-Adams attacks is relatively slight, and the other ultimate risk is that of heart failure. It would only be if his dyspnoea became pronounced that this question of failure need be raised, especially as he is emphysematous. The most useful course will be to persuade him to limit his activities according to his breathlessness.

Achalasia of the Cardia

Q.—I have heard there is some drug useful for achalasia of the cardia, and should like to know what this is. The patient I have is 15 years of age and has been dieted since she was quite young. She has taken a semi-solid diet and her height and weight are above normal. She has never required bougies. She is still sick at some meals, but on the whole she takes a fair amount of food.

A.—When it was believed that the dysphagia was due to cardiospasm, it was natural to treat it with antispasmodic drugs, such as nitrites, nitroglycerin, benzyl benzoate, etc. Recent pathological studies, however, support Hurst's theory that achalasia is primarily a disease of the myenteric plexus. There is no organic narrowing or thickened sphincter at the lower end of the oesophagus. With destruction of the plexus, sympathetic fibres to the terminal portion of the oesophagus act without opposition, the terminal portion does not relax normally with the swallowing reflex, and dysphagia results. It has been suggested that the degeneration of the ganglion cells in the myenteric plexus is due to avitaminosis B, and that the disease should be treated with large doses of vitamin B₁₂, 20 to 100 mg. daily, by mouth or parenterally. This treatment would require prolonged trial, as recovery of the ganglion cells would obviously be slow. Another rational form of therapeutics is to use prostigmine

to reinforce the action of the parasympathetic supply of the terminal portion of the oesophagus. Prostigmine may be given either by injection, for which purpose it is put up in 1-c.cm. ampoules, or by mouth in tablets containing 15 mg. It is an expensive drug, and it would therefore seem desirable to observe the effects on the x-ray screen. If an effect cannot be demonstrated with an adequate single dose it would seem useless to continue the drug. In conclusion, it may be noted that no convincing results have been reported with either of these forms of therapy.

Treatment of Schizophrenia

Q.—The treatments of schizophrenia at present in vogue seem to me to go to the extremes of producing convulsions on the one hand and continuous narcosis on the other. Is there any evidence to prove which of the two is preferable? And would it be possible to state briefly what is the rationale behind these two treatments? To the general practitioner asked to advise the relatives of patients the situation is slightly bewildering.

A.—There is no acceptable rationale of convulsion treatment; its justification is empirical, the theory that led to its adoption having been mistaken. The theory of narcosis is roughly one of the simplest possible rest for the nervous system as a whole. Continuous narcosis is not often effective in cutting short schizophrenic illnesses. Convulsion treatment, on the other hand, while it cuts a good many of them short, is accompanied by a considerable relapse rate, so that its ultimate value in the treatment of schizophrenia is still in question.

Sulphonamides in Virus Infections

Q.—Sulphonamides seem to be of use in lymphogranuloma venereum and trachoma. Are they of value in infections with the psittacosis viruses?

A.—Experiments in mice (Burnet) have given negative results, though some limited experiments with sulphapyridine (Bedson: unpublished) suggested that this drug was not altogether without effect on psittacosis in the mouse. Meyer and Eddie report that a human case of ornithosis did not respond to sulphathiazole, and the failure to respond to sulphonamide drugs is one of the criteria on which the diagnosis of atypical pneumonia is made. However, the American literature contains the report of one case of psittacosis which responded to sulphapyridine (Hinshaw, 1940), and there have been two cases at the London Hospital (unpublished) treated with this drug with apparent success. An open mind on this question should, therefore, be kept until these drugs have been given a more extended trial.

Urticaria

Q.—What are the chief causes of urticarial rashes, and what are the best forms of treatment? Is it possible that heavy chlorination of the water is responsible for prevalence in children? I have observed that removal of a child on holiday leads to disappearance of the rash.

A.—The chief causes of urticarial rashes are allergic responses to foods, drugs, foreign proteins, and toxins, and the reactions are partly or wholly conditioned by metabolic factors, which may be dietetic, endocrine, or nervous. The problem and its treatment require a whole chapter of a dermatological textbook and cannot adequately be dealt with here. Chlorinated water usually produces a follicular eruption of minute urticarial papules rather like the rash of rubella, but in my experience the eruption is not common. Several observers have reported that urticaria in children almost invariably clears up without treatment when a child leaves its home, and some evidence exists to the effect that dust in the bedrooms is the offending allergen. Antigens prepared from dust have been used with some success in the desensitization of young urticarial subjects, but at least equally good results can be obtained by attention to the metabolic factors above mentioned plus hydrarg. cum cret., alkaline aperients, and 2% of phenol in calamine lotion.

Strains of Diphtheria Bacilli

Q.—(a) Is a "mitis" strain of diphtheria bacillus by definition incapable of producing a membrane and symptoms in man? (b) Conversely, are all strains isolated from cases of clinical diphtheria "virulent" and not "mitis"? (c) If the answer to both questions is Yes, then only strains from symptomless carriers need be examined for virulence?

A.—(a) No. Mitis does cause clinical diphtheria and even severe or fatal diphtheria. McLeod (*J. Path. Bact.*, 1939, 48, 99) described 48 fatal cases of diphtheria, of which 11 were due to mitis infection. Shone (*ibid.*, p. 139) recorded 783 mitis infections, of which 197 were moderate and 105 severe; 2.4% of the mitis patients died. The complication rates for mitis-infected patients were laryngeal 8.5, tracheotomy 5.2, circulatory 3.7, paralysis 2.8, severe toxæmia 0.3. (b) No. Probably the questioner has confused two points. Bacteriologists using tellurite plates quickly identify the types

isolated, and as they have found that almost all gravis and inter-medius strains are virulent in animal test, they dispense with this test in routine work. Mitis strains from cases of frank diphtheria may or may not be virulent.

Prognosis of Subacute Combined Degeneration

Q.—How has the prognosis of subacute combined degeneration of the cord been affected since the introduction of liver therapy and desiccated stomach extracts?

A.—The development of the spinal-cord lesions of pernicious anaemia can be completely arrested by adequate treatment with liver or stomach. Adequate treatment implies receiving more liver than is necessary merely for the maintenance of a normal blood count, and in the early stages of treatment a full dose of liver extract—i.e., 4 c.cm.—should be injected intramuscularly three times a week. Later the number of injections may be reduced to one a week, but this should be maintained for two or three years and only then reduced to once every three weeks. Signs attributable to peripheral nerve involvement generally disappear within six months. Subjective improvement in strength and ability to get around may continue for two or three years, and occasionally objective evidence of spinal disease, such as an abnormal Babinski reflex, may disappear during his period. Little improvement can be expected after this time, with the important proviso that there is often a considerable hysterical overlay which may respond dramatically to appropriate andling.

Oestrogens at the Menopause

Q.—Oestrogens, natural or synthetic, are recommended for the relief of troublesome menopausal symptoms. I should be glad to know whether expert opinion is in favour of giving these substances as a routine to every woman who reaches the menopause. What is the optimum dosage, and how long should the drug be continued?

A.—Routine administration of oestrogens to all women of menopausal age is to be deprecated, because only about 20% of women experience menopausal or climacteric symptoms of such severity as to be troublesome. For these, synthetic oestrogens, such as stilboestrol or hexoestrol, should be given in as small a dose as possible. With 0.5 mg. twice or three times daily by mouth, and if the symptoms are not relieved increase cautiously until the dose is sufficient to reduce the number of "flushes" to an average of four twenty-four hours. The object of treatment is not to give complete relief but to moderate symptoms to a reasonable extent. It is rarely necessary to give more than 1 mg. three times daily. Having determined the dose necessary to give relief, maintain that dose for two to three weeks. Then gradually reduce it over a period of three to six months, using always the number of "flushes" as a guide. This very gradual and regular reduction is the essential feature of the treatment, as it allows the endocrine system and other bodily functions to accommodate themselves to the diminished ovarian activity. This should be explained to the patient in order to obtain her co-operation. Prolonged and heavy dosage to secure complete relief of symptoms is never justifiable, and symptoms will recur if the treatment is stopped suddenly.

Dressing for Clean Ulcer

Q.—Following treatment, a superficial abrasion that was septic has healed, and there now remains a shallow clean ulcer with a granular base. What dressing should be applied and how often should it be dressed? Some dressing is essential in Service patients on duty.

A.—The dressing should shield the ulcer from further contamination and injury, and this can be achieved most conveniently by covering the surface lightly with sulphanilamide, and then applying a few layers of gauze impregnated with sterile vaseline or a layer of tulle gras. This dressing may be held in place by a covering of elastoplast, and if the ulcer is not too large, and if movement of the part will not interfere with healing, the patient can remain at duty. The dressing should be left untouched for at least a week, and if still unhealed yet progressing satisfactorily, the procedure may be repeated for another week. If, however, healing is retarded, the part must be immobilized.

More about Earwigs

Q.—In reference to the answer to the question about earwigs (10), could you inform me (1) how to prepare dried apple juice, and (2) whether sodium fluoride is poisonous to cats or not?

A.—Apple pomace is a commodity sold as such. It is the flour left over from dried apple rings. Perhaps chicken balancer meal would be more readily available now as a substitute. Sodium fluoride is fairly poisonous to mammals: the median lethal dose is about 1/2 g. per kg. On the other hand it seems unlikely that domestic animals would lick up a sufficient quantity to be dangerous if the bait is spread in small crumbs suitable for rats.

INCOME TAX

Annuity Policy with the Medical Sickness, Annuity and Life Assurance Society

"R.N.V.R." pays £16 19s. a year on an annuity policy with the society, taken out under the B.M.A. pension scheme. He has claimed, but has not received, an allowance for the premiums.

* He should write to the Assessor of Income Tax, Admiralty, to the Chief Inspector of Taxes, the Hydro, Llandudno, requesting the allowance, and pointing out that the policy was taken out in connexion with the National Health Insurance Practitioners' Pension and Insurance Scheme.

Free Quarters in a State Institution

"M.D., M.S." holds an appointment in a State institution receiving a salary and free quarters. Is he liable to pay tax on the annual value of the quarters occupied by him?

* The legal rule is in No. VI of Schedule A, which provides for the exemption of the "tax charged on any hospital . . . or almshouse in respect of the public buildings . . . not occupied by any individual officer or the master thereof. . . ." This means that the quarters in question remain chargeable to tax, and "M.D., M.S." becomes liable for payment. It is of course possible that the amount at which the quarters are valued is excessive, or that there are some special circumstances of the particular case affecting the liability; we can only state here the general position.

LETTERS, NOTES, ETC.

Medical Directory, 1944

The Editor of the *Medical Directory* (104, Gloucester Place, Portman Square, London, W.1) writes: To maintain the accuracy of our annual volume we rely upon the return of our schedule, which has been posted to each member of the medical profession. Should the schedule have been lost or mislaid we will gladly forward a duplicate upon request. The full names of the doctor should be sent for identification.

Morton's Metatarsalgia

The author of our note (*Journal*, June 26, p. 808) under the above heading writes: It was obvious to me that the original inquiry came from a general practitioner who wanted straightforward guidance probably upon the very common condition frequently referred to by G.P.s as such, but which, as Mr. W. Sayle Creer rightly points out, is not quite the same thing as that originally described by Morton. On the other hand Mr. Sayle Creer has done nothing to clarify the position. On the contrary, he has told us that the Mortons were quite wrong in their interpretations of the eponym, which I still maintain is not a diagnosis; neither do I think that Mr. Sayle Creer knows what the "diagnosis" is. At any rate, he hasn't told us.

Salvage of Agar

Dr. H. H. GLEAVE writes from the Pathological Department, Royal South Hants and Southampton Hospital: In the *Journal*, July 3, p. 16, a reference is made to the recovery of agar. As agar is valuable salvage I asked Mr. R. White (my technician) to work out a method, and this has been in use here for the past year. We hope to publish details elsewhere, but briefly the method is as follows. A large flask with funnel is left in the steamer and the used agar dropped into the funnel and filtered. When the flask is full the agar is again filtered, dried in trays in the hot-air duct, washed for six days in a slow stream of water in an old charcoal type water filter, dried, and bottled. The yield is about 60%. Even on a small scale the recovery seems worth while.

Oedema of Extremities at Sea

Mr. VAUGHAN PENDRED (Tilford, Surrey) writes: The letter of Dr. Harold Thorn (June 5, p. 708) recalls to me a like experience of oedema of the legs at sea when I was a P. & O. surgeon 42 years ago. The chief officer, myself, and two passengers I recall with this alarming disfigurement of our lower limbs. The late Dr. J. H. Bryant of Guy's had reported oedema occurring in patients with tremendous salt appetites, and cure by deprivation. Now surely at sea the ideal conditions for excessive salt intake are present. The bow wave of a ship in fine weather is present day and night. In bad weather the waves break and the air is intensely laden with salt. One day on shore used to cure the oedema.

Interstitial Emphysema

Dr. G. H. DARLINGTON (Leeds) writes: It would appear that the occurrence of interstitial emphysema during labour is not so very infrequent. On June 11 of this year a patient of mine, a healthy primipara aged 26, developed the typical swelling of the neck, face, and right arm during a rather prolonged second stage. Curiously enough it started about one hour after I had given an injection of 1/4 gr. of morphine, when the patient was comfortable and not straining. The emphysema disappeared in about a week. The only point of interest in her past history is that at the age of 10 she was treated for tuberculous glands of the neck.

LONDON SATURDAY AUGUST 14 1943

EXPERIENCES IN MILITARY DERMATOLOGY*

BY

R. M. B. MacKENNA, M.A., M.D., F.R.C.P.

Brigadier; Consulting Dermatologist to the Army

So far as I have been able to ascertain, the best starting-point for this essay is July 23, 1903, for on that date the Advisory Board for Army Medical Services appointed a subcommittee of eminent men "to consider the question of the treatment of venereal diseases in the Army, and to inquire into the question of the treatment of itch." The chairman and the secretary of the subcommittee widened its terms of reference very considerably, and included in its purview "the arrangement and equipment of wards and hospitals for the treatment of certain" (unspecified) "skin diseases"; they summoned to its conferences most of the eminent British dermatologists of the day (including Radcliffe Crocker, Malcolm Morris, Jonathan Hutchinson, T. Colcott Fox, and Arthur Whitfield) and sent a representative to the leading civilian and military hospitals in France, Germany, Austria-Hungary, Italy, Russia, Sweden, Denmark, and Belgium. Eventually four large reports were published by His Majesty's Stationery Office,¹ and in the last of these, among many other recommendations, the subcommittee advised the segregation of skin cases in special sections of military hospitals, recommended that in these hospitals "in charge of sections for the treatment of venereal and skin diseases should be placed officers who have qualified as 'Specialists in Dermatology, including Venereal Diseases,'" and stated that it would be "of advantage to the service that junior officers intending to present themselves for examination in the subject of dermatology and venereal diseases when qualifying for promotion to major should be appointed to stations where wards for the treatment of these diseases exist under the charge of an officer with the 'Specialist' qualification."

It would have been reasonable to assume that with the backing of the subcommittee's findings and the blessing of the Advisory Board military dermatology would have forged ahead. But venereal maladies are a greater hazard than cutaneous diseases to a peacetime army of selected men, and the medical officer who desired to specialize in the latter found that, although nominally he was a dermatologist, the larger part of his clinical duties was the treatment of venereal disease.

In the South African War (1899-1902) skin diseases had been found to be one of the principal causes of inefficiency in the Army; during this campaign the average annual incidence of skin diseases per thousand troops was 23.71—i.e., approximately half the battle casualties. In the war of 1914-18 skin diseases again became notorious because of the inefficiency they caused. In 1915, in the United Kingdom, 40.88 men in every thousand were admitted to hospital because of diseases of the skin and areolar tissue; in France and Flanders in the same year the ratio was 126.13 in every thousand.² But despite the high incidence of skin diseases the dermatologists were singularly unsuccessful in leaving a permanent impression upon military administration. In the years of comparative

tranquillity between 1918 and 1939, for the reason given previously, dermatology in the Army again became a specialty in which venereology was predominant.

The Early Days of the War

Of the first nine months of the present war I shall say little. The dermatological work which was carried out during this period in the B.E.F. in France (1939-40) has been recorded by Colonel J. T. Ingram.³ For those of us who were on service in the United Kingdom it was probably the hardest and most difficult period to date. We who were working in England naturally and rightly did not have our indents for drugs and stores fulfilled until the B.E.F. were supplied. Not only were the shortages of drugs, syringes, etc., a matter of concern, but also we had many difficulties with personnel; for much of our time was spent in training men, many of whom had but little vocation for nursing, without assistance from sisters or from nursing orderlies. In the hospitals at home, no sooner had we trained a batch of men than they were swept away to other units, and the training of the next batch of raw recruits and inexperienced medical officers began. This difficulty with personnel has given us considerable trouble throughout the war. Much (but by no means all) of the work of a dermatologist in the Army must be done in military or general hospitals. It is the duty of the staffs of the former, and to a less degree of the staffs of the latter, to train personnel, and the shortage of man-power is such that it is very difficult to arrange for a cadre of N.C.O.s. trained nursing orderlies, or special treatment orderlies to remain in each hospital as a nucleus to assist in the training of each batch of newly enlisted men.

A New Establishment and a Policy

In Nov., 1941, largely as the result of the representations that were made by the Director of Hygiene (Major-Gen. D. T. Richardson) and Lieut.-Col. (now Brigadier) T. E. Osmond, R.A.M.C., and with the valuable support of members of the Consultants Committee, a new establishment was created in the Army Medical Department: Brigadier Osmond continued to be Adviser in Venereology, and I was appointed Adviser in Dermatology. It must be understood that the dermatologist who is War Office Adviser has not *carte blanche* to organize dermatology in the Army in accordance with his own fancies or the beliefs of his officers. It is his duty to weigh the merits of the policies he conceives or the proposals he receives, and then, if they involve major questions, so to marshal the facts and figures concerning these matters that he can present to higher authority a watertight and convincing case for their acceptance and adoption. Having received an acceptance in principle, he must then take the necessary steps to have the scheme implemented.

In Nov., 1941, my first duty was to formulate a comprehensive policy for dermatology in the Army. The following is an outline of this policy, so far as the work in the United Kingdom was concerned.

1. In each Command† there should be a Command Specialist in Dermatology: he should have the professional status of

* A paper read before the British Association of Dermatology and Syphilology on July 2, 1943.

† As is well known, for the purposes of military administration the United Kingdom is divided into several large Commands. For medical purposes the Command is the major administrative unit.

a consultant and should hold a higher diploma in medicine or surgery, but in a few cases in which ability in organization or in dermatology was recognized this academic standard might be waived.

2. So far as possible, military dermatology should be centralized in military hospitals.

3. Officers in medical charge of units should be instructed to send all difficult cases (without delay) to hospitals where dermatologists were available rather than to admit these cases to subsidiary medical centres where, because of lack of specialized knowledge or advice, the course of the disease might be prolonged.

(This item of policy, simple though it appears to be, was not put forward without much consideration; for it was a matter which affected the interests of many keen medical officers who would have preferred to keep these cases under their own care. But our criterion of therapy is that it must be carried out with the maximum speed compatible with efficiency, and it was obvious that the detailed knowledge of the specialist was more likely to ensure rapidity and efficiency than the efforts of a medical officer, however keen, who had no special knowledge of cutaneous diseases.)

4. Military dermatological centres should not be isolated units, but should be part of or attached to military or general hospitals.

5. The equipment—surgical, electrical, and pharmaceutical—should be of a standard comparable to that of the dermatological department of the average teaching hospital. In one centre in each command x-ray therapy should be available.

6. A scabies officer—a graded dermatologist—should be appointed in each Command.

A Memorandum embodying this policy was drafted; it contained, *inter alia*, reference to the dermatological education of medical officers, and reference to preventive dermatology and rehabilitation.

The justification for the policy submitted was that, if carried out, there would be a reduction in the loss of time and the wastage of man-power due to skin diseases, and certain economies in finance and material would be effected. All the proposals, except that for scabies officers—which was refused on the grounds of shortage of medical officers—were accepted in principle.

There followed visits to most military hospitals and many camp reception stations from the Moray Firth to Cornwall and from Londonderry to Canterbury. New establishments for a certain number of dermatologists had to be obtained; dermatologists had to be enlisted, passed through the depots, and posted to Commands. Additional bed accommodation had to be found. The details of the policy had to be explained in the Headquarters of Commands. Many E.M.S. hospitals were visited, and it is a pleasure to acknowledge my indebtedness to the executive and clinical officers of the E.M.S., who have always cordially smoothed my path.

In May, 1942, the Director-General E.M.S., having considered our plea for centralization of treatment, issued an Instruction directing that if a Service patient had been admitted to an E.M.S. hospital, and if cure had not resulted within three weeks from the date of admission, that patient should be transferred to one of the hospitals having special facilities for treating skin cases listed in Section XII of E.M.S. Instructions, Part I.⁶

Besides these administrative matters, items of clinical interest were dealt with. Two pamphlets—"Notes on the Prevention and Treatment of Scabies, 1942," and "Memorandum on Cutaneous Diseases, 1942"—were written, and published by command of the Army Council.

Implementing the Policy

In July, 1942, an order was promulgated implementing the first item of the policy outlined above: Command Specialists in Dermatology were nominated for all Commands in the United Kingdom, and their duties and responsibilities were defined as follows:

1. The Command Dermatologist is the adviser of the Deputy-Director of Medical Services of the Command in all matters concerning the prevention and treatment of skin diseases.

2. He is responsible for the treatment of skin diseases in the hospital to which he has been posted.

3. He is to visit, periodically, all military stations in the Command where skin diseases are treated and to report to the D.D.M.S. concerning the efficiency of these stations. (When properly carried out visits are among the most valuable services which he renders.)

4. He is to advise and train medical officers in the principles of diagnosis and treatment of skin diseases. (In many skin centres teaching rounds are undertaken in the wards.) He is responsible for the training of orderlies and V.A.D.s.

5. He is to maintain cordial liaison with those E.M.S. hospitals where military dermatologists attend in a consultative capacity.

6. He has authority to delegate certain of his duties.

It will be seen from this schedule that the Command Specialist has heavy responsibilities. He is both the pivot and the mainspring of the system in the Commands. Once in every three or four months there is a Conference of Command Specialists in Dermatology at the War Office.

Grading

Thus far reference has been made to Advisers and Command Dermatologists without describing the hierarchy of dermatology in the Army; this omission must now be rectified. Besides Command Specialists and Advisers there are Specialists and Graded Specialists in Dermatology; also we have a few carefully chosen officers who are being trained in the specialty.

It may be of interest to specify the standards required of those who wish to be posted as "Graded Dermatologists" and "Specialists in Dermatology." A "Graded Specialist" should be in possession of higher medical qualifications. He should have been qualified in medicine for three years and employed in his specialty for at least one year. A "Specialist" must have the same qualifications as the "Graded Specialist," but with at least three more years' experience in his specialty; his age should be 32 years or over. Because of the pressure of the years we have had to reduce our standards, but the reduction has only been slight.

There is a general belief that military dermatology is a simple business. Certainly dermatology in the Army is simplified by two factors: first, we deal with persons of a selected age group; and, secondly, we deal with men and women who have been passed for service after a medical examination. But as the age limits widen and as, under the exigencies of war, the standards of physical fitness are relaxed, the scope of dermatology (as of other branches of medicine) widens proportionately, and we see a number of cases of unusual interest and difficulty.

Nursing

There is one important matter to which reference must be made, and that is to the assistance which the Matron-in-Chief, Q.A.I.M.N.S., Dame Katharine Jones, has readily given us on every occasion when we have sought her help. She, who once worked with Dr. H. G. Adamson, is anxious that every facility should be given for skin cases. On April 29, 1942, she signed a Memorandum on behalf of the Director-General, Army Medical Services, stating that matrons and sisters in charge should particularly interest themselves in skin wards, and whenever possible a sister should be posted to supervise the treatment of skin cases, "which should be regarded as an important branch of nursing duties." Since the issue of that Memorandum developments have occurred, and it is hoped that soon new establishments will be promulgated whereby sisters will be available to supervise nursing in the skin wards of all military hospitals. Dame Katharine is anxious that one of the good results of this war will be that in future the British soldier when suffering from skin diseases will be nursed in wards supervised by sisters.

Thus, briefly, are summarized the most salient advances in military dermatology which have occurred at home in recent months. There has been much else. We have recently launched a scheme on a small scale for the rehabilitation of men who have suffered from certain cutaneous diseases. This scheme, though no longer in embryo, is still in swaddling-clothes, and therefore will be mentioned without comment.

With regard to the Forces abroad, an adviser in Dermatology has been posted to the Persia-Iraq Force and another is serving in the Middle East. I have no intention of widening the scope of my remarks by reviewing the work of dermatologists in India, Persia, and Iraq, in Palestine, in Egypt and Libya, in North Africa, and in more remote parts of the globe: our colleagues will tell their own histories when they return, and theirs will be records of high endeavour and

success. It has been interesting to see how each dermatologist who has been commissioned has seized upon one particular facet of dermatology as being particularly his, and by disseminating his special learning has contributed greatly to our common knowledge.

Some Contributions of Note

Many clinical investigations and field trials have been undertaken: some contributions of value have been published in the medical press. Our observations have ranged from the bullous striate dermatitis which occasionally develops on those who lie down in green pastures, to methods of using "plastics" in the service of dermatology. Reference to the work (published or unpublished) of individual officers would be invidious, but as Major G. A. Hodgson's observations⁷ on the incidence of scabies and its apparent dependence upon the incidence of subnormal intelligence have been criticized, I wish to make the following comment. From my own observations I believed that Major Hodgson was correct in his general view that the incidence of scabies was greater in troops of low mentality than in individuals more favoured mentally; but because of Hodgson's use of norms derived from R.A.M.C. recruits, it is possible that the figures obtained in this group were too high and consequently the number of cases which appeared to fall in the lowest intelligence group were exaggerated. The figures (see Table) supplied by Lieut.-Col. G. R. Hargreaves,

Table showing Proportion of Scabietic Recruits of Different Intelligence Levels

Intelligence Grading	Scabietic Recruits	Strength of Intakes by S.G.s	Ratio
S.G. 1	21	3,945	0.5%
S.G. 2	65	6,983	0.9%
S.G. 3	109	9,389	1.2%
S.G. 4	89	8,246	1.1%
S.G. 5	123	6,565	1.9%
S.G. 6	46	2,102	2.2%
	453	37,330	1.1%

R.A.M.C., after an investigation of the incidence of scabies in approximately 40,000 recruits suggest that while Hodgson's figures are an over-estimate of the relation between scabies and low intelligence, nevertheless a positive significant relationship does exist, particularly in the very lowest intelligence group.

But, besides this flight into the *terra incognita* of psychosomatic tendencies, we have done much work on scabies, and we are proud of the enormous saving in transport, material, and finance which has resulted from the introduction of the treatment of scabies in units without segregation of the patients. From the administrative point of view it was a bold step for the Director of Hygiene to sanction this innovation, for had it not been successful the incidence of skin diseases would have soared; but, thanks to the careful work of unit medical officers, hygiene officers, and dermatologists, this innovation has been a success, and not only has there been a great saving in the material matters just mentioned, but there has also been much economy in that even more valuable factor, time.

All too often it has happened that the experiences gained in war have been forgotten in peace, and, before I conclude, there are some matters to which I must refer.

General Standard of Dermatology

In the Army not only is there a cross-section of the population—there is also a very fair sample of the graduates who have emerged from all the medical schools in the United Kingdom during the last 20 years; one is thus afforded a unique opportunity of assessing the general standard of medical knowledge attained by these men and women. In the Official History of the last war⁸ it was stated that:

"The outstanding feature of this statistical review of diseases of the war . . . is the large number of men rendered ineffective by the simple ailments of everyday life, such as diseases of the respiratory and digestive systems, rheumatic fever and its allied conditions, local and general injuries, skin diseases, minor septic infections, and influenza. These disabilities . . . form the bulk of the illnesses suffered by the seven million insured people who apply for medical treatment every year. . . . The medical services both of the Army

and of the civil population have here a common enemy and a common objective. Herein lies scope for research, rich in opportunity during peace, full of possibility for the future, and well worth constant investigation if preventive medicine is to reduce the admission rate to hospital at home and abroad, in peace and in war."

Without presuming to comment on the standards of medical education in any subject but that of our specialty, I feel it my duty to state that, in my opinion, the standard of dermatological knowledge of recently qualified medical men is not proportionate, as it should be, to the incidence of cutaneous diseases in both civil and military practice. It is not only the recently qualified medical men whose knowledge of cutaneous diseases could be improved with benefit to the community. The standard of many of their senior colleagues also leaves much to be desired. One can substantiate these statements in many ways: for example, Major K. Mellanby, R.A.M.C., has reported that in a sample of 1,000 successive cases sent for treatment to a scabies clinic 280 were not suffering from scabies. I do not accept this figure as having a general application throughout the Army, but I do agree with the implication of the statement—viz., that the error in the diagnosis of cutaneous diseases in general and of scabies in particular is much higher than it should be.

Both in war and in peace the loss of man-power days and working hours, the wastage (by misapplication) of drugs, and the amount of human misery caused by "trial and error" therapy based on uncertain diagnosis, are matters which should give the greatest concern to those responsible for planning medical education. These matters are not new; in 1904 Malcolm Morris⁹ made the same plea for accuracy in elementary dermatological diagnosis. He referred particularly to the cases of dermatitis herpetiformis which he had seen and which previously had been repeatedly diagnosed and treated as scabies. That pitfall is still a successful trap to most medical officers to-day, and I submit that there is something fundamentally wrong in a system of education against which an indictment couched 40 years ago can justly be made.

It is worth considering whether or not the teaching of the acute infectious fevers should be linked more closely with the teaching of dermatology, for in many of these fevers the diagnosis is primarily made on the appearance of an eruption, and the clinician makes his diagnosis by paths of thought and trends of observation which are particularly dermatological. I do not advocate that we should incorporate in our specialty the treatment of infectious diseases. All I suggest is that, in teaching, there should be a closer liaison than at present exists between the expert in fevers and the expert in skin diseases. By this means the standards in both these specialties would be raised.

The quotation⁸ given earlier from the Official History of the last war concerning the relevant incidence of diseases both in war and in peace confirms, to some degree, my disbelief in the story that skin diseases are statistically predominant only in war. I doubt very much if the proportional incidence of, for example, respiratory and cutaneous diseases differs greatly in war and in peace. My contention is that skin diseases are statistically and economically of great importance in peace; but the facilities for their treatment are relatively limited even in many of our larger cities, and the public rely to such a degree on patent medicines, preparations obtained from quacks, or self-prescribed remedies purchased from chemists that an enormous number of cases of skin disease are never seen by the medical profession. It may be said that this does not matter—that the majority of people are eventually cured by these methods. Even if this very debatable statement is accepted as true, it does matter, because we are squandering our pharmaceutical resources in making tons of remedies each year, many hundredweights of which are misapplied or wastefully used; further, by faulty treatment the period of cure is prolonged, working hours are lost, and diseases are disseminated.

The traditional system of treating the majority of skin patients as out-patients can be, and often is, incredibly wasteful in drugs and dressings; it can also be inefficient and time-consuming. I believe that a statistical survey would indicate that at least 5% of the available hospital beds in the country should be earmarked in peace for dermatology, and it may well be that a higher percentage than this is really necessary.

The Advancement of Dermatology

With regard to the specialty itself, and to those who practise it, the lack of a Diploma in Dermatology is a serious handicap to the advancement of the subject. Holders of special diplomas are essentially men whose competence has been assessed by others than their own teachers. Even allowing for the faults inherent in an examination system, one usually finds that the majority of men who have achieved a difficult diploma are men of worth. In these highly competitive days when most specialties in medicine and surgery have their diplomas, there is considerable danger lest the poorer quality of man is attracted to a specialty which demands no particular hall-mark of intensive effort. The establishment of a diploma would not benefit only the diplomates—it would tend to standardize, and thus to improve, the nomenclature of our subject, to crystallize our views on therapy, and very materially to increase the standards of teaching of dermatology.

It is desirable that we should develop much greater facilities than at present exist for research. At the present time, when the methods of research are becoming more and more specialized and the technicalities of mathematical assessment are becoming increasingly important, there is danger lest we be outstripped in research in our own specialty by scientists who have had little or no dermatological training. There are problems of preventive dermatology which must be solved—problems in rehabilitation which must be met. In these fields we can make rapid progress, particularly if we collaborate with our colleagues in physical medicine, pharmacology, chemistry, and psychology.

Points Relevant to the Army

Finally there are three points relevant to the Army to which I must refer. When the time comes for us to shed the bright panoply of war the measure of our success—or failure—in our present effort will be the effect which our work has had in influencing the military medical strategy of the future. Very sincerely do we hope that we will have succeeded in ensuring three matters:

1. That in times of peace dermatology is not swamped by venereology, and that a permanent cadre, small though it will be, of medical officers will keep alight the torch of dermatology.

2. That from the outset of any future campaign it will be remembered that skin diseases are a vital cause of inefficiency and that full provision will be made both at home and abroad for dermatological services, proportionate in size and efficiency to the problems which will assuredly arise.

3. That, with the help of the Matron-in-Chief, the British soldier suffering from a cutaneous disease receives treatment in wards in which the nursing is supervised by sisters.

We, the dermatologists in the Army, owe much to many officers of high and low rank who have helped to smooth our way; it would be an impossible task to name them all, as one would like to do; but to three officers of the higher executive we are greatly indebted—first, to the Director-General, Army Medical Services (Lieut.-Gen. Sir Alexander Hood), who has always appreciated the significance of our work, and done much both at home and abroad to ensure that our contribution to the war effort was utilized to the full; secondly, to the Director of Hygiene, Major-Gen. D. T. Richardson, who has given daily attention to our problems, and on whose staff I had the honour to serve; and, thirdly, to the Consultant in Venereology (Brigadier T. E. Osmond), who, with General Richardson, was largely responsible for ensuring that dermatology and venereology went their separate but harmonious ways, and that we too had the full recognition of War Office representation.

REFERENCES

- ¹ Advisory Board for Army Medical Services (1904). *The Treatment of Venereal Diseases and Scabies in the Army*, Reports 1-4, H.M.S.O., London.
- ² *Official History of the Great War (1931). Medical Services. Casualties and Medical Statistics*, p. 272, London.
- ³ *Ibid.*, p. 61.
- ⁴ *Ibid.*, p. 143.
- ⁵ Ingram, J. T. (1942). *Brit. J. Derm. Syph.*, 54, 223.
- ⁶ E.M.S. Instructions, Part I, Supplement 36 (E.M.S. 45 46), May 5, 1942.
- ⁷ Hodgson, G. A. (1941). *British Medical Journal*, 1, 316.
- ⁸ *Official History of the Great War (1931). Medical Services. Casualties and Medical Statistics*, p. 59, London.
- ⁹ Morris, M. (1904). *Advisory Board for Army Medical Services. The Treatment of Venereal Diseases and Scabies in the Army*, 2nd Report, p. 69, H.M.S.O., London.

PEPSIN INACTIVATION IN ULCER THERAPY

BY

A. MORTON GILL, M.D., M.R.C.P.

Research Assistant in Department of Physiology and Courtauld Research Ward, Middlesex Hospital

AND

C. A. KEELE, M.D., M.R.C.P.

Lecturer in Pharmacology, Middlesex Hospital Medical School

The treatment of peptic ulcer is largely based on methods designed to neutralize the free HCl of gastric juice, so it is important to understand, first, what degree of neutralization is required, and, secondly, how successful modern treatment is in achieving this end. Neutralization is commonly thought to mean complete neutralization to pH 7, but in practice this is very difficult to produce, and dangerous owing to the considerable risk of alkalosis.

In order to understand the purpose of neutralization of gastric free acid it must be realized that its chief function is to create the required medium for the action of the proteolytic enzyme pepsin, which initiates digestion of proteins. The activity of pepsin is greatest at pH 1-2—the value in pure gastric juice—and this activity is abolished probably at pH 3.5 and certainly at pH 5 (Hollander, 1939). Now the normal gastric mucosa is resistant to digestion by its own gastric juice, but an ulcerated gastric mucosa, and probably also the intact mucosa of the small intestine, are susceptible to peptic digestion when the required pH is present, as has often been demonstrated in experimental work on ulcer production. This has recently been well shown by Schiffrin and Warren (1942), who perfused loops of cat's small intestine (including duodenum) for 12 hours with N/10 HCl, which damaged the mucosa very little, but when pepsin was added to the perfusing fluid extensive ulceration, bleeding, and perforations of the gut were seen. It was further shown that at pH 2.24 pepsin had no such effects and that the maximum destruction occurred at pH 1.10. Similar effects on the gastric mucosa were obtained in chronic experiments when the stomach was perfused through a fistula. From these experiments in cats it is seen that even N/10 HCl has little harmful action *per se*, and that relatively slight neutralization is necessary to reduce peptic activity. There is certainly no evidence to show that a pH of 3-4 is by itself capable of damaging an intact or ulcerated mucosa in animals or man, and pH values of over 4 would appear to be unnecessary in counteracting the activity of pepsin.

The common method of measuring the acidity of gastric juice is to determine the volume of N/10 NaOH required to neutralize 100 c.cm. of gastric contents, using Toepfer's reagent, which changes colour at pH 3-4, to measure "free acid," and phenolphthalein, which becomes coloured at pH 8-10, to measure "total acid"; other indicators are occasionally employed. Toepfer's reagent is not very accurate with opaque fluids, but it does indicate a pH change at about the desired value, and the pH of the sample can be roughly estimated from the amount of N/10 NaOH required to change the colour. If the sample does not give a red colour to Toepfer's reagent it may be assumed that peptic activity is negligible. Total acid values give no useful information.

pH values of gastric contents have also been studied by electrometric determinations on samples aspirated from the stomach—a much more accurate technique than the indicator methods; and recently the preparation of electrodes suitable for direct insertion into the stomach has provided a method for continuous recording of pH *in situ*.

Our purpose in this paper is to emphasize that inactivation of pepsin is the aim of peptic ulcer therapy and that this is obtained by neutralization to pH 3.5-4, and we shall consider how effective the usual method of treatment by milk and antacids is in fulfilling this aim.

Effects of Milk on Free HCl in Gastric Juice

Milk is the basis of the dietetic treatment of peptic ulcer, so its actions are very important. Freezer, Gibson, and Matthews (1928) showed that milk can neutralize an equal

volume of 0.3% HCl to pH 4, so the amount of milk in an ulcer diet would theoretically deal with the total quantity of acid secreted daily, provided the milk is given at the right times. Hurst (1928) noted that milk neutralized more effectively than carbohydrate feeds, and that hourly feeds were more effective than two-hourly. We have made observations on ulcer patients in whom a Ryle's tube, introduced via the nose,

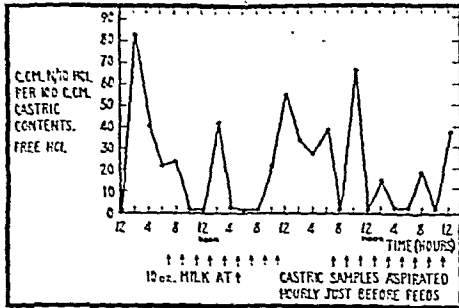


Fig. 1.—Patient No. 1: 10 oz. of milk two-hourly.

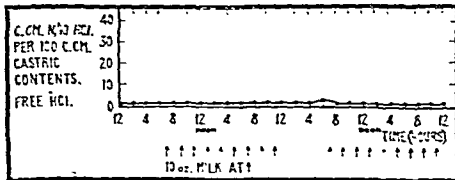


Fig. 2.—Patient No. 2: 10 oz. of milk two-hourly.

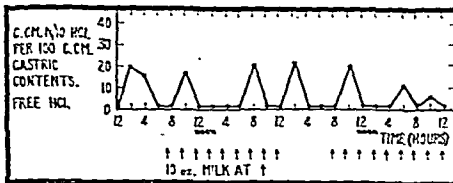


Fig. 3.—Patient No. 3: 10 oz. of milk two-hourly.

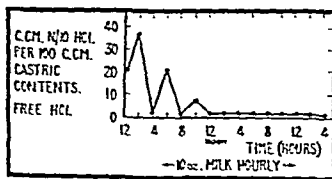


Fig. 4.—Patient No. 1: 10 oz. of milk hourly.

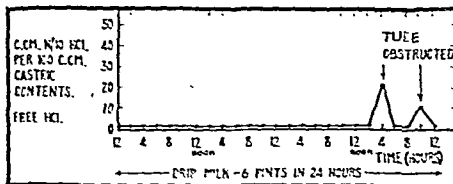


Fig. 5.—Patient No. 1: Continuous-drip milk.

was retained for several days, and samples of gastric contents were removed hourly, day and night, just before a feed. Free acid values were determined, using Toepfer's reagent as indicator.

10 oz. of Milk Two-hourly.—There are considerable individual variations in response to milk, and Figs. 1, 2, and 3 show free acid values in 3 patients with gastric ulcer, which radiographs and gastroscopy showed to be of similar size and location, when 10 oz. of milk was given two-hourly.

10 oz. of Milk Hourly.—The patient whose response to 10 oz. of milk two-hourly is shown in Fig. 1 showed complete neutralization of free HCl on hourly feeds of 10 oz. of milk (Fig. 4). Other patients have shown proportional reductions of free acid levels.

Continuous-drip Milk (6 Pints in 24 Hours).—This method of administration was introduced by Winkelstein (1933), and has the great advantage of being effective by night as well as by day. Fig. 5 illustrates this point in the same patient as above. The obvious disadvantage of this procedure is the continuous presence of the tube in the stomach, but we have found that if the tube is passed intranasally and removed every other day for cleaning the discomfort is reduced to a minimum. Breuhaus and Eyerly (1941) found that 3 oz. of milk half-hourly raised the pH to 2.4-2.9 and was superior to magnesium trisilicate, $\text{Al}(\text{OH})_3$, and NaHCO_3 , given in doses which were roughly equal to milk in neutralizing capacity *in vitro*. Cornell, Hollander, and Winkelstein (1942) have shown that a continuous NaHCO_3 -milk drip keeps the pH of gastric contents about 4 (control pH 1.2-1.5) and is somewhat better than continuous $\text{Al}(\text{OH})_3$ drip, which produces a pH of about 3.5. Wosika (1938) has suggested that powdered skimmed-milk tablets are more effective than liquid milk or cream.

Mode of Neutralizing Action of Milk

Milk contains several substances which may influence gastric secretion. The fat is probably the most powerful constituent, and its inhibitory effect on gastric secretion has been frequently confirmed since the original observations of Ewald and Boas (1886). Fat inhibits gastric movements and secretion when it reaches the duodenum, and fatty acids are far more active than the fats from which they are derived (Card, 1941). It has been demonstrated by Ivy (1937) that the action of fats is due to the liberation in the intestinal mucosa of a substance called enterogastrone, which in turn inhibits the movements and secretion of the stomach. Sugars in high concentrations also inhibit gastric secretion and mobility, and it has been shown by Day and Komarov (1939) that glucose acts partly after absorption by a central action due to the rise of blood sugar, and partly by a peripheral, probably osmotic, action. We have found that glucose, cane sugar, and lactose inhibit gastric secretion in man, but the effective concentration of the last-named is about 12.5% as against the 4% present in milk, so it is unlikely that the neutralizing action of milk owes much to its lactose content.

Proteins of course act as buffering agents, but some proteins can stimulate gastric secretion, probably through their breakdown products. We found that 20 g. of egg albumen hourly greatly increased free acid secretion in man, but Matzner, Windwer, Gavron, and Sobel (1941) showed that gelatin reduced the free acid response to histamine. Levy and Siler (1942) have found that a solution of amino-acids obtained by hydrolysis of casein (amigen) maintained the pH of gastric contents above 3.5 for half an hour after oral administration to normal subjects. The calcium present in milk will also neutralize free HCl.

Thus the inhibitory effect of milk is due partly to depression of secretion and partly to neutralization, and if given in quantities greater than 5 oz. hourly milk is undoubtedly an efficient therapeutic neutralizing agent; but in most cases something more will be required to raise the pH to 4, so antacids must now be considered.

Gastric Antacids

Antacids are almost invariably used to supplement the neutralizing action of milk. Their efficiency has been tested by measuring their neutralization of free HCl *in vitro*, but more useful information can be obtained by studying the reaction of gastric contents after oral administration of antacids. Direct electrometric measurements of pH are more informative than indicator studies, and have been used by Kirsner and Palmer (1940) and Breuhaus and Eyerly (1941) on aspirated samples of gastric contents, and by Flexner and Kniazuk (1941) and Breuhaus and Eyerly (1941) in the study of gastric pH *in situ*, in the dog and man respectively. In this way all grades of neutralization may be accurately measured, and continuous recording is possible with the electrodes in the stomach.

Kirsner and Palmer (1940) and Kirsner (1941) recorded the pH of aspirated gastric samples at hourly intervals in patients with healing duodenal ulcer who were given hourly feeds of milk and cream plus antacids hourly midway between the milk feeds. The gastric contents were aspirated just before each feed—i.e., half an hour after the antacid was given. They found that milk and cream feeds alone (3 oz. total volume, made up of equal parts) had no effect after one hour, although others have found that larger volumes or more frequent feeds were very effective, as described above. A general diet raised the pH somewhat.

A number of antacids in various doses, and atropine, were tested. 2 g. CaCO_3 hourly raised the pH from 1.75 to 4.35, 2 g. magnesium carbonate from pH 1.9 to 5.1, 2 g. magnesium trisilicate from pH 1.95 to 2.57, 2 g. $\text{Ca}_3(\text{PO}_4)_2$ from pH 1.75 to 2.61, 2 g. $\text{Mg}_3(\text{PO}_4)_2$ from pH 1.65 to 3.06, and 30 c.cm. (1 fl. oz.) $\text{Al}(\text{OH})_3$ from pH 1.9 to 3.0. Atropine enhanced the action of CaCO_3 , but had little effect on the other drugs.

The order of efficiency of drugs acting alone in equal (2-g.) doses was: (1) calcium carbonate; (2) magnesium carbonate; (3) tribasic magnesium phosphate; (4) tribasic calcium phosphate; (5) magnesium trisilicate. 30 c.cm. (1 fl. oz.) of 5% colloidal aluminium hydroxide is probably little inferior to calcium and magnesium carbonates.

Breuhaus and Eyerly (1941) studied the effects of antacids in man by recording the intragastric pH at 5-minute intervals for two hours. $\text{Ca}_3(\text{PO}_4)_2$, $\text{Mg}_3(\text{PO}_4)_2$, and CaCO_3 in doses of 1–1.3 g. raised the pH more effectively than 1.3 g. of NaHCO_3 , 10 c.cm. of colloidal $\text{Al}(\text{OH})_3$, or 0.65 g. of $\text{Mg}_2\text{Si}_2\text{O}_7$, and the effects were not necessarily proportional to the neutralizing capacity *in vitro*. This was particularly well shown when mucin was compared with the tribasic powders or CaCO_3 : 10 g. of mucin *in vitro* neutralized as much acid as 1 g. CaCO_3 or $\text{Mg}_3(\text{PO}_4)_2$, but in the stomach mucin was much less efficient than either of the salts. This was probably due to the inadequate distribution of the mucin in the stomach—obviously a question of prime importance. It was also shown that 90 c.cm. of milk half-hourly was inferior only to the tribasic powders and CaCO_3 .

Bennett and Gill (1939) have demonstrated the efficiency of colloidal aluminium hydroxide in patients with peptic ulcer (see Fig. 6). Suggestions have also been made by Schiffrin and

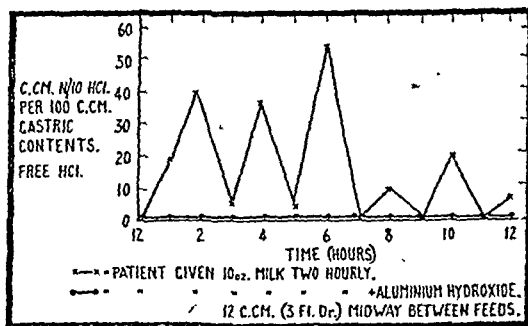


FIG. 6.—Milk plus aluminium hydroxide (Bennett and Gill, 1939).

Komarov (1941) that aluminium hydroxide and phosphate inactivate pepsin even at pH 1–2, but their work has been criticized on technical grounds by Schoch and Fogelson (1942).

It is unlikely that methods of treatment in which two-hourly milk feeds are given, with antacids halfway between, would be as efficient in neutralizing free HCl as the hourly administrations of Kirsner and Palmer; so a pH of 4 will probably not be reached for very long, and at night there will be no neutralization on either regime. Since the majority of peptic ulcers heal readily it may well be that complete inactivation of pepsin is unnecessary and that a pH of 2–3 will cause sufficient reduction of proteolytic activity. We do not know the answer to this question, but if an ulcer does not heal it is important to determine free HCl or pH levels of gastric contents to see how much neutralization has occurred. We have seen cases in which free acid levels increased when antacids were added to a two-hourly milk-feed regime, and such patients would probably require continuous drips of milk or colloidal $\text{Al}(\text{OH})_3$ to control free HCl levels adequately.

Summary

The immediate aim of peptic ulcer therapy is to inactivate the pepsin of gastric juice by raising the pH of gastric contents to 3.5–4. Neutralization to pH 7 is unnecessary, and may easily produce alkalosis.

Milk, magnesium carbonate, calcium carbonate, tribasic magnesium and calcium phosphates, colloidal aluminium hydroxide, and magnesium trisilicate are the most efficient and safe neutralizing agents.

Our own observations were made on patients in the Courtauld Research Ward of the Middlesex Hospital before the war, and we are grateful to Dr. T. Izod Bennett for permission to study his patients. We should like to thank Prof. Samson Wright for his advice and criticism.

REFERENCES

- Bennett, T. I., and Gill, A. M. (1939). *Lancet*, 1, 500.
 Breuhaus, H. C., and Eyerly, J. B. (1941). *Ann. intern. Med.*, 14, 2285.
 Card, W. I. (1941). *Amer. J. digest. Dis.*, 8, 47.
 Cornell, A., Hollander, F., and Winkelstein, A. (1942). *Ibid.*, 9, 332.
 Day, J. J., and Komarov, S. A. (1939). *Ibid.*, 6, 169.
 Ewald, C. A., and Boas, J. (1886). *Arch. Path. Anat.*, 104, 271.
 Flexner, J., and Kniazuk, M. (1941). *Amer. J. digest. Dis.*, 8, 45.
 Freezer, C. R. E., Gibson, C. S., and Matthews, E. (1928). *Guy's Hosp. Rep.*, 78, 191.
 Hollander, F. (1939). *Amer. J. digest. Dis.*, 6, 127.
 Hurst, A. F. (1928). *British Medical Journal*, 2, 779.
 Ivy, A. C. (1937). *Ibid.*, 5, 405.
 Kirsner, J. B. (1941). *Ibid.*, 7, 85.
 ——— and Palmer, W. L. (1940). *Ibid.*, 7, 85.
 Levy, J. S., and Siler, K. A. (1942). *Ibid.*, 9, 354.
 Matzner, M. J., Windwer, C., Gawron, O., and Sobel, A. E. (1941). *J. lab. clin. Med.*, 26, 682.
 Schiffrin, M. J., and Komarov, S. A. (1941). *Amer. J. digest. Dis.*, 8, 215.
 ——— and Warren, A. A. (1942). *Ibid.*, 9, 205.
 Schoch, D., and Fogelson, S. J. (1942). *Proc. Soc. exp. Biol.*, N.Y., 50, 304.
 Winkelstein, A. (1933). *Amer. J. med. Sci.*, 185, 695.
 Wosika, P. H. (1938). *Ibid.*, 195, 676.

A PRECISION METHOD OF CEPHALOMETRY AND PELVIMETRY

BY

PAUL CAVE, M.B., B.S., D.M.R.E.

No method of cephalometry in common use hitherto can claim to be a method of precision. Each is based upon a preliminary estimate (not upon exact measurement) of the height of the "greatest circular section" of the skull above the film. Measurements based upon estimates can never be consistently accurate. The essential features of the various methods are as follows:

Reece (1935) palpates the head, makes allowance for the thickness of the abdominal wall, and adds 2 in. to the tube-skull distance. Thoms (1927) estimates the height and inclination of the occipito-frontal diameter with the patient in the supine position, and after exposure of the film makes another exposure with a perforated lead strip placed above the couch at the height and in the plane of the occipito-frontal diameter. Rowden (1935) measures the foetal skull with the patient in the sitting position, using cephalic scale strips placed at the estimated level of the foetal skull. Walton (1931) and McDonogh (1935) take lateral views of the patient lying either prone or supine with lead marks or a graduated lead rule at right angles to the couch in order to determine the height of the skull above the film. Roberts (1935) examines the patient in the prone position without using a Potter-Bucky diaphragm, and measures the suboccipito-bregmatic diameter on the basis that at term the true diameter of 3½ in. results in a film diameter of 4 in. Chassar Moir (1941) uses a lateral view with the tube at 5-ft. distance and with a scale interposed at the mid-plane of the pelvis. He claims that this gives a fairly accurate guide to the size of the foetal head in about 75% of cases.

It is obvious that in all these methods there is a margin of possible error. For instance, the thickness of the abdominal wall can be estimated but it cannot be measured. The taking of a lateral film in breech cases does not definitely establish the depth of the foetal skull, as the foetus may have moved in the interval between the exposure of the A.-P. and lateral views. A serious disadvantage of these methods is that they require the whole-time supervision of a radiologist. No radiologist should be expected to take the responsibility of calculating the size of a foetal skull from factors not estimated by him personally. These are some of the reasons why

several separate examinations with the patient rotated in oblique positions in order to bring each diameter in turn parallel with the film. Linear objects can be measured provided that they are parallel with the film.

The calculation of the size of the tumour or cavity in the lung and its depth from any part of the chest wall is a simple matter. A double exposure on one film will suffice, or two separate films may be taken if preferred. The method can be used as a check on tomography. The size and depth of opaque cerebral tumours could be determined in a similar manner. The dimensions of a vesical or biliary calculus, or other opaque object, could be determined and compared with its dimensions at a subsequent examination. The results would be comparable even though the position of the object had changed. No doubt other applications of this method will present themselves.

Summary

A new radiometric method is described.

It is claimed to be a method of precision, as the human factor in first estimating the distance of the object from the film is eliminated.

The application of the method to cephalometry and pelvimetry is described in detail.

Other applications in surgery of the brain, chest, abdomen, and pelvis are indicated.

REFERENCES

- Hastings, W. H. (1942). *Brit. J. Radiol.*, **15**, 114.
McDonogh, C. L. (1935). *Ibid.*, **8**, 613.
Moir, J. Chassar (1941). *Edinb. med. J.*, **48**, 361.
Portes, L., and Blanche (1924a). *Gynec. et Obstet.*, **10**, 333.
— (1924b). *Ibid.*, **10**, 416.
Reece, L. N. (1935). *Proc. roy. Soc. Med.*, **28**, 489.
Roberts, R. E. (1935). *Brit. J. Radiol.*, **8**, 601.
Rowden, L. A. (1935). *Ibid.*, **8**, 610.
Thoms, H. (1927). *Surg. Gynec. Obstet.*, **45**, 827.
Walton, H. J. (1931). *Amer. J. Roentgen.*, **25**, 758.

INTRAMUSCULAR INJECTION OF MEPACRINE (ATEBRIN): HISTOLOGICAL EFFECT

BY

FRANK HAWKING, D.M.

(From the National Institute for Medical Research, London)

This note describes a histological examination of the effect of injecting mepacrine methanesulphonate (atebrin musonate) intramuscularly. Owing to the shortage of quinine, mepacrine will be used more extensively than in the past. When oral administration is impracticable it will be necessary to inject the drug intramuscularly or intravenously; in order to assist the choice between these two routes information is presented about the local effects caused by intramuscular injection.

Literature

Many clinical observations on the subject have been reported, but histological observations have not been described. Field, Niven, and Guest (1937) injected two doses each of 0.375 g. musonate into 284 patients. Local reactions were usually unimportant, but occasionally there was a little tenderness and induration at the site; in one case an abscess with atebri-stained contents developed. During the Ceylon malaria epidemic (1934-5) 681 patients were treated with similar doses; 21.3% developed pain at the site of injection, and in two cases abscesses occurred. (When quinine was injected 36% of 424 patients suffered from pain, but there were no abscesses.) In a later series of 530 cases treated in the field most patients complained of pain for 2 to 4 days, some suffered from painful swelling and induration at the site, and in two instances abscesses resulted. Pain after the injection of atebri was less frequent than after the injection of quinine; it might be severe. Abscesses were indolent and slow to heal; they were similar to those caused by quinine, and tracked along the fascial planes in the same way. Hay, Spaar, and Ludovici (1935) treated 3,500 cases; pain was negligible and no abscesses were observed. Simeons (1936) injected two doses each of 0.3 g. into 2,800

people. With good aseptic technique no abscesses occurred; but with a second series of 2,800 cases, in which asepsis was less satisfactory, there were 49 abscesses. Clinical series in which the local reactions were considered as unimportant are also reported by Carman and Cormack (1936), Eckhardt (1933), Kröber (1936), Seelig and Singh (1936), Sicault (1934), Siegenbeek van Henkelom and Overbeek (1938), van Slype (1935), Vardy (1935). Dove (1942) recommends the intramuscular injection of atebri as being less harmful than quinine. The injection is not painful, and if done with sterile precautions will not cause abscesses; Dove prefers it to intravenous injection of atebri.

Experimentally Hecht (1933) injected 0.1 c.cm. of a 1% solution of the hydrochloride—i.e., 1 mg.—apparently subcutaneously; it caused hyperaemic swelling, which disappeared in 24 to 48 hours without necrosis. Hicks (1935) injected 10 to 20 mg. atebri musonate intramuscularly into 8 monkeys, which were killed two days later. In one case he found macroscopically an area of congestion 1×0.5 cm., haemorrhage, and oedema, but the rest showed no gross changes; no histological observations were made.

Summing up the literature, it is generally considered that the intramuscular injection of atebri is as a rule innocuous, but pain and swelling occur in some patients, and, rarely, abscesses may result.

Experimental Results

The present experiments were made by injecting mepacrine methanesulphonate (quinacrine), 50 mg. in 0.5 c.cm. of distilled water, into rabbits weighing 1.5 to 2 kg. Most of the injections were made into the muscles of the thigh or of the loin, but some were made under the skin of the abdominal wall. If larger quantities—e.g., 70 mg. per kg.—were injected the rabbits were often prostrated in about 5 minutes, and some died; apparently absorption is very rapid. Injections were also made into rats. The rabbits were killed after 1 to 5 days and the rats after 1 to 14 days; the site was excised, fixed in formal-saline, and examined by the usual histological methods.

Naked-eye Appearances.—After intramuscular injection the macroscopic evidence of injury was usually slight. The muscles might be somewhat swollen and small haemorrhages might be present along the needle track. In the thigh, the intermuscular space along the sciatic nerve was often stained yellow from hip to knee. But in most cases there was little to be seen, and the site of injection was often difficult to identify. After subcutaneous injection the skin was usually greatly swollen, sometimes becoming as much as 1 cm. in thickness, the swollen area being 4 cm. in diameter. The swelling occurred in the connective tissue of the skin, which was stained yellow and distended with fluid. After 5 days the affected part was converted into a hard dry necrotic mass. The underlying muscles were little affected.

Microscopical Appearances.—Sections taken 1 to 2 days after intramuscular injection showed areas of necrosis in the muscles. The affected fibres were swollen, structureless, and eosinophilic and the nuclei were destroyed. A moderate amount of fluid (often albuminous) was present between the fibres, but cell infiltration was minimal. The areas of necrosis seen on the slide (transverse section) measured 0.5 to 1 cm. across, but the probably extended over a greater distance in the longitudinal direction. In cases in which the site involved an intermuscular space the connective tissue was greatly distended with fluid and a moderate number of cells, most of the cellular elements being necrotic. Nerve trunks showed haemorrhage and degenerative changes, and the outer coats of the larger blood vessels were necrotic. The necrosis also involved the superficial layers of the adjacent muscles. At the edges of the necrotic region there were moderate collections of cells. In the adjacent areas the muscle fibres were often swollen, and stained irregularly. After 4 to 5 days the cellular reaction around the area of necrosis was more pronounced, granulation tissue began to appear, and a zone of demarcation became established.

After subcutaneous injection the appearances were similar. The deeper connective tissue of the skin was greatly swollen with fluid, and towards the edges it was patchily infiltrated with cells, many of which were degenerate; the whole tissue had undergone necrosis over a considerable area. The skin

cutaneous layer of muscle was necrotic; the epithelium was limited in extent, it being apparently more resistant than the deeper tissues.

In rats the histological reaction was similar. When 0.75 mg. dissolved in 0.15 c.cm. was injected intramuscularly the lesion was small, but when it was injected subcutaneously considerable oedema and necrosis occurred. When 20 mg. in 0.3 c.cm. was injected very extensive oedema and necrosis occurred, whichever route was employed.

The damage caused by mepacrine was compared with that caused by quinine. The monohydrochloride was employed. This is less acid than the more soluble bihydrochloride generally used clinically, and consequently the lesions should be less extensive, being due only to the quinine radical and not to the acid part.

When 20 mg. dissolved in 0.6 c.cm. of water was injected intramuscularly into rabbits the lesions were closely similar in appearance and extent to those caused by 50 mg. of mepacrine. In rats the lesions produced by 10 mg. of quinine were less extensive than those produced by 20 mg. of mepacrine, but those caused by 4.5 mg. of quinine were greater than those caused by 0.75 mg. of mepacrine.

Discussion

Since the macroscopic evidence of injury is usually slight compared with the microscopic evidence, the present findings are easily reconcilable with those reported in the literature. They show that the intramuscular injection of mepacrine always causes a limited area of necrosis around the site of injection, presumably due in large part to the direct action of the mepacrine base. With 0.375 g. (as for man) instead of 0.05 g., the extent of the damage would be somewhat larger, but still not great enough to constitute an absolute contra-indication to the practice in selected cases. As compared with quinine, the damage caused by 50 mg. of mepacrine was similar in extent to that caused by only 20 mg. of quinine. Since the standard dose of mepacrine methanesulphonate (by intramuscular injection) is 0.375 g., while an average dose of quinine is 0.5 g. ($7\frac{1}{2}$ gr.) of the bihydrochloride (which is more acid than the monohydrochloride and possibly more injurious locally), it would seem that a therapeutic injection of mepacrine should cause less than a third of the damage done by a therapeutic injection of quinine.

The relative and absolute merits and demerits of the administration of mepacrine by intramuscular injection cannot properly be discussed here. According to Hecht (1936) most of the mepacrine is absorbed from the site in one to three hours; and this statement about the rapid absorption is in agreement with my own experience and with the reports reviewed above. Clearly, mepacrine should not be injected by any route unless it is impracticable to give it by mouth. The intravenous route avoids local damage, but entails a certain risk to life unless the injection is given very slowly; the intramuscular route is certain to cause a small amount of local injury, but the risk to life from over-rapid absorption is much less (although this is not absolutely excluded, since 4 patients died from mepacrine intoxication out of the 681 treated by intramuscular injection during the Ceylon epidemic). The choice between the two routes of injection must depend upon clinical experience and upon the discretion of the medical man responsible for the case.

Summary

A review of the literature shows that intramuscular injection of mepacrine (atebrin) is considered to be free from local reaction in most cases, to cause pain and swelling in some cases, and to cause local abscesses in rare cases.

Mepacrine methanesulphonate (atebrin musonate) was injected intramuscularly and subcutaneously into rabbits and rats. The macroscopic lesions were often inconspicuous, but microscopic examination always showed a certain amount of necrosis at the site of injection. The damage caused by a therapeutic injection of mepacrine is similar in kind to that caused by a therapeutic injection of quinine, but probably less than one-third as extensive. For patients who cannot take mepacrine by mouth this local damage does not contraindicate parenteral injection, but its occurrence should be borne in mind when choosing between the intramuscular and the intravenous routes.

Grateful acknowledgments are due to Sir S. Rickard Christophers for his encouragement and advice, to Messrs. May and Baker Ltd.

for the supply of the compound, to Mr. F. J. Higginson for the histological preparations, and to Miss R. J. Berson for technical assistance.

REFERENCES

- Carman, J. A., and Cormack, R. P. (1936). *Trans. roy. Soc. trop. Med. Hyg.*, 29, 381.
Ceylon Malaria Epidemic (1934-5). Sessional Paper XXII, p. 73, Ceylon.
Dove, W. S. (1942). *Amer. J. trop. Med.*, 22, 227.
Eckhardt, A. E. (1933). *Arch. Schiffs- u. Tropen-Hyg.*, 37, 475.
Field, J. W., Niven, J. C., and Guest, C. (1937). *Bull. Inst. med. Res., F.M.S.*, No. 2, 1.
Hay, D. C., Spaar, A. E., and Ludovisi, H. L. (1935). *Indian med. Gaz.*, 70, 673.
Hecht, G. (1933). *Arch. exp. Path. Pharmacol.*, 170, 328.
— (1936). *Ibid.*, 183, 87.
Hicks, E. P. (1935). *Rec. Malaya Survej India*, 5, 203.
Kröber, F. (1936). *Arch. Schiffs- u. Tropen-Hyg.*, 40, 119.
Seelig, S. F., and Singh, W. (1936). *Rec. Malaya Survej India*, 6, 171.
Scault, G. (1934). *Bull. Soc. Path. Exot.*, 27, 544.
Siegenbeek van Henkelom, A., and Overbeek, J. C. (1938). *Geneesk-Tijdschr. Nederl.-Ind.*, 78, 1658.
Simeons, A. T. W. (1936). *Indian med. Gaz.*, 71, 132.
Van Slyke, W. (1935). *Brux. med.*, 15, 1003.
Vardy, E. C. (1935). *Malay med. J.*, 10, 67.

POST-VACCINAL ENCEPHALOMYELITIS

BY

SAMUEL DUNN, M.D.

The nervous complications of vaccination have been recognized for many years. Turnbull (Turnbull and McIntosh, 1926) reported a fatal case occurring in 1912, but chief interest in the condition arose after 1923. The Report of the Committee on Vaccination was issued in 1928. The cause of the nervous complications of vaccination is still unknown. The condition very rarely follows vaccination in infancy; adults who are undergoing their primary vaccination are most susceptible. The patient whose case is described below had been successfully vaccinated in infancy: a well-marked scar could be seen close to the present pustule. According to her, considerable bleeding occurred at the time of the vaccination, and it seems likely that a "cross-hatching" method was employed. Some authorities consider that linear scratches are not so likely to be followed by nervous complications as "cross-hatching" methods.

In this patient the cerebral symptoms preceded the spinal symptoms by two days, and consisted of lethargy, mental confusion, and insomnia. The interval between vaccination and the onset of symptoms was 15 days; the average period is said to be about 12 days. The paraplegia developed very rapidly, and was complete in 12 hours. Bronchopneumonia and cystitis are the usual causes of death. In the present case cystitis gave rise to the main anxiety. Sulphanilamide certainly kept the urinary infection within bounds, but had no apparent effect on the nervous symptoms. On the whole the administration of plasma appeared to be beneficial, but it is difficult to estimate its value in a condition such as this, in which there is a strong tendency to spontaneous recovery. The plasma seemed to have a very favourable influence on the mental symptoms; these passed off after the first dose. The mortality of post-vaccinal encephalomyelitis is between 50 and 60%, but the prognosis is probably better in the spinal forms than in the severe cerebral types.

As a result of experience in treating the present case it is advised that suitable serum or plasma should be given as soon as possible. This is obtained from a person vaccinated about 21 days earlier. When mass vaccination is going on at the time there will probably be little difficulty in obtaining a suitable donor. In other circumstances it would be necessary to vaccinate a donor; the interval of waiting before the plasma can be obtained would then be a great drawback. One might seek some service or institution—e.g., a hospital—where the entrants must be vaccinated before admission, and it might be possible to find there a recently vaccinated individual who would consent to act as donor. The plasma used in the present case contained 3.8% sodium citrate solution. Originally 50 c.cm. of citrate was added to the blood as preservative; 220 c.cm. of plasma was obtained, and presumably nearly all the citrate was in the plasma.

It is interesting to note that the patient had an attack of tetany during the administration of the plasma. There had

been some vomiting before the attack. Her chief complaint was of agonizing pains in the arms, for which large doses of morphine were given.

REPORT OF CASE

The patient was a woman aged 21, a school teacher. Vaccination had been successfully performed in infancy. She was in good health when vaccinated on July 9, 1942, and a few days later travelled to Glasgow. She was first seen on July 20, when she complained of a very painful arm which kept her awake at night. There was a well-marked reaction around the pustule, with a little oedema of the arm, but no signs of sepsis were present, and the glands in the axilla and the neck were not enlarged.

On July 24 she complained of feeling easily tired; she became drowsy and took little food; on the following day she could be aroused only with difficulty, and considerable mental confusion was present. On the 26th she was very drowsy; the temperature and pulse rate were normal. The vaccination area was covered by a thick scab. She had passed no urine for 24 hours. Examination showed a flaccid paraplegia. There was complete loss of sensation over the lower limbs and over the abdominal wall below the level of the umbilicus. The abdominal muscles were flaccid and there was considerable abdominal distension, even after emptying the bladder by catheter. The knee-jerks were present at this stage but disappeared a few days later. The plantar reflexes could not be elicited. The fundi and external ocular muscles showed no abnormality. The pupils were dilated and reacted sluggishly to light. Mental confusion was pronounced. On the 27th she complained of pain in the neck. The posterior neck muscles were tender to the touch, but there was no nuchal rigidity and Kernig's sign was absent. She required regular catheterization. Constipation was marked, and repeated enemata gave no result. The temperature rose to 100° F.

On July 28 the patient could move the toes of the left foot. She began to have severe pains in the arms and had to have morphine regularly. These pains persisted for about three weeks. The urine was now heavily infected and the temperature was continuously raised. She was restless and delirious and had frequent attacks of vomiting. Sulphanilamide was given, a total of 18 g. being administered in a week. On Aug. 5, when her condition was giving rise to the most acute anxiety, she passed some urine into the bed. This incontinence persisted for another 10 days, but the urinary infection soon passed off. At this date she had no sensation in the lower limbs and the mental confusion was still present. On Aug. 6 she had slight rotatory movements at each hip-joint. During the day she was somnolent and at night restless and excited. On Aug. 20 plasma was obtained from a recently vaccinated individual, and 20 c.cm. was administered intramuscularly each day. The patient's mental condition improved after the first injection, and in two days was normal. The abdominal muscles regained their tone, and after a period of persistent vomiting the distension passed off. On Aug. 25, after 100 c.cm. of plasma had been given, she had an attack of tetany. Plasma administration was stopped for two days and then restarted, using smaller doses. A further 120 c.cm. was given. Several attacks of tetany of less duration occurred.

From this date the patient rapidly recovered the movements of the limbs—first dorsiflexion of the ankles, then flexion of the hip-joints, and then flexion of the knee-joints. On Sept. 4 the left plantar reflex was extensor. Sensation was not yet fully restored. Deep sensibility seemed to be normal, but she had difficulty in locating touch and pain and in distinguishing between the finer grades of temperature. There was slight atrophy of the muscles of the thighs. On Sept. 9 the left knee-jerk was elicited for the first time since it was lost at the beginning of the illness. She still had imperfect bladder control. By the 13th she could raise each leg from the bed, and by the 23rd could shuffle a few steps.

Thereafter she progressed rapidly. On Dec. 24 the only muscular weakness which could be made out was in the extension of the right big toe and in dorsiflexion of the right ankle. She had difficulty in distinguishing between the finer grades of temperature, and her tactile localization was still deficient over the lower limbs. Her bladder control was normal, but she still had a little frequency. She began work early in Jan., 1943.

I wish to thank Dr. George Allan and Prof. T. K. Monro of Glasgow for their advice when they saw the case in consultation with me; to the latter I am also grateful for making arrangements to obtain the special plasma from the Glasgow and West of Scotland Blood Transfusion Service.

REFERENCES

Report of Committee on Vaccination (1928), London.
Turnbull, H. M., and McIntosh, J. (1926). *Brit. J. exp. Path.*, 7, 181.

According to A. J. Mueller and others (*Johns Hopk. Hosp. Bull.*, 72, 110) the minimum requirements of enzymic casein hydrolysate for maintenance is between 0.4 and 0.7 g. per kilo. This indicates its approximate equivalence with intact protein for maintenance, since maintenance of the latter is usually regarded as between 0.4 and 0.7 g. per kilo.

Medical Memoranda

Kienböck's Disease: Aetiology

Kienböck's disease of the semilunar bone is by no means rare and is described in most textbooks. It is regarded by many authors as being of the same class as Köhler's disease of the tarsal scaphoid, Calvé's disease of the spine, and Perthes' disease of the head of the femur. But whereas these, being essential epiphyseal in origin, are found in children, Kienböck's disease is found only in adults. The typical case shows a syndrome consisting of pain over the semilunar bone, limited movement of the wrist, possible ultimate retraction of the head of the third metacarpal, and degeneration of the semilunar seen in radiographs. Most authors agree that the condition is fundamentally an avascular necrosis (Maingot, 1939; Handfield-Jones and Porritt, 1940), but there is a divergence of opinion concerning the aetiology. It is for this reason that the following cases are published.

CASE HISTORIES

Case 1.—A leading aircraftman aged 33 reported sick on April 1, 1942, complaining of pain in the right wrist. Three years previously he had had a septic left thumb, which healed on treatment. Shortly afterwards, for no apparent reason, the right wrist became painful. He was treated for neuritis of the wrist for three years without improvement. No radiograph was taken. He denied having ever sprained or sustained any injury to the wrist. On examination the right wrist showed no obvious deformity. Palmar flexion was limited; extension was normal. Passive adduction caused pain on the radial side of the joint. Tenderness was elicited over the semilunar bone on the dorsal surface, and over the scaphoid in the "anatomic snuffbox." There was no shortening of the metacarpal head. Radiographs showed gross disorganization of the semilunar bone with irregular absorption of bony trabeculation. The degree of opacity indicated avascular necrosis of the bone. Arthritic changes were seen around the cuneiform and the articular surfaces of the radius. Diagnosis: Kienböck's disease.

Case 2.—A gunner aged 30 was seen on May 9, 1942. He complained of pain in the left wrist of one year's duration, and had been treated for a sprained wrist for that period of time without improvement. No radiograph was taken. Injury or trauma was emphatically denied. No septic focus could be remembered, but dental treatment had been necessary some time previously. On examination the wrist showed no obvious deformity or swelling. Palmar flexion was limited; extension was normal. Passive adduction caused pain on the radial side of the joint, and tenderness was elicited by pressure on the radial and ulnar sides: the pain was transmitted to the semilunar area. Pressure over the semilunar bone itself caused sharp pain. There was no retraction of the head of the third metacarpal. Radiographs showed gross disorganization of the semilunar bone with arthritic changes around the articular surfaces of the radius and the scaphoid. The degree of opacity indicated avascular necrosis. Diagnosis: Kienböck's disease.

COMMENTS

It is stated (McGregor, 1939) that the nutrient artery to the semilunar bone is carried by the posterior ligament, which consists of the deep fibres of the dorsal radio-carpal ligament. The commonest fracture of the bone is a separation of a small fragment from the posterior part (Hosford, 1939). If this fracture involves the nutrient foramina and interferes with the blood supply, then avascular necrosis will follow. Watson Jones (1941) states that there is also an anterior nutrient artery which enters via the anterior ligament, and it is only when both supplies are completely cut off, as in complete dislocation of the bone with rupture of the ligaments, that avascular necrosis occurs. Rupture of the posterior ligament alone is not usually sufficient to interfere with adequate nutrition.

Many authors assert that trauma involving the blood supply is the aetiological factor in producing Kienböck's disease; others say the cause is unknown. In Case 1 there is no history of trauma, but of a septic focus. It seems, therefore, that in this instance the condition is the result of the entry of organism of mild virulence, and a sequel of an osteitis.

Case 2 also gives no history of trauma, but the possibility of a septic focus (teeth) cannot be dismissed. It appears that when trauma can be definitely excluded haematogenous infection must be considered as an aetiological factor in producing the condition known as Kienböck's disease.

SUMMARY AND CONCLUSIONS

Two cases of Kienböck's disease are described. The possibility of bacterial infection as an aetiological factor is suggested in cases not directly attributable to injury. The need for x-ray examination in all cases of injury and disability of the wrist-joint is indicated, with follow-up radiography later in all cases that do not respond to treatment.

My thanks are due to Surg. Cmdr. C. B. Nicholson, R.N., and to uad. Ldr. L. Stone, R.A.F.V.R., for their help and permission to publish these notes.

M. E. GORDON, M.B., M.R.C.S.,
Flying Officer, R.A.F.V.R.

BIBLIOGRAPHY

- andfield-Jones, R. M., and Poiritt, A. E. (1940) *Modern Surgery*, Edinburgh.
osford, J. (1939). *Fractures*, London.
cGregor, A. Lee (1939). *Surgical Anatomy*, Bristol.
aingot, R. (1939). *Postgraduate Surgery*, London.
omanis, W. H. C., and Mitchiner, P. H. (1937). *Science and Practice of Surgery*, London.
atson-Jones, R. (1941). *Fractures and other Bone and Joint Injuries*, Edinburgh.

Urea for Migraine

A man aged 42, employed as a clerk, had suffered for several years from severe headaches with acute exacerbations of migraine type. Many drugs had been tried without success, and he was admitted to hospital under Dr. A. P. Thomson for investigation with a view to operation for cerebral decompression. There were no abnormal signs on physical examination. X-ray films of the skull, cerebrospinal fluid before and during an attack, urea-concentration test—all were normal. The blood urea during an attack was 88 mg. per 100 c.cm. After taking 5 g. of urea for a urea-concentration test the patient was next morning free from headache for the first time for several weeks. On the chance that this might be *propter* and not just *post*, it was decided to continue the urea in 20-gr. doses daily. Headaches did not return; no attack of migraine developed. The patient was discharged from hospital with a recommendation to go on taking urea. This course was adopted, and there has been no recurrence of migraine or severe headache for the past 9 years, except during periods when the patient has given up the regular use of urea. One hesitates to add to the long list of remedies for migraine, but during the last 8½ years I have used urea with such success both for typical migraine and for persistent headache not typically migrainous that I wish to bring the treatment to the notice of others, fully aware that my evidence is incomplete.

The headache usually disappears after a short course of treatment, and in cases of typical migraine the attacks do not recur or are so modified as to make them bearable so long as the patient continues treatment, which is as follows: 20 gr. of urea in water three times a day for a week; a similar dose twice a day for a week; subsequently 20 gr. in a single daily dose for an indefinite period. There are no untoward effects.

Here are thumbnail notes of 3 cases: (1) A male aged 55 had frequent attacks of migraine with hemianopia. Treatment with urea brings great relief, but he relapses to typical attacks if he neglects taking his daily dose. (2) A male aged 57, from the age of 7 suffered periodically from attacks of headache which lasted as a rule for several days, occasionally developing into typical migraine. Since taking urea he has had no severe attack of headache for 8 years. (3) A female aged 35 had monthly attacks. She has had no attacks during the last 18 months (while taking urea), and now leads a normal life.

Goldzieher¹ in a paper on the "Endocrine Aspects of Headache" reports 50 consecutive cases of severe headaches, most of which were of the characteristic migraine type. Oliguria was a distinct feature in most, the twenty-four-hour specimens showing an average sodium chloride content of only 6.7 g. A salt-tolerance test indicated a retention of 73% of the test salt for the whole group, accompanied by water retention. Goldzieher postulates a breakdown in the metabolism of salt and water, and explains migraine headaches as the result of increased intracranial pressure. He says: "They develop when increased permeability of the capillaries permits increased flow of water to, and subsequent retention in, tissues which have stored abnormal quantities of sodium salts."

The diuretic effect of urea is well known, and it may be that it is this which corrects the temporarily disturbed balance that results in an attack of migraine.

Birmingham.

J. A. BROWN, M.D.

REFERENCE

¹ *J. Lab. clin. Med.*, 1941, 27, 150.

H. Gold (*Arch. intern. Med.*, 1942, 70, 785) records his observations on 60 cases of anthrax which he has seen since March, 1933; 41 were males and 19 females. The ages ranged from 3½ to 62 years, but most were between 18 and 27. Anti-anthrax serum was given intravenously to 21 patients, with only 1 death; neoarsphenamine given in addition to the serum was of little or no benefit. In 42 cases treatment consisted in administration of sulphamide compounds, with excellent results in 30 cases. Sulphapyridine was the most effective compound; next came sulphathiazole and then sulphadiazine.

Reviews

SEARCHLIGHT ON THE CAPE

Official Report of the Social Survey Conference, Cape Town, 1942.
(5s. 6d.) Capetown: Paul Koston, 1943.

A social survey conference was held in Capetown last year, following upon a survey which had revealed some disquieting things about the health and economic standards of the coloured population. The papers and discussions—some of them in Afrikaans, but summaries in English are given—cover a wide range. Some remarkable facts are set out by Prof. T. S. Higgins, medical officer of health for Capetown. It is shown that, while the infant death rate for Europeans in the municipality is below that for England and Wales, the rate for non-Europeans is three times as high. Another significant fact is the prevalence of tuberculosis. In the last year for which there were figures the death rate from tuberculosis among non-Europeans was 425 per 100,000 of the population—this in a city where the average annual sunshine record is 7½ hours a day, compared with something like 3½ hours in London. Dr. J. H. Harvey Pirie, president of the Federal Council, Medical Association of South Africa (B.M.A.), urges the establishment of a joint Ministry of Health and Social Welfare to take over the present incoordinated services, but to avoid the capture of such an organization by the political machine he would have the technical control of the services delegated to a health commission, and not run directly by a State Department. There was a curious repetition at this conference of the ideas and controversies at present stirring medical politics in this country. The conference carried resolutions about hospital beds and health education and a comprehensive medical service, and then it went on to urge the Government to investigate methods of removing tariffs and prohibitions on the importation of health-giving foodstuffs and all systems of internal control which involve raising of food prices. The document is not easy to read, but the student of sociology will find it interesting.

DEGENERATIVE JOINT DISEASE

Changes in the Knee Joint at Various Ages: With Particular Reference to the Nature and Development of Degenerative Joint Disease. By G. A. Bennett, M.D., H. Waine, M.D., and Walter Bauer, M.D. (Pp. 97; illustrated. 52.50 or 14s.) New York: The Commonwealth Fund; London: Oxford University Press, 1942.

The authors of this work have devoted many years to the study of chronic rheumatic disorders, and here record the results of an investigation into the changes in the knee-joints in a large number of individuals who had no history of articular disease. They have thus established what they term a "norm" for the knee-joint at each age decade, and have shown that degenerative changes begin to make their appearance very soon after normal development has been completed. After the second decade superficial fraying of the weight-bearing surfaces begins to appear and progresses to roughening and splitting of the articular cartilage; extensive damage was found before any changes in the x-ray appearances could be detected. Lipping of the bones was not met with till the fifth decade, except in one case. The observations supported the findings of other investigators that the initial anatomically demonstrable lesion is a degenerative process in the superficial layer of articular cartilage, the criteria for an infectious lesion were never present, while evidence of inflammation appeared only in the most advanced cases. A remarkable feature is that Bennett, Waine, and Bauer found no convincing evidence that degenerative joint disease is more common in individuals who have done strenuous labour than in those who have led sedentary lives, and they also agree with Llewellyn and many others that any direct evidence of causal relationship with arteriosclerosis is entirely lacking; one case which in the seventh decade showed the least deviation from the normal of all those examined at this age had arteriosclerosis and gangrene of the foot. They arrive at the conclusion that degenerative joint disease appears to be related to the senescence of joint tissues, varying to a certain degree with the hereditary endowment of the individual, but that what brings about the ageing of articular structures is an unsolved problem.

This is a most valuable piece of research, studying changes as they develop from the normal to the pathological, and furnishes a starting-point for further work which should be of great value in the elucidation of the problems of chronic rheumatic disease.

REGIONAL ANATOMY

A Synopsis of Regional Anatomy. By T. B. Johnston, M.D. Fifth edition. (Pp. 424; illustrated, 16s.) London: J. and A. Churchill, 1943.

A fifth edition of Prof. T. B. Johnston's synopsis has now been reached, and it fully sustains the character of his previous work. The book is designed to meet the needs of students who have already gained a preliminary knowledge of anatomy in the course of their practical work in the dissecting-room, but who after clinical experience, acquired during the later stages of their training, wish to revise their earlier anatomical work in the light of its application to medical and surgical practice. It is evident from the author's foreword that he does not seek to substitute a *synopsis* of regional anatomy for the more complete descriptions of the larger textbooks on systematic anatomy, but rather to supplement revision of these by a short survey of the more important facts of regional anatomy studied from the applied point of view. As one might expect from Prof. Johnston special attention has been devoted to the description of the central and peripheral nervous systems, and the bearing that an accurate knowledge of the peripheral distribution of the various types of sensory and motor nerves, and of the correlated tracts in the central nervous system, has upon diagnosis and treatment. This section has been brought up to date and includes topographical data concerning recent work on the thalamic and hypothalamic nuclei and tracts. These sections, and these sections only, are illustrated, the figures being diagrammatic and simple. The diagrams are for the most part adequate and serve their purpose. Fig. 17, however, shows an unnecessary and considerable dislocation with regard to the position of the hypothalamic nuclei and corpora albicantia, and the mode of spelling the adjective "somesthetic" is likely to offend the sensibility of classical scholars. The general excellence of the book, however, should not be judged from the above examples, and it may confidently be recommended to senior students as a valuable summary of the more essential points of regional anatomy.

Notes on Books

In the third edition of Dr. W. V. THORPE'S *Biochemistry for Medical Students* (J. and A. Churchill; 16s.) the author has correctly appreciated the true nature of his charge, which is a discussion of the chemical reactions induced by biological agency within the living organism, for the study of this relates to the functions of life and reaches beyond the chemistry of the matters composing the organism itself. It is a book which fully meets the requirements of medical students, omitting nothing of fundamental importance even among the quickly advancing discoveries in this branch of science; it is well suited for the student's purpose, and its value is further enhanced by the author's gift for producing easy reading. It is not only a book for students; it is no less valuable as a book of reference.

Dr. CHARLES WORTHAM BROOK, having read a biography of Richard Carlile (1790-1843), came across a reference to Sir William Lawrence, and this started him upon a hunt for traces of progressive leaders of the medical profession who may have been known to Carlile—a man described by G. J. Holyoake as "having done more than any other Englishman in his day for the freedom of the Press." Carlile was kept in Dorchester Gaol for six years for publishing political works frowned on by authority, and suffered in all nearly ten years' imprisonment for his vindication of a free Press. Under the title *Carlile and the Surgeons* Dr. Brook has compiled a pamphlet (Strickland Press, 104, George Street, Glasgow; 2s. 3d.). This includes an open letter to the Mayor of Dorchester, who was also surgeon to the gaol, in which Carlile vigorously supported the medical reform movement; some historical matter about William Lawrence's "desertion and betrayal of Wakley and the medical reformers in 1828," and about Joseph Hume, described as "the surgeon who became a party leader"; also an extract from the *Lancet* of Feb. 18, 1843, in which Thomas Wakley commended the bequest by Carlile of his body for dissection at St. Thomas's Hospital.

Volume LXII of the *Transactions of the Ophthalmological Society of the United Kingdom*, for the year 1942, is published by J. and A. Churchill at £2. The chief discussions reported are those on the value of sulphonamides in ophthalmology, opened by Major G. Scott and Mr. Arnold Sorsby, and on the role of vitamins in ophthalmology, opened by Dr. Raymond Greene and Mr. F. Williamson-Noble. These are followed by papers on trachomatous tumour of the conjunctiva simulating tubercle, on "white ring" in the cornea, on malignant melanoma of the iris, on retinal disease on glaucoma, and on diseases of the optic nerve. The miscellaneous papers include one on anaesthetics for ophthalmic operations, another on the extraction of magnetic foreign bodies from the vitreous chamber. The Oxford Ophthalmological Congress of 1942 is fully reported, and the volume closes with transactions of the North of England and the Irish Ophthalmological Societies.

The ninth volume (for 1943) in the series entitled *Modern Treatment Year Book* is edited by Surgeon Rear-Admiral C. P. WAKELEY and published at 12s. 6d. by the Medical Press & Co. Ltd. It comprises 26 short articles on a variety of subjects in medicine, surgery, and gynaecology, followed by a group of papers on some injuries and diseases associated with war or on dietetics in wartime. Each contributor writes from personal experience, and the list of authors includes the names of well-known teachers in London and the Provinces. The keynote of the series is brevity; treatment is the main theme.

Officers of the recently formed Indian Army Medical Corps will find much useful information in *A Handbook for Emergency Commissioned Officers of the Indian Medical Service*, by Lieut.-Col. J. R. DOGRA (Bombay: Thacker & Co., Ltd.). The book covers among other subjects, the duties of a regimental medical officer, the organization of the Army in India, the collection and evacuation of casualties, and medical arrangements on active service. A bibliography of relevant official publications is appended to each chapter. There are also nine appendices, one of which comprises a list of sixty-six Army forms, "with which the young medical officer must be completely familiar, and which he should be capable of filling up without the assistance of a clerk or subordinate." An index would have enhanced the value of the book.

Preparations and Appliances

A MOUTH GAG FOR EDENTULOUS PATIENTS

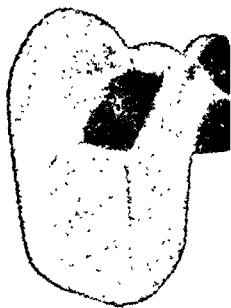
Major H. L. THORNTON, specialist anaesthetist, R.A.M.C., writes:

The device illustrated here was designed to help in the administration of gaseous anaesthetics to edentulous patients. With such patients the difficulty in adapting the facemask accurately enough to exclude all leakage presents a considerable problem, particularly important when a closed-circuit technique has to be employed. I have found, after fairly extensive trial, that this gag overcomes the difficulty in a very satisfactory manner.

The gag is made of partially vulcanized rubber and consists essentially of two curved plates moulded to form a superior and inferior sulcus to accommodate the upper and lower alveolar margins. The plates are separated by lateral pillars, made slightly convex at their outer margins, to provide support for the insides of the cheeks and preserve the normal contours of the face. Centrally there is a wide aperture through which an artificial airway may be admitted, if desired.

The gag may be introduced under very light anaesthesia, or, in the case of patients accustomed to the wearing of dentures, it appears to cause little discomfort if inserted before induction of anaesthesia. I am still using my original model, and after some 5 years of trial have never found an edentulous mouth to which it could not be adapted, whatever the difference in shape and size. The malleability of the rubber and width of the alveolar sulci allow of considerable variation of fitting. The rubber is readily sterilizable by boiling.

The gag is manufactured by Medical and Industrial Equipment Ltd., 12, New Cavendish Street, W.1. I would like to express my indebtedness to Mr. Douglas Hallon, M.R.C.S., L.D.S., for the help he gave me in constructing the experimental models.



ANTIRETICULAR CYTOTOXIC SERUM*

BY

ALEXANDER BOGOMOLETZ

Member of the Academy of Sciences of the U.S.S.R.

physiological system of connective tissue performs within organism very important plastic, trophic, and defensive functions. The struggle of the organism against infectious diseases, and its resistance against the development of tumours, healing of wounds and ulcers, and the union of fractures, depend on the reactivity of the physiological function of the connective tissue.

I have introduced antireticular cytotoxic serum with a view to controlling this reactivity and to stimulating the physiological function of the connective tissue. This serum is obtained by repeated injections of cellular elements of human spleen and bone marrow into horses. Subcutaneous injection of a fairly large dose of antireticular cytotoxic serum (0.05 to 0.1 c.c.m.) exerts a very strong specific stimulating action upon the physiological system of the connective tissue.

In the summer of 1942 a conference was held in Ufa on the therapeutic application of the serum. The conference was attended by professors of the Moscow, Kiev, Kharkov, and Shkirian Medical Institutes as well as by physicians of numerous evacuated hospitals of various districts and cities. More than thirty reports were made.

It has previously been shown by Dr. Oleg Bogomoletz that antireticular cytotoxic serum accelerated the union of fractures. Drs. Ischenki and Lurie have pointed out the efficacy of the serum in treating septic diseases. The Academician Strajeski and in his clinic that acute rheumatism can also be cured by means of this serum, and Prof. Mankovsky has mentioned the favourable effect of antireticular cytotoxic serum on the course of infectious diseases of the nervous system.

Findings of Russian Conference

It was stated by the conference, on the basis of more than 500 clinical cases, that:

"The antireticular cytotoxic serum proposed by the Academician Alexander Bogomoletz is a powerful specific factor affecting the physiological system of the connective tissue, and exerting, when applied in proper small doses, a strong stimulating action upon the cellular elements of that system, as evidenced by a number of experimental studies and clinical observations. The therapeutic application of the above serum is indicated principally in all those cases of diseases which involve a decrease or depression of the functions of the physiological system of the connective tissue.

About 2,500 clinical observations discussed at the conference conclusively show that antireticular cytotoxic serum is therapeutically effective in war traumata and in the following diseases:

1. (a) Particularly slow-uniting bone fractures; (b) slow-healing, slowly granulating, and infected wounds; (c) general suppurative infection, especially in its initial stages; (d) suppurative inflammation of the cavities and tissues; (e) frost-bite and burns of the second and third degrees; (f) infected traumata of the eyes.

2. A number of infectious diseases: (a) cerebrospinal meningitis; (b) puerperal and gynaecological sepsis; (c) rheumatism; (d) unresolved pneumonia and lung abscess; (e) tonsillitis.

3. (a) Traumatic and infectious diseases of the central and peripheral nervous system (neuritis, meningo-encephalitis, diffuse sclerosis); and (b) a number of psychoses, such as schizophrenia and post-infectious, senile, and pre-senile psychoses.

4. Some diseases associated with a disturbance of the trophic function of the tissues: (a) ulcer of the stomach and duodenum; (b) eczema.

In view of the clear-cut therapeutic effect recorded in the above cases a vast-scale introduction of antireticular cytotoxic serum to medical practice of hospitals and civil medical institutions is deemed obligatory."

Clinical Evidence

The clinical evidence presented to the conference is of great interest. Reports have been received of many cases of slow-healing, invalidating gunshot fractures which have healed up within four or five weeks under the influence of the serum, so that the patients could return to the Army. No less numerous are cases in which the serum has increased the

resistance of the organism, thereby favouring prompt recovery from various wound infections.

Prof. Linberg cites a case of gunshot wound of the thigh treated by Dr. V.: "The non-reactive course of the disease lasted about three months. After administration of the serum the course of the disease changed abruptly: there has formed at the site of the fracture a bone callosity." The case of Dr. Koulbaeva: "Patient Z.; gunshot arm-fracture. Absolutely no consolidation; after the first injection of the serum, complete consolidation." Prof. Alymova says: "No callus formation had been noticed in a young soldier four months after fracture of the thigh. Five days after injection of the serum excellent union occurred." Prof. Gorodinsky stated that a comminuted fracture of the thigh which did not heal during nine months united under the influence of the serum. The patient made a complete recovery. Prof. Mikhailovsky reported on the therapeutic effect of the serum in 24 cases of fetid coryza, which was commonly regarded as incurable.

Of great interest is the fact that under the influence of the serum cerebrospinal meningitis in adults assumes a very mild course similar to that occurring in children.

The antireticular cytotoxic serum proposed by me differs essentially from all other kinds of serum. Although its application is indicated in very different diseases it exerts only one kind of action—viz., in small doses it stimulates and in large doses inhibits the functions of the physiological system of the connective tissue. Since, as previously indicated, the physiological system of the connective tissue performs within the organism very important trophic, plastic, and defensive functions, its curative effect becomes quite comprehensible.

I was very well satisfied with the results of the conference, since they show that the above essentially new method of pathogenic therapy may prove of great use. It will accelerate the recovery of many soldiers of the Red Army.

QUEEN'S INSTITUTE REPORT ON MIDWIFERY CASES

A report by the Queen's Institute of District Nursing on midwifery cases attended by Queen's Nurses and village nurse-midwives during the year 1942 shows very satisfactory results, particularly in view of the difficult conditions under which the midwives have worked. In spite of the tendency to enter hospital the number of cases has increased though fewer midwives have been available. The number of cases attended (no doctor engaged for the confinement) was 89,182 (increase of 1,276). The total number of midwives was 4,230, of whom 1,534 were Queen's Nurses and 2,696 were village and other nurse-midwives. Of the patients attended, 23,667 were primiparae. The number of maternal deaths was 104, a maternal mortality rate of 1.17 per thousand.

Analysis of Maternal Death Rates

Per 1,000 Live Births					
Year	Puerperal Sepsis	Other Puerperal Causes	Total Puerperal Mortality	Non-puerperal Causes	Total Maternal Mortality
1940 ..	0.37	1.29	1.66	0.08	1.74
1941 ..	0.22	1.28	1.51	0.07	1.58
1942 ..	0.21	0.89	1.10	0.09	1.19

Per 1,000 Total Births					
Year	Puerperal Sepsis	Other Puerperal Causes	Total Puerperal Mortality	Non-puerperal Causes	Total Maternal Mortality
1940 ..	0.36	1.26	1.62	0.08	1.70
1941 ..	0.23	1.25	1.48	0.07	1.55
1942 ..	0.20	0.87	1.08	0.09	1.17

The number of times medical aid was sent for in 1942 was: for mother, 30,714 (34.4%); that is, during pregnancy 6,090 (6.8%); during labour 21,313 (23.9%); and during puerperium 3,311 (3.7%); for infant, 5,516 (6.2%). The number of forceps cases was 4,495 (5%).

The causes of the 104 maternal deaths in 1942 were: sepsis (18 cases), accidents of labour (36), eclampsia (15), embolism (10), complications (17), non-puerperal (8). There were post-mortem examinations in 27.1% of the maternal deaths, as compared with 22% and 22.8% in the two previous years.

Maternity Nursing.—The number of cases attended (doctor engaged, midwife acting as maternity nurse) was 41,923. Among these the number of maternal deaths was 71 (1.69 per thousand); seven deaths (9.9%) were due to miscarriage. These being doctors' cases the details were not verified.

* Report received by cable by the Anglo-Soviet Medical Council.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY AUGUST 14 1943

SULPHONAMIDE TREATMENT

"The Medical Use of Sulphonamides" is the title of M.R.C. War Memorandum No. 10,¹ published on July 30—a pamphlet containing in 46 pages as much practical information as the average full-scale book on its subject, with the added advantage of being completely up to date. The title may mislead: the word "medical" is not used in contradistinction to "surgical," but includes all forms of therapeutic use. This memorandum was prepared by a number of authors on behalf of the Therapeutic Requirements Committee and is defined as a "summary review of the clinical indications for some of the principal sulphonamide drugs, in the light of their present or potential availability in Great Britain, for the assistance of Service and other Departments and for the guidance of medical and hospital officers." The concern of this committee may be seen in this reference to the supply position, but in trying to ensure that those compounds which are in short supply shall be used to the best advantage the members have at the same time produced a general guide to intelligent sulphonamide therapeutics from which almost any clinician has something to gain. It begins with a chemical description of nine principal drugs, and lists some of their trade names, the use of which is emphatically condemned. A section on pharmacology follows, dealing with absorption, distribution, and excretion: this includes a valuable table of the solubilities in water, serum, and urine of eight compounds and seven acetyl derivatives, and information about acetylation, partition between red cells and plasma, and the concentrations usually attainable in the blood from given dosage. It deals also with one principle of fundamental importance—the essentially identical nature of the action of all sulphonamide compounds. It is wrong to suppose that, because one is indicated for this infection and another for that, there is any qualitative difference in action. More resistant bacteria demand treatment by the most active compounds, but otherwise the advantages of each compound depend on other factors, such as the ready solubility of sulphanilamide, the slow excretion of sulphadiazine leading to high blood concentration, and the poor absorption of sulphaguanidine—and still more of succinyl sulphathiazole—which enable them to reach the lower bowel. That all act in essentially the same way might be deduced, if no other proof existed, from the fact that acquired bacterial resistance to one compound is accompanied by an equivalent change in resistance to others.

Dosage is dealt with as a general question, and a full table is given of the amounts indicated as an initial dose and in the three succeeding periods (2 to 3 days, 2 days, 2 days) for four age groups and for both severe and moderate infections. The initial "loading" dose is emphasized, the necessity for continuing administration at night as well as by day, and the inadvisability of continuing treatment for more than 7 days in most cases: indeed, if improvement is not seen much earlier than this, careful inquiry should be made into the reason for it. This includes an estimation of the sulphonamide sensitivity of the infecting organism. It may be remarked that fully controlled treatment calls for laboratory services which are

unavailable to most practitioners and would place a severe strain on the pathological staffs of many hospitals. The number of leucocyte counts which may have to be done if they are seriously looked upon as an essential safeguard against producing agranulocytosis is very large indeed, and if the progress of treatment must regularly or often be followed by estimations of the drug in the blood this alone means a very serious bulk of laboratory work in any large hospital. The estimation of the sulphonamide sensitivity of a particular micro-organism will much less often be necessary, but is a rather more troublesome and generally unfamiliar procedure. These are therefore by way of being counsels of perfection at a time when pathological man-power is so depleted. But this is not to say that every endeavour should not be made to secure such aids to treatment when they are feasible. It is well known that irregular absorption, vomiting, and varying degrees of acetylation may affect the blood concentration attained, and an estimation of this should be the first step in the further investigation of a case not responding to treatment.

The treatment of individual conditions is discussed under 13 main headings, with much shorter sections on 16 others. Other necessary treatment is briefly mentioned when sulphonamides are not to be relied on alone. The order of preference among various compounds is given for each condition, and this involves so many choices on only scanty statistical data that they are presumably not claimed to be infallible. Sulphathiazole is given as the first choice both for cerebrospinal fever and for other forms of purulent meningitis, although it is mentioned that the concentration of this compound attained in the cerebrospinal fluid is only 15 to 40% of that in the blood, whereas the corresponding figures for sulphapyridine and sulphadiazine are 50 to 70% and for sulphanilamide 90 to 100%. It is commonly believed that sulphathiazole is contraindicated in meningitis for this reason, and if in the authors' opinion its greater activity counterbalances this drawback it would have been helpful to say so in so many words. Pneumonia and urinary tract infections are subdivided according to their bacteriology: here, of course, is a province of treatment in which laboratory aid is essential, and it should be much more widely known that, though quite small doses of most sulphonamides will usually clear up most coliform infections of the urinary tract, some are more resistant and infection by enterococci is totally so, calling for mandelic acid treatment. There is an extensive section on venereal diseases which includes information, based on both laboratory and what may be called field experiments, that sulphonamide compounds are efficient prophylactics against gonorrhoea and chancroid. The sections on wounds and burns are also very full and include detailed instructions for local application. Intestinal infections are discussed under six separate headings, and this section contains much information which is by no means common knowledge. Among diseases noted more briefly are those in which sulphonamide treatment serves only to control secondary bacterial infection, and various less familiar or imperfectly studied conditions: the attitude to the treatment of anthrax is perhaps unduly sceptical. In a full account of toxic reactions it is said of the prevention of urinary obstruction by acetyl compounds that the daily urinary output should be maintained at not less than 1,500 c.cm. This sensible and moderate caution should be well heeded. Fluids are often forced to such an extent in order to prevent this complication that therapeutic effect is greatly impaired—it is of no use to give large doses of the drug if steps are also taken to secure elimination of maximum rapidity. An appendix gives methods for estimating sulphonamide concentrations in the blood, for testing the sulphonamide sensitivity of bacteria, and for sterilizing sulphanilamide powder.

or local application. The Medical Research Council is to be congratulated on producing another memorandum of great practical value, with perhaps a wider field of usefulness than any of its predecessors.

PAVLOVIAN PHYSIOLOGY AND WAR NEUROSIS

Front-line experience of psychological breakdown has not hitherto bulked largely in the literature of war medicine. A paper by Love¹ on his experiences at Tobruk is therefore especially interesting, the more so because in spite of its isolation from books in the field he attempts certain theoretical formulations which are of a suggestive kind. It is notable that the number sent back to their units in what is described as "good or fair shape" is only 44%. This is less than half the percentage claimed by such observers as Gordon Holmes and William Brown in their experiences in the last war. What may be the significance of the difference from the results described by such an unexpected twin constellation of authorities raises tantalizing conjectures. Love remarks that age as a factor is of importance, those individuals who are over 35 at the time of their breakdown being less apt to return to duty. The now well-recognized fact that psychological predisposition accounts for a good deal is again illustrated in the observations that 12.7% had had a previous nervous breakdown, and 21% some other form of psychological disability before the war. With Tobruk under bombardment treatment was limited by the resources obtainable to such extent as was possible, with sedation and encouragement, and occupational and physical training. The advantages of group activity were apparent; but so also were the disadvantages of association with a certain proportion of individuals who had lost control over their fear. It was regarded as of special importance to obtain enough sleep by means of whatever sedatives were available. This must have been one of the most difficult situations in which psychiatric treatment has ever been carried out.

In regard to prevention, Love emphasizes the importance of the regimental medical officer and the need for educating all Service doctors in psychiatric matters. On the theoretical side his suggestions are interesting. He recognizes, what all Service doctors have to recognize, that there is a constitutionally timid type of man, but it is especially his analogies from Pavlovian physiology that are worthy of notice, although there is a deceptive ease with which such analogies can be applied. Thus the conception of fear as a reflex is adopted, and the increasing susceptibility to fear is spoken of by Love as due to a facilitation of this reflex with resultant spread to more and more stimuli; while, on the other hand, in the sounder type of man the fear "reflex" is regarded as inhibited as the result of experience—or, in Pavlovian language, as the individual's cortex analyses the stimuli. Two other analogies from Pavlovian physiology are adduced. Love suggests that the prolonged attempt at inhibition of fear ultimately led to a neurosis, just as in the Pavlovian dog an attempt at prolonged inhibition may end ultimately in failure, with the appearance of so-called neurotic symptoms in the dog. Fine differentiation of stimuli, as Pavlov demonstrated, produces the same result. Such analogies are certainly seductive. Delayed inhibition, for example, might conceivably correspond with the latent period so often seen in the development of a neurosis in a frightening experience. The author himself, however, is very cautious in advancing these suggestions. The well-known fact that experience of a trying kind may be followed

by an emotional reaction when any reminder of the original experience occurs is more scientifically stated in the terms of association psychology than of conditioned reflexes.

Human beings, unlike Pavlovian dogs, are not concerned with sensations like sounds to be differentiated, or with reactions to feeding stimuli—i.e., to stimuli on the physiological level—so much as with ideas and meanings in social situations, with which prestige, self-esteem, and so on, are closely bound up. Nor in human beings are the stimuli immediate; they are more often representational. Pavlov himself, in an obscure passage on war neuroses, seemed to recognize this when he spoke of fear producing certain physiological symptoms, which in "weak people" last for some time, thus "freeing them from the necessity of endangering their lives." He speaks also of such people as "excluding the influence of other representations which might oppose the representation of the conditioned desirability of these symptoms." "Conditioned desirability" is surely a question-begging notion. Many of the Pavlovian physiological notions, as Schilder and others have pointed out, are concepts rather than observed phenomena, and allow nothing for mental "sets": that shifting in attitude, coming about sometimes only after a prolonged moral struggle, which changes a timid creature into a brave man—a result often brought about by the example of someone else, or by any one of the numerous factors included in the term "morale."

The author speaks of the association with a group of others as a process of "deconditioning"; but it is something a good deal more subtle than is represented by this dangerously attractive word. The application of Pavlovian physiological principles to social phenomena reaches its zenith of absurdity in the master himself when he cites the Christian martyrs as proof of the power of auto-suggestion, with the explanation of their behaviour as "the effect of the concentrated excitation of a definite area of the cortex accompanied by marked inhibition of the rest of the cortex." This may be good physiology, but as a contribution to all-round understanding of life this kind of wild analogy is a step backward into the materialistic abyss. Love is more than an appetite, and a war neurosis more than a stimulation of the fear "reflex."

CONTINUOUS CAUDAL ANAESTHESIA IN OBSTETRICS

It is all but 100 years since Sir J. Y. Simpson attempted by anaesthesia to abolish the pains of labour. His method was good but not ideal, and to this day search goes on for methods that are easier, safer, and more certain. The latest is caudal anaesthesia—that is, the injection of a local anaesthetic into the cavity of the sacrum. The injection is extradural, but fluid so introduced will infiltrate to surprisingly high levels, so that the roots of the lumbar and even the dorsal nerves may be anaesthetized. Caudal, or sacral, anaesthesia is by no means new: it has for many years been used for various surgical purposes. From time to time it has been advocated in obstetrics, notably by Pool,¹ who in 1941 published results of a full investigation of this method. He found that with novocain (procaine) results were too fleeting to be of value in obstetrics, but on changing to a solution of nupercaine (then called percaïne) in saline he obtained analgesia of satisfactory duration. Caudal anaesthesia in obstetrics is at present being tried enthusiastically in many clinics in the U.S.A. Hingson and Edwards² found that the disadvantage of the relatively brief duration of anaesthesia could be overcome by repeating the injections at short intervals. A special

¹ *Med. J. Austral.*, 1942, 2, 137.

¹ *J. Obstet. Gynaec. Brit. Emp.*, 1941, 48, 84.

² *J. Amer. med. Ass.*, 1943, 121, 225.

malleable needle is passed into the sacral hiatus and is allowed to remain in position throughout labour. Normally the dural sac does not extend lower than the second segment of the sacrum, but in exceptional cases it may extend further, thus constituting a danger, for injection of a large quantity of an anaesthetic drug into the cerebrospinal fluid may be followed by grave or even fatal results. After insertion, suction is applied with a syringe to determine whether the dura has been entered. If cerebrospinal fluid is not obtained, an apparatus is then connected by means of which injections can be given repeatedly without further disturbance to the patient. It has been found that the most suitable anaesthetic substance is metycaine—gamma-(2-methyl-piperidino)-propyl benzoate hydrochloride (Eli Lilly and Co.). This is used in 1.5% solution, and not more than 8 c.cm. is at first injected in order to test the patient's tolerance. If all is well a further 22 c.cm. is then injected, and this dose is repeated at 45-minute intervals, depending upon the effect obtained. The authors report the results achieved in 589 cases. Usually pain was relieved in about 10 minutes. The injections were repeated over periods averaging 7 hours, the longest being 30 hours. No serious disadvantages are mentioned, and it is stated that forceps delivery, breech delivery, perineal incision and repair, could all be carried out without additional anaesthetic. Gready and Hesseltine³ also report a series of 22 cases dealt with by this method. Satisfactory anaesthesia was obtained in all but three. In one case the patient, after the initial injection, went into a state of collapse for 30 minutes. More recently Gluck and Rochberg⁴ report a series of 35 cases in which procaine (novocain) 1% solution was used for continuous caudal anaesthesia. They preferred to give the injection by a continuous drip method, following the technique used for blood transfusion. Complete relief of labour pain was attained in all cases. The forceps rate was high, but it is stated that the operation was in most cases "elective." In one case symptoms were severe. The patient lost the power of speech and later collapsed. Artificial respiration was required for 45 minutes, after which recovery took place, and 10 hours later the patient was delivered of a living child. These workers also report that during the puerperium the patients often complained of severe backache, and in one or two cases they "may have developed a neuritis." The earlier report by Gready and Hesseltine also mentions two cases of severe pain in the back and legs "after the drug wore off."

From these reports it is clear that caudal anaesthesia is effective in relieving the pains of labour. In cases observed in this country the striking feature has been the rapid change in the patient's appearance and mental condition, so that a woman wearied with labour and making "heavy going" in the second stage exclaims with relief when she finds that her suffering is lifted. Although reports are conflicting, it seems probable that labour is lengthened for the reason that spontaneous bearing-down efforts are absent or at least diminished. But the chief deterrents to the wide use of caudal anaesthesia are the possibility of sudden collapse and the fear of remote sequels. Despite precautions, the drug may be inadvertently injected into the cerebrospinal fluid, and even if this is avoided individual susceptibility to anaesthetic drugs cannot be foretold. Finally, it is a sobering thought that serious damage—even meningitis—may result from the introduction of septic organisms into the sacral canal. The procedure requires skill and experience, and throughout treatment the patients must be kept under constant supervision by a trained anaesthetist. Nevertheless, in suitable cases

and in suitable surroundings caudal anaesthesia relieves the pain of labour, and should be considered for patients who are approaching mental or physical exhaustion and in whom it is necessary to allow labour to continue for several more hours before delivery can be safely effected.

THE HAEMATOLOGIST'S HERBAL

Shakespeare tells us that when Antony was defeated and driven starving from Modena, "his palate then did delight the roughest berry, on the rudest hedge." We too have had to make use of the natural fruits of the countryside in this time of drug shortage, for some of them are rich in vitamins. The Vegetable Drug Committee of the Ministry of Supply, with the co-operation of 47 county committees and an army of voluntary workers, attacked the hedgerows with such vigour last year that a total of 46 tons of rose hips was collected. This should be a valuable addition to the country's store of antiscorbutics, for the rose hip rivals the blackcurrant as a source of vitamin C.

The rose hip was also one of the original sources of the capillary permeability factor, vitamin P, which has more recently been shown to be present in high concentration in blackcurrants.¹ It would be idle to pretend that we have any clear idea yet of the significance of vitamin P in health and disease. While it seems now to be agreed that the capillary-resistance test is of no value in assessing the state of vitamin C nutrition, and that the test is rarely positive in fully developed scurvy,² the action of vitamin P on the capillaries remains disputed. A recent report suggests that, whereas vitamin P modifies the effects of negative pressure on the capillaries, it does not influence the effect of positive pressure.³ The negative-pressure test has been successfully applied to the guinea-pig as a method of biological assay of vitamin P.⁴ A new outlook on the vitamin is offered by the report⁵ that it occurs in the tissues of the plant in combination with a protein, as part of a tissue enzyme system, a chalcone-protein complex. A chalcone is an unsaturated aromatic ketone, and the hesperidin chalcone of vitamin P is a member of that class of naturally occurring substances capable of being reversibly oxidized and reduced. The chalcone-protein complex is easily reduced by sodium thiosulphate and re-oxidized by oxygen, and it can also act as a hydrogen transporter. It is possible that vitamin P is concerned with the mechanism of hydrogen transportation and energy production in animal tissues as well as in plants. We can say, then, that natural antiscorbutics, which usually contain vitamin C as well as C, are plus a little something which the synthetic vitamin C hasn't got, and which may well be a therapeutic advantage.

Yet another natural source of antihæmorrhagic material is now suggested. The berry of the mountain ash, *Sorbus aucuparia*, has been used as a spring tonic by the Laplanders for many years. The United States Dispensary describes the *Sorbus* fruit as having been used for scurvy and American workers⁶ report that it contains appreciable amounts of ascorbic acid and manifests vitamin K activity. They also suggest that it is of value in the medical treatment of cholecystitis. The claim for vitamin K activity is well supported. The evidence that it relieves the symptoms of chronic cholecystitis is less convincing, as the effects on the symptoms of indigestion were not adequately controlled. Another proposed addition to the haematologist's herbal is shepherd's purse, *Bursa pastoris*, extracts of which have

¹ Pollard, A., *Nature*, 1942, 150, 490.

² McNee, G. Z. I., and Reid, J., *Lancet*, 1942, 2, 538.

³ Bell, G. H., *et al.* *ibid.*, p. 536.

⁴ Bacharach, A. L., *et al.*, *Biochem. J.*, 1942, 36, 409.

⁵ Wawra, C. Z., and Webb, J. L., *Science*, 1942, 86, 302.

⁶ Shinowara, G. Y., *et al.*, *J. Lab. clin. Med.*, 1942, 27, 897.

* *J. Amer. med. Ass.*, 1943, 121, 229.

⁴ *Amer. J. Obstet. Gynec.*, 1943, 45, 645.

been reported by Copley and Lalich⁷ to produce improvement in haemophilia when given by injection. Similar claims have been made by Hecht⁸ on behalf of a proprietary herbal extract which is administered by injection. It is known, however, that both sodium citrate⁹ and oxalic acid¹⁰ increase the coagulability of the blood when given parenterally, apparently by making the prothrombin more reactive. Haemostatic effects from injection of plant extracts must therefore be assumed to be due to the oxalic acid they contain unless the contrary is proved, and in any event such effects are much less important in time of war than those of natural antiscorbutics which can be given by mouth.

FOOD AND HEALTH OF ESKIMOS AND LAPPS

Eskimos of Northern Greenland, protected by the Danish administration from harsh contact with civilization, still lead a primitive existence. Their diet, entirely carnivorous, consists of the flesh, glandular organs, and often entrails, usually eaten raw, of Arctic mammals, birds, and fish. Their life of great physical activity, in which privations and extraordinary feats of strength and endurance are taken as a matter of course, testifies to the adequacy of this diet, and medical evidence¹¹ has demonstrated the absence of scurvy and rickets and no increased tendency to vascular and renal disease. The Labrador Eskimos, who have more dealings with whites, have largely abandoned their primitive methods of existence: dried potatoes, flour, tinned goods, cereals, and cereal products form a considerable part of their diet. Their meat is cooked, and, though Labrador is not truly Arctic, vegetables cannot be grown. As a result, scurvy, rickets, and a combination of the two are universal and severe.¹¹

Interesting information has recently come to hand about the health and food habits of another primitive northern race, the Lapps. These people, whose origin is still obscure, number now some 30,000. They are found in Norway, Sweden, Finland, and Russia, and are chiefly engaged in reindeer raising. A large proportion of the Swedish Lapps have retained the old nomadic habits. These Lapps were originally mainly carnivorous, and reindeer flesh was the chief constituent of their diet. The meat was eaten boiled: liver, heart, kidneys, and bone marrow were boiled for a very short time; blood was usually consumed raw. Reindeer milk was freely taken. Birds, birds' eggs, and fish were also eaten. The bark of young green pines, fresh shoots of spruce and pine, and various herbs, roots, and berries were eaten, and birch sap was drunk in the spring. The fare has now changed a good deal. There has been a transition from the old intensive method of reindeer raising to the extensive. The animals are now mainly looked upon as slaughter animals, and milking has been almost entirely abandoned. Home consumption of reindeer meat and offal has declined, as more is sold or given to dogs. Sausage and tinned meat are purchased instead, and some cow's milk is used. Rye bread, wheat flour, cereals, and potatoes form now an important part of the diet, and coffee and sugar are taken in relatively large quantities. Ekvall¹² reports that some 50% of the Swedish Lapp children have rickets, and he noticed after-effects of rickets in some adults. He observed no cases of manifest scurvy but many indications of the latent disease. Severe caries is common in young adults, but old Lapps have better teeth, and the Lapps are unanimous in the opinion that caries has increased of late. There is no hemeralopia, but conjunctivitis, probably caused by smoke

in the huts, is not unusual. Neuralgic myalgia is common in old and young, and arthritis deformans was noticed, but Ekvall found no acute or chronic rheumatic polyarthritis in nomadic Lapps, neither had any nomads been treated for this disease in the last ten years at Umea Hospital, though some settled Lapps had been admitted. This may not be unconnected with the small incidence of catarrhal infections of the air passages, tonsillitis, or pneumonia. Tuberculosis is no more prevalent among the Lapps than among the rest of the population, and Ekvall saw no organic disease due to valvular trouble, no nephritis, no pernicious anaemia, and no diabetes mellitus. Dyspeptic troubles and neuroses with depressive features are not uncommon. In the old days of barter, spirit drinking used to be very prevalent among Lapps, but the religious revival in the second half of the nineteenth century put a stop to it and alcoholism is no longer a menace.

Nevertheless, the fact remains that the diet of these people is not now what it should be, and the observations of Thomas and of Ekvall show how easily can the delicately poised balance of an exclusively or predominantly carnivorous diet be upset. In high latitudes the danger of scurvy is ever present; raw skin, liver, and flesh of Arctic animals, and, further south, odds and ends of the sparse vegetation, are the only natural antiscorbutics. Also, unless fish is taken freely by the mothers and given to children from an early age rickets is bound to occur. These primitive people can live off the land in health and vigour, but their diet does not easily lend itself to dilution with the energy foods of civilized man.

RESPIRATORY FUNCTION OF THE DIGESTIVE TRACT

In a paper on the respiratory function of the digestive tract¹ J. G. Dillon reaches some conclusions which are of medico-legal importance. From x-ray studies he concludes that air enters the stomach and intestines of the newborn and adults during the inspiratory movements of the thorax, and that swallowed air has no substantial significance. The opening of the oesophagus into the stomach depends not on an oesophageal sphincter but on the sphincter-like action of the diaphragm at this point. The muscular and tendinous prolongations of the diaphragm form a typical pinch-cock, which allows food to enter on expiration. According to several observers a negative pressure is produced in the oesophagus and in the stomach by inspiration, and this draws in air. Thus everyone has a gastric respiration as well as pulmonary respiration, and the presence of air in the digestive tract of a newborn child can serve as a proof of extra-uterine respiration and hence as evidence that the infant was born alive. The x-ray examination of a stillborn foetus at any time of its uterine life never reveals any traces of air in the digestive tract, but that of a dead foetus which has breathed after birth, even for a very short time, always discloses the presence of air in the stomach and intestines. Even when the lungs are not expanded after birth by a short-lasting effort at respiration air will be found in the digestive tract. An efficient x-ray examination is, then, a most reliable and sensitive test of a foetus having been born alive and affords documentary evidence. Dillon states that air which is loudly eructated by adults has not been swallowed but has been drawn into the stomach by inspiration: the term "aerophagy," he claims, should then be replaced by "gastro-spury." Ventriiloquists, as is known, use the stomach as an aerial reservoir; it is filled with air by inspiration and emptied during speech. An invalid whose larynx has been destroyed by cancer learns to use this manner of speech.

⁷ Copley and Lalich, *Amer. J. med. Sci.*, 1942, 204, 665.

⁸ Hecht, E., *Acta med. scand.*, 1941, 109, 155, 177.

⁹ Shafroff, B. G. P., et al., *Proc. Soc. exp. Biol.*, N.Y., 1941, 46, 136.

¹⁰ Rabin, A. W., and Campbell, K. N., *Arch. Surg.*, 1942, 44, 1117.

¹¹ Thomas, J., *Amer. med. Ass.*, 1927, 83, 1559.

¹² *Acta med. scand.*, 1940, 105, 329.

¹ *Amer. J. Roentgen.*, 1942, 48, 613.

BRITISH SURGEONS' VISIT TO U.S.S.R.

IMPRESSIONS OF SOVIET MEDICAL ORGANIZATION

The four British surgeons who have been paying a three-weeks visit to Soviet Russia attended a reception given in their honour by the British Council immediately upon their return, and gave the assembled company some account of their experiences. This British mission was sponsored jointly by the British Council and the Medical Research Council, and its members were Surg. Rear-Adm. G. Gordon-Taylor, consulting surgeon to the Royal Navy; Mr. E. Rock Carling, consultant adviser to the Ministry of Health, the Ministry of Home Security, and the Ministry of Pensions; Major-Gen. D. C. Monro, consulting surgeon to the British Army (War Office); and Mr. R. W. Watson-Jones, civilian consultant in orthopaedic surgery to the Royal Air Force. Two American surgeons, Lieut.-Col. Elliott and Lieut.-Col. Loyal Davis, and a Canadian surgeon, Prof. Wilder Penfield, accompanied them.

The visitors during their short stay in Russia inspected hospital arrangements as far forward as Vyazma on the Western front, visited the clearing, field, and mobile hospitals, and inspected the medical institutes and depots in Moscow. They found the organization of Russian medical services excellent. In their surgical work the Soviet medical service, with some differences in detail, follows the same general principles as those accepted in British war surgery, and has reached the same conclusions. The Commissar in charge of the service stated that at the time of the last war the Russians realized that their arrangements were not as good as those of their allies, and during the twenty-five years between the two wars they have set themselves to reach a standard of medical and surgical work which will bear comparison with that of any other belligerent country.

Two Impressive Organizations

Two points impressed the mission very greatly. One was the system of blood transfusion, which is carried out on a colossal scale. The arrangements for the collection of blood are beyond criticism, and the number of voluntary donors is very large. In one institution in Moscow a daily average of 500 to 800 donors are bled, and 90% of them are women. No woman is allowed to be bled more than seven times a year, but in practice, so large is the number of volunteers, they are not bled more than five times. They receive extra rations and also payment, but four-fifths of the money received is returned for war purposes. The same procedure is followed as in this country in the use of plasma and serum. In no circumstances has the Russian Army lacked transfusion blood. The blood is transported to the front by large aeroplanes and then to outlying parts by small aeroplanes. At one place on the front blood has actually been flown to small collections of wounded behind the German lines. The second point was the organization for getting special cases into the hands of specialists at the earliest possible moment and in the condition in which they liked to receive them. Even as near to the front as eight or ten kilometres the different kinds of cases according to the nature and location of the injury are segregated and passed in the hands of junior specialists, who, after early treatment, pass them on to their seniors at the special hospitals. There appears to have been no shortage of dressings or anaesthetics. The Russians rely almost entirely on local and spinal anaesthesia.

Training of Personnel

As for the medical personnel, the chief of the medical services of the Russian Army, General Smirnov, is 35 years of age, and an expert opinion on him given by an academician was that he not only was an admirable administrator but was held in the highest regard by his colleagues from the professional point of view. The medical service is becoming a woman's service; 90% of the doctors now under training are women, as compared with 50% in peacetime. The mission noted that some of the young women doctors carried as many as five wound stripes, which meant, not that they had received five wounds, but that they had been wounded five times. For doctors in Russia the ordinary course before the first State qualification is five years, comparable with our own require-

ment. It takes three years to get a bachelorship and three more years to get a doctor's degree. Nurses had three years' training before the war, and this is now reduced to two years.

The Russian nurse evoked the great admiration of the visitors. Not only is she excellent at the job for which she has been trained, but she can turn her hands in spare time to any employment, even to building hospitals, involving cutting down trees, squaring timber, making window and door frames, digging out foundations. She is specially expert in the art of camouflage. One of the members of the mission described how their car stopped at a place in the forest where, apparently no building was in sight. Slowly it dawned upon them that they stood at the entrance to a 1,000-bed hospital so camouflaged as to appear part of the forest itself. Some of the trees had even been left standing inside the building, their tops growing out of the roof.

The visitors made as extensive an inspection as was possible during their brief stay, and only shortness of time prevented them from going to the Far East, where the convalescent cases are sent. They saw something of the research institutes and medical organization in Moscow, where the civil defence and ambulance arrangements impressed them. Five telephone operators are detailed every night to deal with emergency medical or surgical calls from any part of the city, and within two minutes of the receipt of the call a well-equipped ambulance, with doctor, nurse, and orderly, is on its way. In the control room there is an immense map of Moscow; on receipt of a call a button is pressed for the name of the street, and the street then appears illuminated on the map, and the nearest ambulance station and the quickest route are at once indicated.

It is hoped that a return visit of Soviet surgeons to this country will be arranged.

THE MASS RADIOGRAPHY SCHEME

A conference of the National Association for the Prevention of Tuberculosis was held in London on July 28 and brought together a very large assembly of delegates from all parts of the country. It was addressed by Mr. ERNEST BROWN, Minister of Health, who said that the attack on pulmonary tuberculosis had been intensified by the introduction of mass miniature radiography and by the new scheme of allowances for persons undergoing approved treatment for pulmonary tuberculosis. The total cost of the two schemes when in full swing would be about £3,000,000 a year, and by the end of September thirty-four county councils and fifty-five other authorities would have adopted the family allowances scheme.

Introducing the subject of mass radiography Wing Commander R. R. TRAILL said that it had been proved that this system made it possible to discover the disease before it reached dangerous proportions or destroyed the reserve line of natural resistance. When more apparatus was available it would be possible to make a periodical review of the supposedly healthy at those ages at which they were specially liable to develop the disease. Surgeon Commander FRIZPATRICK gave an account of the system as adopted since 1939 in the Royal Navy. It was possible to examine 600 cases a day with one apparatus. Dr. P. M. D'ARCY HART mentioned a survey of 15,000 people engaged in industry. Arrangements for mass radiography among civilians must differ from those for Service personnel inasmuch as the examination was on a voluntary basis. In factories the co-operation of the management must be obtained and the shop stewards instructed.

Dr. F. R. G. HEAF (assistant medical officer, L.C.C.) referred to the need for prosecuting the examination and relieving any anxiety on the part of the individual without at the same time setting up an invalid neurosis. In the case of persons who had to undergo sanatorium treatment he suggested the adoption of the prophylactic workshop scheme, which had had considerable success in Russia.

Co-operation with General Practitioners

Dr. C. H. C. TOUSSAINT (clinical tuberculosis officer, Bermondsey) said that it was wrong to suppose that tuberculous persons did not seek advice. Many of those who were referred to the tuberculosis officer would be found to have been visiting their own doctor, off and on, for perhaps a year. It was important to enlist the full co-operation of the general practitioner if the scheme was to have its full value. He described what he in Bermondsey and his colleague, Dr. E. K. Pritchard, in Southwark had done by investigating,

ith the help of the general practitioners of the district, groups of persons who had been complaining of minor symptoms. Among these, of course, there was a much higher proportion of chest abnormalities of all sorts as well as a higher proportion of cases of active tuberculosis than among the examinees in general. Dr. RITCHARD said that the results of this work in Bermondsey and Southwark had been encouraging, and no difficulty had been experienced in co-operation. In view of the fact that tuberculosis still carried with it a certain social stigma he thought it a pity that the scheme should have been announced simply as a means of discovering tuberculosis, because this might act in some cases as a deterrent to those who would otherwise seek examination. It should have been presented as a means of discovering in addition to tuberculosis other chest conditions which needed urgent treatment.

Dr. PETER KERLEY, who wound up the discussion, mentioned some opposition to mass radiography. One argument advanced against it was lack of mobility of the apparatus, but in fact the apparatus was quite easily moved from place to place, and he did not think it could be made more mobile than it was at present. Objection had been made to mass radiography on the ground that there would be a spate of wrong diagnoses and thus a condition of "tuberculosis neurosis" would be encouraged. But, in fact, the diagnostic technique with the new films was far superior to that which went with many of the large x-ray films taken in this country to-day. He suggested that part of the E.M.S. organization might be turned over to deal with early tuberculous cases.

FUTURE OF THE VOLUNTARY HOSPITALS

Some timely observations on the part played by voluntary hospitals in our national life were made by the DUKE of GLOUCESTER when he presided (for the first time) at the recent annual meeting of the King Edward's Hospital Fund for London. Referring to the discussions now taking place on the future of hospital services, he said that voluntary hospitals afforded an opportunity to many thousands of people to take a practical and personal interest in the welfare of the patients, whether by voluntary contributions in money or kind, by contributory schemes or works funds, or by service ungrudgingly given on committees and boards of management. Voluntary activities such as these, which lifted the individual out of the sphere of his or her own personal interests and offered a means of service to the community, should be encouraged and preserved. They were part and parcel of the democratic structure of society, and upon their interaction with the official provision through the State and local authorities depended the power of the whole system to grow and adapt itself to changing conceptions of the public need. On the medical side there were the important elements of freedom and elasticity. Central supervision and co-ordination should leave room for those whose ideas might not immediately commend themselves to those in authority. The Duke recalled the opposition to Lord Lister and other innovators in their day, and wondered whether the opposition would have been insurmountable under a hospital system conforming too closely to an established scheme. Voluntary hospitals, he continued, did afford that most essential element of freedom, and it would be sad if in our anxiety to achieve other objectives this precious thing were to disappear. In the meanwhile the Fund was helping the Ministry of Health to collect the data necessary for its survey of the hospital services.

Among other matters to which the Duke referred was the appointment of Prof. J. C. Drummond as chairman of a special committee to give advice and assistance on diet to any hospitals seeking such help. The Distribution Committee of the Fund has prepared a memorandum on the supervision of nurses' health. This and an investigation of hospital diets (hospital feeding affects nurses as well as patients) reflect the Fund's interest in the welfare of nurses. Finally, the Duke announced that Dr. H. Morley Fletcher had been appointed chairman of the Nursing Recruitment Committee in succession to Lord Luke, and Dr. A. M. H. Gray to be a member of the Distribution Committee.

Lord Dawson on Present Plans

LORD DAWSON OF PEN said that the medical service must be run by those who understood it—doctors, nurses, hospitals—who must have a primary say in what the design of the service should be. To pull down the whole structure of medicine and in the course of two years to rebuild it would

be a disaster. There were a number of people in this country who conscientiously held views which would amount to the uprooting of that structure. The foundations could be built now, and the chief of those foundations was the hospital service. The Minister of Health had altered his reference since the scheme was first launched. It originally concerned hospital service—at least that was the impression of the public—but the aim now was a health service. This meant—what many had wanted for years—the bringing together of preventive and curative medicine; not only in every hospital but in the education of medical students. It would need two years to work out and lay down the foundations of this great scheme, which meant also the bringing together of municipal or local government hospitals with voluntary hospitals in agreed areas. Those areas had yet to be determined, and, when determined, each should have a key hospital. One of the difficulties was that probably from a constitutional point of view the ultimate administrative authority had to be something in local government. A large body of skilled people spent their whole lives studying the cure and prevention of disease, and care should be taken that they were not placed under a lay committee not necessarily experienced in hospital affairs. The idea of the voluntary hospitals was to provide an advisory council at the elbow of each local authority and make it statutory for the local authority to consult with that body on all questions of policy.

Mr. ERNEST BROWN, Minister of Health, who was also present at the meeting, said that the confidential discussions on the future health and hospital services had ended. The next phase would be the presentation of a White Paper. This was necessary if the public was to understand all that they wanted to do for the nation and to be assured that it was being done in the right way. After adequate discussion in Parliament and in the country on the basis of the survey and the White Paper, it would be for the Government to make up its mind what form legislation should take. He thanked the King's Fund for all the help it had given in discussions with him.

SURVEYS OF HOSPITAL SERVICES

At the recent quarterly meeting of the Regionalization Council of the Nuffield Provincial Hospitals Trust a report was received on the surveys of hospital services in provincial areas which the Trust, as the agent of the Ministry of Health, is organizing and financing. The Trust has organized surveys for the major portion of the country, and is directly associated with those in seven areas. Two surveys are being undertaken by the Ministry of Health—the London and the North-Western areas. Hospital services in South Wales are being surveyed by the Welsh Board of Health. The surveyors appointed by the Trust are:

North-Eastern, Sir Hugh Lett, Dr. A. E. Quine. *Yorkshire*, Sir H. L. Eason, Dr. R. Veitch Clark, Mr. W. H. Harper. *Eastern*, Sir William Savage, Mr. C. H. S. Frankau, Sir Basil Gibson. *Birmingham/West Midlands*, Mr. J. B. Hunter, Dr. R. Veitch Clark, Sir Ernest Hart. *Berks, Bucks, and Oxon*, Prof. G. E. Gask, Prof. R. H. Parry, Mr. E. C. Bevers. *Sheffield/East Midlands*, Prof. L. G. Parsons, Dr. G. E. Godber, Mr. S. Clayton Fryers. *South-Western*, Mr. V. Z. Cope, Dr. W. J. Gill, Mr. A. H. Griffiths. *South Wales and Monmouthshire*, Prof. J. A. Nixon, Prof. R. M. F. Picken, Dr. A. T. Jones.

A survey is to be undertaken in Northern Ireland and will follow the main lines of those in England but will include mental hospitals and mental deficiency institutions as well. The surveyors are: Lieut.-General Sir William MacArthur, Dr. Stanley Barnes, Dr. Duncan G. Leys.

The council had before it suggestions for the establishment of Group Preliminary Training Schools for Nurses, and it decided to recommend the Trustees to consider financial support which will be available for the development of such training schools. The council was advised that, with the substantial financial assistance of the Trust, regional health and sickness bureaux have been established in the Berks, Bucks, and Oxon and Glos areas. It is hoped that the bureau in the Berks, Bucks, and Oxon area may be accommodated in the Institute of Social Medicine at Oxford, and that it will be under the immediate direction of Prof. J. A. Ryle, Director of the Institute. In Glasgow a subcommittee has been formed with a view to starting the scheme in the North-West sector of the city, which includes the Western Infirmary and the Stobhill Hospital. The University is to provide accommodation for records, and the public health department to help with tabulating the data.

Reports of Societies

Correspon

LIGHT AND VISION

LIGHT AND VISION

After the annual general meeting of the Illuminating Engineering Society Sir JOHN PARSONS, F.R.S., F.R.C.S., gave an address on light and vision. In his opening remarks he recalled his presence at the inaugural dinner of the Society in 1909, and the recognition of the founder, Mr. Leon Gaster, that the aims of the Society were not limited to physical problems, but involved physiological, psychological, and aesthetic factors. At that time there was little guidance on lighting matters from the medical side, but engineers had themselves few data, and instruments for measuring illumination were primitive and cumbersome. The first paper read to the Society in 1910 was given by Sir John Parsons on the subject of glare, and the Society had since been preoccupied with this and similar problems involving vision. Sir John next discussed the relation between illumination and visual acuity, drawing attention to the valuable work of Dr. Lythgoe and others and the development of the Illuminating Engineering Society's Code. Research had established the great importance of background and adequate contrast. It was interesting to note that in the early days of the Society a limit of 100 to 1 for the ratio of brightness of object and background was proposed. Turning to the colour of light Sir John expressed the view that there was no evidence that artificial sources of light, he injurious effects of ultra-violet light in everyday life had been grossly exaggerated, though the recent development of fluorescent discharge lamps had substantial advantages. Much of the latter part of the address was devoted to vision at low illuminations, the peculiar appearance of colours in weak light, and the conditions determining the perception of objects at the very low illuminations now experienced in the streets in wartime. Sir John referred at some length to the work of the Departmental Committee on Lighting in Factories and Workshops and to the fact that legislation on factory lighting, recommended before the last war, had been enacted only during the present one. The requirements for adequate lighting in factories had now been incorporated in the Factory Act, and this might serve as a precedent for the future, when lighting conditions in schools, offices, etc., might likewise be defined and standardized. The recognition of the I.E.S. Code during the war had been largely due to the fact that it was ready when needed. Now, therefore, was the time to complete codes and specifications relating to other fields of lighting. The address ended with a brief reference to the problems awaiting the Society in connexion with post-war lighting, in which again the study of vision would be found to play an important part.

Psychiatrists of the U.S.A. have recently

Psychiatrists of the U.S.A. and Canadian Forces in this country were recently entertained by the London County Council at Sutton Emergency Hospital. Short papers were read as follows: Minski on "Rehabilitation of the Neurotic," Col. Petrie on "Psychopathic Personalities," Dr. Slater on "The Recognition of the Neurotic in the Services," and Dr. Sargent on "Physical Treatment in Psychiatry." A luncheon was held at which the following were present: Mr. Salmon, Clerk of the L.C.C.; Dr. W. Allen Daley, Medical Officer of Health; Prof. Francis Fraser, Director-General of the Emergency Medical Services; Dr. O'Brien of the Rockefeller Foundation; the administrative officer of the Mental Health Services; Mr. R. Sargood, chairman of the Mental Health Services Committee, and other members of that committee. The afternoon was devoted to a demonstration and talk on the electro-encephalogram by Dr. Hill, visits to the occupational workshops and a talk by Dr. Shaw, and a demonstration of electroconvulsive therapy by Dr. Sands. Col. Thompson and Col. Van Nostrand, on behalf of the U.S.A. and Canadian psychiatrists, thanked the Council and medical staff for having given them such a successful and interesting day.

In observing the acute effects of smoking on respiration and circulation, R. J. Main (*Proc. Soc. exp. Biol.*, N.Y., 1941, 48, 495) came to the conclusion that the smoking of one cigarette "according to a standardized exaggerated technique lowers alveolar CO₂ for from 10 to 30 minutes and increases blood pressure and heart rate or from 30 to 60 minutes in both smokers and relative non-smokers."

The Teaching of Ophthalmology

The Teaching of Ophthalmology.—The lamentations over the alleged values which found expression at the Congress (*Journal*, July 31, p. 144) may be regarded as a large part of clinical ophthalmology rather than of surgery, and that the correct education is therefore to be found on the curriculum. The first introduction to the subject, provided in the preliminary class, is physiology, where the student learns the anatomy of the eyeball and of the ophthalmoscope and the several parts of the visual field to the visual pathway. This foundation affords the opportunity of application in the field of ophthalmology where the systematic use of the ophthalmometer, and of the methods of testing the visual acuity, can be included in the collection of clinical data, necessary to the establishment of a diagnostic conclusion.

In principle, this curriculum should be taught by the ophthalmologist, and not by the surgeon.

In principle, this cultivation of medical ophthalmology, urged by no less an authority than the late Sir C. W. Ogle, who, in his book, *The Use of the Ophthalmoscope*, published in 1871, maintained that "every medical school should teach the use of the ophthalmoscope as carefully as it teaches the use of the stethoscope." That careful teaching is essential to the application of the stethoscope in every clinical case, and is enforced by the ease with which the skill in the use of this modern instrument is attained. If the claim is granted that the sanction of an examination test, and if examination in the use of the stethoscope is made a condition of graduation in medicine, will apply this test I have found from personal experience that the student world will rise to the occasion. There remains the need for instruction in the estimation and correction of errors of refraction, in operative methods in the recognition and treatment of local diseases of the eye and its related parts; and this is the department of ophthalmology and surgery. While fully recognizing these local claims, and the skill which deals with them, it is none the less true that the pathological conditions of the visual apparatus are part of a general or remote disease picture, and the contribution these conditions make to the values of ophthalmology are secured by making the clinical investigation of visual conditions not the property of a special department but a part of the natural and necessary part of the art of clinical medicine in general practice.—I am, etc.,
Hove.

C. O. HAWTHORNE

Childhood Infection and Later Pulmonary Tuberculosis

SIR.—I was greatly interested in the account given of the work of the Brompton Hospital Research Department under this title (July 24, p. 98). It is a work of first-class importance and a form of investigation which has been too long neglected. The only comparable investigation is that on blood by Davidson in Edinburgh. While an immense amount of literature has been written about definite disease, very little work has been done to determine what is the real normal and how far can the alleged normal vary within the limits of good health.

In 1929 I published an article on the subject of "Hilus Tuberculosis" in the *British Medical Journal*.

In 1929 I published an article in the *B.M.J.* under the title: "Hilus Tuberculosis as an Important Causative Factor in Pulmonary Tuberculosis in Adults." The titles of the two papers have a close similarity, and although the conclusions arrived at do not exactly correspond to mine, they go much further in that direction than any I have seen so far. My conclusions were:

"(1) Hilus tuberculosis can be a causative factor in the development of a large, extensive, and fatal variety within the limits of good

(1) Hilus tuberculosis can be demonstrated clinically in a relatively large percentage of children. (2) In spite of much clinical evidence suggesting pulmonary tuberculosis in children actual invasion of the lung parenchyma is relatively rare. . . . (4) Pressure from enlarged bronchial glands can be demonstrated clinically; it has the effect either of restricting the free flow of air into a lung or of interfering with the free flow of air into a lung or of the blood in the lungs, and

ing rise to localized areas of oedema, rarely to general pulmonary edema. (5) Rupture of adherent caseous glands into a bronchial tree is a not uncommon cause of pulmonary tuberculosis.

"The diminished death rate from pulmonary tuberculosis is probably due mainly to the lessened risk of infection from 'open cases' in the homes and to the more prompt recognition of early cases. It is unlikely that a further appreciable decrease will occur unless a serious attempt is made to deal with the large number of potential cases *before, not after*, the lung parenchyma has been invaded by the dreaded tubercle bacilli."

These conclusions were arrived at as the result of a clinical search extending over a period of ten years and involving re-examination and re-examination of 20,000 children. The facilities at my disposal were very limited compared with those available to the Brompton Hospital Research Department, but my conclusions arrived at are approximately similar to mine. For example, the article states: "Certain immediate and later implications may, however, arise, as a rule secondarily to the involvement of lymphatic glands in the primary complex," according to Parrot's law, "there is in the child, whose organs are immature and considerably better adapted for such investigations than an adult's, no affection of the lungs which would not be also present in the adjoining lymphatic glands; and, vice versa, there would be no change in the tracheo-bronchial lymphatic glands without analogous ones in the lung."

The exhaustive work of Ghon has proved that an initial primary lesion is common in children, and also that this lesion almost invariably heals but the bronchial glands are always involved. Here, in my view, lies the potential danger of a recrudescence in adult life. It is too often assumed that the "flare up" in later life is due to the lighting up of an old lesion, whereas it is more likely to be due to the softening and breaking down of an infected bronchial gland, which was adherent to the adjoining pleura in the situation of the newly discovered lesion or emptied itself into a bronchus. I could quote several cases in support of this claim, but space forbids.

How often do we find that a definite pulmonary lesion was preceded by influenza or a bad cold? The fresh infection breaks down the already diseased glands, with the sequence already suggested. I found that evidence of tuberculous infection was more frequently found in those suffering from some epidemic condition of the mouth—decayed teeth, infected tonsils, etc.—and especially in those suffering from defective nutrition. The bronchial glands form the most important barrier against all infections, but in mass infection, particularly when of a virulent character, they fail in their task.

There is, I am afraid, too much complacency about the way we are tackling the problem of pulmonary tuberculosis, and I find no reason to alter the conclusions arrived at fifteen years ago. It is now established that a certain percentage of pulmonary lesions are due to the bovine rather than to the human tubercle bacillus; hence the great need for teaching the public how to sterilize the milk consumed. Milk heated to 70° C. is sufficient, but overboiling does not affect the nutritive value: the vitamins are easily replaceable, as the rearing of babies on boiled milk can readily testify. Here is another field for investigation to counter the opinions of eminent medical men who have no practical experience but who do harm because the public attach as much importance to their intuitive opinions as they do themselves.—I am, etc.,

Birkenhead.

D. J. GARR JOHNSTON.

H 11 for Cancer

SIR.—I should like to report an apparently very successful clinical result of treatment by H 11 for carcinoma:

Male aged 54. He first noticed clinical signs in February, 1940. In February, 1941, treatment by diathermy was given for a large carcinoma of the bladder by Mr. H. O. Robinson. X-ray therapy was given to the residue in the bladder by Mr. Anthony Green in April, 1941. The local growth has remained well from then on. He developed spinal metastases, cervical and lumbar, x-rays taken in September and November, 1941, by Dr. Chesterfield Cooke showing typical changes over an extensive area. For these bony metastases he received x-ray treatment again by Mr. Green in September and November, 1941, and pain was relieved. The erythrocyte sedimentation rate and plasma phosphates were elevated. He then developed a large liver on which there were palpable nodules, jaundice, retching, and ascites, his weight falling to 7 st. He was seen by Mr. H. O. Robinson and Mr. Anthony Green, both of whom diagnosed

secondary deposits in the liver and did not advise x-ray treatment. A course of H 11 extract was started on Jan. 21, 1942, because both surgery and radiotherapy offered no hope whatever. In a month the retching and jaundice had gone, diet began to be normal, and in seven weeks there was no ascites, and weight was over 7½ st. The liver gradually diminished in size and nodules became palpable. In nine weeks the patient began walking unaided; after eighteen weeks he was able to walk a quarter of a mile. Twenty-six weeks after commencing treatment he was back at his office, clinically in good health, and with no certain evidence of active growth. He is still well after a year's work, putting in 5½ long days each week. At the end of treatment he weighed over 9 st. and now weighs about 10 st.

Mr. Anthony Green tells me that he has treated a few further patients without success, but feels that the method might be tested at a research centre because one successful case may be due to the injection of foreign material and does not prove specific action.

When a patient is suffering from cancer and both a surgeon and a radiotherapist can offer no hope whatever, I should like to be advised of a better method of treatment that offers any chance of recovery.—I am, etc.,

Redhill, Surrey.

FREDERICK CURTIS.

SIR.—The publication of H 11 therapy and experimental investigations of it in the *Journal* of July 17 are suggestive of premature conclusions on the part of Gye, Ludford, and Barlow, who have failed to corroborate the Hosa Research Laboratory workers' much more extensive observations, and also suggest a similar biased criticism in the comments of the leading article on the same subject, for one cannot agree that an extension of 12 to 18 months of improved health with recession of malignant growth and absence of secondaries in inoperable and hopeless cases of cancer, as shown by Kidd in 42% of his patients, can be considered other than a very satisfactory and desirable clinical result. The leader also infers that the Hosa Research Group is a business undertaking, but is this also not a mistake? Inquiries have led me to believe that the Hosa Research Laboratories are a philanthropic establishment operating as a registered charitable trust, and therefore, surely, its workers are on similar lines from this point of view to those of the Imperial Cancer Research Fund workers.

As your leading article says, many practitioners throughout the country are using H 11 therapy, with what may broadly be said to be 50% of satisfactory clinical results in inoperable cases of cancer, and it is to be hoped that what almost appears to be an attempt to sabotage the most useful adjuvant medical treatment at present available in inoperable cancer cases will not deter practitioners from employing H 11 therapy under controlled conditions until the Imperial Cancer Research Fund organization, or some other progressive body, provides the profession with a better therapeutic help.

While fully agreeing with the remarks that it is the doctor's "bounden duty to exercise the utmost scientific caution" and to avoid the raising of false hopes, yet we might also remember the statement of a very ancient and profound philosopher, who said that when everything else had failed there still remained faith, hope, and charity, and the greatest of these is charity; and perhaps, in the new world we all look forward to, charity may find a new place in the relationship of even scientific research workers.—I am, etc.,

Southport.

E. CRONIN LOWE.

SIR.—I was very interested to read the reports of H 11 published in the *Journal* of July 17. I had been impressed by the experimental results shown by Mr. Thompson on the inhibition of carcinomatous growths in mice and decided to try the preparation in the treatment of cases which were frankly inoperable.

Early in 1940 we commenced using the preparation; it was known then as G.R.H., and this was used until H 11 was evolved, and one or two modifications of this were thereafter used throughout the treatment of the cases. The cases were selected because of their inoperability or their resistance to radium therapy.

While the series of cases treated here was smaller and the treatment might not have been as intensive or as prolonged as in those cases mentioned by Kidd, in many the treatment

was prolonged to the limit of the patient's tolerance. The majority of the patients very quickly became intolerant of the injections which were carried out twice daily, and as it was considered that the substance was excreted very rapidly trials were made with a repository dose which proved ineffective. The substance was administered here both intramuscularly and intravenously without any apparent difference in its effect. In none of the cases was life prolonged nor did the growth seem to be in any way inhibited.

Tumours which had extended to the surface of the skin, and whose superficial limits were therefore measurable, were selected in at least two instances for this treatment, but again no sign of any attempt at healing or restriction of the extent of the growth was evident. Every one of the patients submitted to this treatment at this hospital died, and I came to the conclusion that, however effective the substance was in the control of the transplant growth in mice, it had no effect clinically. The treatment was therefore discontinued.—I am, etc.,

W. ARKLEY STEEL, M.D., F.R.C.P.,
Medical Director, Hillingdon County Hospital.

Uxbridge, Middlesex.

Diabetic Retinitis

SIR.—Dr. George Graham, in his letter concerning diabetes (July 24, p. 115), remarks that he has "watched the retinitis improve when the diabetic condition has been brought under control." I should be interested to learn whether any of your other readers has had the same happy experience. Among all the cases I have seen of defective vision due to diabetic retinitis, none has ever shown any appreciable restoration, however soon the diabetic condition was brought under control by diet and other measures. Lest my own experience should have been in this respect unusually gloomy, I put the question to half a dozen ophthalmological colleagues, none of whom could ever remember having seen visual improvement in a case whose defective vision was attributable to diabetic retinitis.

I do not for a moment question the validity of Dr. Graham's observations. I only suggest that appreciable improvement in diabetic retinitis must be extremely rare compared with the opposite condition of steadily deteriorating vision from diabetic retinitis that goes on increasing in spite of all known devices for adjusting the victim's disordered metabolism.—I am, etc.,

London, W.I.

J. H. DOGGART.

Globin Insulin

SIR.—The conclusion Dr. R. D. Lawrence records (July 24, p. 103) that the action of globin insulin with zinc is not materially different from that of protamine-zinc-insulin is, as he admits, not in agreement with the opinion of the American workers with this preparation. It may therefore be of interest to your readers to know that laboratory evidence on many hundreds of rabbits agrees with the American workers' view and not with that of Dr. Lawrence. In the Tuckahoe (U.S.A.) laboratories of the Wellcome Foundation work has been in progress for 6 or 7 years, and Mr. R. Thorp, working in the Wellcome Laboratories at Beckenham, amply confirmed the claims of his American colleagues. The table gives his results on 18 groups of 12 rabbits. The blood sugars are given as a percentage of the initial blood sugar.

Hours after Injection:	2	4	6	8	10	12
Blood sugar:						
G.Z.I.	53.4	61.1	73.0	79.9	86.5	90.9
P.Z.I.	61.2	62.6	64.5	67.7	74.3	79.2

At the 2nd hour globin insulin gives a lower blood sugar than protamine insulin ($P=ca\ 0.049$). At the 4th hour they are indistinguishable. At the 6th, 8th, 10th, and 12th hours protamine insulin gives a lower blood sugar than globin insulin ($P=ca\ 0.022, 0.001, 0.03, 0.06$ respectively). Unmodified insulin in similar doses would have practically completed its action by the 6th hour. I am therefore encouraged to believe that the American clinicians' conclusions are more likely to be correct in this case than those of Dr. Lawrence. Nor am I shaken in this belief by his reported experiments. His patient's reaction to any insulin is, I should judge, abnormal, for 32 units of soluble insulin produced very little effect up to the 4th hour, although carbohydrate had been excluded

from the diet, and the maximum fall was at the 10th hour. It is not surprising, therefore, that in this patient the average maximum depression for globin insulin is at the 15th hour and for protamine insulin at the 18th. There is, in addition, corroboration of the striking American observation that globin insulin unit for unit produces more total effect than protamine insulin. The average blood sugar for the four days of observation with globin insulin falls from 268 to 239 in 4 hours, 212 in 6 hours, and finally to 198 in 15 hours, after which it rises slowly. In 34 hours (3 observations) the blood sugar was back to 224. Protamine insulin produced in this patient no significant fall till the 15th hour, the blood sugar being its minimum (180) at the 18th hour, but recovered to 215 in 24 hours. This analysis, of course, from a statistical point of view, is no more adequate than Dr. Lawrence's own deductions from the case; it does emphasize the uncertainty of drawing deductions from such a small body of evidence. I have no doubt, however, that Dr. Lawrence would agree with the last conclusion. But he makes certain observations not connected with the physiological action of globin insulin to which I should like to comment.

1. He states that a new delay insulin should not be introduced without withdrawing the old. There are already two delay insulins on the British market, Hagedorn's original form of protamine insulin without zinc having been issued again by English manufacturers at the urgent request of responsible clinicians when Danish insulin disappeared in 1940. I would suggest that the variability in response of different patients to different kinds of insulin is a good reason for providing a further tool for trial in the difficult case.

2. He says that it will be necessary to administer soluble insulin with it. That is not the experience of the American observers, and he admits that its onset of action is more rapid than that of protamine insulin. Dr. Lawrence's remarks on the subject of excess protamine in protamine insulin with zinc are based in part on a misconception. He speaks as though any excess of protamine in protamine insulin will absorb completely any soluble insulin mixed with it. That is not so, for the affinity of protamine for insulin is comparatively low, and the compound of protamine and insulin obeys the mass law so that the product of the protamine concentration and the insulin concentration is a constant—the solubility constant of protamine insulinate—so that no matter how much excess protamine is present added soluble will remain, in part, in solution. Large excess of protamine will only increase the quantity of insulin necessary to produce the amount of soluble insulin required, and since the mixture has to be titrated for each individual patient small variations such as do occur in protamine content are of little importance. In any case, the amount of protamine is determined by regulations under the Therapeutic Substances Act, and it is useless to blame the manufacturers for the deficiency, if any, of these regulations. All that the manufacturers can do is to ensure so far as possible that the protamine insulin made by each of them is, within the limits of the testing procedure laid down, as nearly as possible identical in quality and quantity of protamine. This end extensive experiments are being carried out in collaboration by the three manufacturers concerned at the present time. It is difficult to say what are the exact chemically equivalent weights of globin and insulin. But since a small reduction in the proportion of globin to insulin leads to a considerable reduction in the prolongation of action, I am sure Dr. Lawrence is sure to find if he adds soluble insulin to globin insulin that the added insulin will have its desired effect in the early stages, provided he makes sufficiently extensive observations to eliminate the gross variability of the patient's response.

3. He objects that the solution is clear on the ground that it will be confused with soluble insulin. There will be a label on the bottle in distinctive bright colours which ought to prevent any responsible person mistaking it for any other kind of insulin. I think it is questionable whether the rate of therapeutic progress should be scaled down to suit the capacity of the untrained assistant. The clear solution has positive advantages. It can be filtered after the mixture is made, which is a manufacturing point of some moment in connexion with the freedom from contamination with organism. Its clarity makes it less easy to contaminate in use; in this connexion it has been reported that cases which were "set

ive" to protamine insulin could take globin insulin without reactions. It is not improbable that the reactions were due to careless technique on the part of the patient leading to minor infections of the protamine insulin which were controlled by the more acid reaction of the globin insulin.

It may also be pointed out that there is a practically inexhaustible source of supply of globin in this country which may yet be of importance in wartime, and globin is more likely to be of constant composition than protamine, which is not always derived from the same species.

Nine months ago I started my attempts to get clinical trials carried out on this product in this country. No adequate series of clinical experiments is yet in sight. That is not the fault of British clinicians. Present conditions of dispersal of facilities are responsible. My view is that the American evidence is sufficient ground for no longer delaying to make globin insulin available to the British diabetic. It will in time automatically find its proper place in therapeutics.—I am, etc.,

Wellcome Physiological Research Laboratories,
Beckenham.

J. TREVAN.

Orthopaedics of "Sentry Go"

SIR.—Evidence of recent date has been adduced upon the potential dangers that may afflict the marching foot of the soldier. Even fracture of a metatarsal bone may occur. Hence any suggestion that can be made with a view to preventing those dangers would be of value, provided it was valid and reasonable. No man with an orthopaedic eye, looking at the march of the sentries outside Buckingham Palace, for example, could fail to notice the possibility of trouble in the methods adopted by those sentries. At the "about turn" each leg is semiflexed at the hip, the knee is semiflexed, and the movement is ended by the severe stamping of the foot on the ground before the "about turn" is completed. This stamping action is a potential danger to the feet: it would aggravate any tendency to varicose veins, if it would not actually induce them, and the jar would be conducted to the head by the spinal column. I would not be surprised to learn that men recently relieved from sentry duty complained of headache in consequence. It is to be hoped that this fantastic and rather ridiculous performance will be stopped.—I am, etc.,

Stammore.

G. LENTHAL CHEATLE.

Selective Action of Vitamin C on the Suprarenals?

SIR.—It has been established that iodine is necessary in the diet for normal thyroid function. It has also been shown that the normal thyroid contains about 15 mg. of iodine—almost all the iodine contained in the body—and, moreover, that the iodine content of the gland can be increased by the administration of iodides.

It seems possible, then, that other endocrines may be affected in a similar manner. For instance, vitamin E appears to have a selective action on the gonads, causing descent of the testes and activity in the ovaries; for this reason it is used in cases of sterility. Vitamin D causes a rise in blood calcium and phosphorus whose metabolism is controlled by the parathyroids. It is therefore probable that the function of the endocrines is dependent on the presence in the blood of certain vitamins or chemical substances, and that these substances have a selective action on a particular endocrine.

Investigating further we find that the only vitamin in any large amount in the human body is vitamin C or ascorbic acid; furthermore it is found in the suprarenals in the greatest quantity. This must have some significance, and I suggest that ascorbic acid may be the chemical substance necessary for normal suprarenal function. If this is the case the ingestion of a suitable amount of ascorbic acid should increase the activity of the suprarenals.

With this idea in mind I took 500 mg. of ascorbic acid on two successive days—a total of 1,000 mg. On the third morning I woke early with boundless energy and a feeling of well-being. The pulse rate was increased and the skin warm and moist, similar effects to stimulation of the sympathetic. All these signs are also present in hyperthyroidism, but the fact that ascorbic acid is found practically only in the suprarenals suggests that it has a selective action on that gland, and that increasing the intake of the vitamin increases the amount in the glands, thus increasing their activity.

Some of the suprarenal functions are: (1) production of adrenaline; (2) control of blood pressure; (3) regulation of blood distribution; (4) control of ionic distribution, particularly sodium and potassium; (5) control of liver glycogen; and (6) possible detoxifying centre for bacteria. It will be seen that the circulation, and therefore the nutrition of every cell in the body, is dependent on proper suprarenal function. If, therefore, ascorbic acid is necessary for normal suprarenal function—and its presence in the gland in such large amount suggests this—it follows that vitamin C is the most vitally important of all the chemical substances in the diet. It cannot be due to chance that vitamin C is found so widely in Nature in fruit, vegetables, and milk.—I am, etc.,

Preston.

W. H. DERHAM.

Psychiatric Treatment in General Hospitals

SIR.—I should like to reply to correspondents whose comments lie within the scope of my article under this heading, leaving out other dimly connected and debatable issues raised. I endeavoured to avoid any but the obvious deductions in the commentary, since I intended the paper to be a report on a "social experiment" (see subtitle) in psychiatric medicine, using methods employed not only in Sutton psychiatric units but by clinicians in numerous mental hospitals. It has been suggested that I have tried to relegate mental hospitals to their former custodial role (Drs. T. P. Rees and W. H. Shepley, June 12, p. 735), as in the concluding part of the paper I left the question, "To what extent can mental hospital services, at present largely organized to meet the maintenance needs of an abundance of chronic patients, be adjusted to secure the confidence of the early recoverable patients, so that this confidence would lead to their early treatment and lessen the incidence of chronicity? . . ."

Some of the reactions expressed demand further emphasis on the fact that the patients discussed are a selected group, mostly selected by other psychiatrists of this hospital who are themselves using a comprehensive scheme of treatment, including psychotherapy, insulin comas, modified insulin therapy, continuous sleep, electrically induced fits, etc., and combinations of the foregoing, according to the requirements of the individual patient. A decline in results was noticed where patients were selected for treatment by psychiatrists without personal experience in the comprehensive application of these methods, even though such psychiatrists undoubtedly had long experience in other directions. It follows that general hospital in-patient psychiatry does not consist of the mere allocation of a ward with a psychiatrist in charge; the latter should be trained in the correct selection and treatment of patients if results are to be worth while and risks minimized. In treatment this applies equally to nursing staff.

There has been no attempt to tackle all and sundry psychiatric states in our unit, and the unfortunate "general hospital versus mental hospital" phrase of Dr. Spencer (July 10, p. 54) therefore does not arise. Only by difference in type can one explain the fact that with essentially similar forms of treatment (Drs. Rees and Shepley) 35 beds in Sutton psychiatric ward admitted and discharged in a year more patients than the whole of Warrlingham Park Mental Hospital, with 849 beds, admitted in the same period, and any psychiatrist who has been fortunate enough to be shown round Warrlingham would admit that it must be one of our most progressive mental hospitals. There is therefore little justification in the argument expressed by some correspondents and considered, as I know, by other psychiatrists, that by the use of general hospital neuro-psychiatric wards the mental hospitals are likely as a general rule to receive fewer recoverable admissions.

Having had the privilege of working in four general and four mental hospitals since qualification I know that generally speaking the type of patient treated at Sutton is unfortunately rarely seen in a mental hospital, and his care has too often devolved on the G.P. If this same type did reach a mental hospital, it was usually when chronic or when an acute flare-up of his condition made such a course imperative. Dr. Crichton-Miller (June 26, p. 800) says that there are selected psychiatric patients best treated without the local supervision required by other types, and at Sutton this is being done.

As regards "stigma," whatever the "actual knowledge" of some correspondents may be in this respect concerning its

growth about the "mental ward," I can only report that after two years we are as little troubled by this difficulty as after the first three months. Perhaps our critics are thinking of observation wards, and it may be that we shall have to wait longer before considering ourselves clear of "stigma" possibilities.

Lastly, I feel that whatever influence these matters have on ourselves as doctors there is no doubt that for patients of selected types it brings specialist psychiatric treatment to a frequently recoverable class who, as the figures quoted above show, do not as a general rule use the facilities mental hospitals provide.—I am, etc.,

Sutton, Surrey.

D. E. SANDS.

SIR,—I do not wish to take up much of your valuable space in replying to the critics of my letter (June 26, p. 800) on this subject. To my mind there is a place for the treatment of psychiatric cases in mental hospitals, psychiatric clinics, and special wards of general hospitals, and it seems a pity to me that at the present time in planning for post-war medicine psychiatrists cannot agree among themselves. There is a section of psychiatrists who do not seem to realize that they will be part of a comprehensive service where the man working in the mental hospital will also take his place in the out-patient clinic and general hospital, while the man working in the latter will also do his share of work in the mental hospital. Team work and continuity of treatment are of more importance in psychiatry than in any other branch of medicine, and the successful treatment of the patient is surely the most important point in connexion with this controversial subject.—I am, etc.,

Emergency Hospital, Sutton.

LOUIS MINSKI.

SIR,—For years the psychiatrists have been telling us, as do Drs. Rees and Shepley (July 24, p. 118), that stigma attaches to mental illness only because general opinion remains unenlightened.

Would these psychiatrists themselves employ as assistants or welcome as sons-in-law persons who had been inmates of mental hospitals? Would they view the development of schizophrenia in their daughters with as little distress as a fractured femur or a ruptured ectopic?

Whatever they tell us, stigma will always attach to mental illness and defect in civilized communities, where success in the struggle for existence depends on mental rather than on physical perfection.—I am, etc.,

G. L. ALEXANDER.

Colonial Medical Service, Gold Coast.

The Cult of Negative Health

SIR,—Two different but related problems are being discussed under the above heading. These are, first, the problem of the desirability of civilization and its amenities, and, secondly, that of the needs of the individual if he is to secure complete health. The confusion between these has once again brought up the old fallacy, voiced by many throughout history, that civilization is bad for man. This belief goes hand in hand with the concept of the "noble savage." An impartial view would, I think, decide that in our civilization the majority live a fuller, longer, and, on the whole, healthier life than they would do under more primitive conditions.

The second problem arises because, despite the benefits of civilization, many people are unhappy, frustrated, hypochondriacal, and mentally ill; but before deciding that the amenities of civilization are the causes of these troubles it would be well to examine the problem more fully. Dr. R. E. Lucas surely gets to the root of the matter when she says that all the "interests and abilities" of the individual must be fully occupied if he is to obtain complete mental and physical health. This fact is brought out again and again by physiological, psychological, neurological, and sociological studies. There are so many references that I shall mention only one—*Human Behaviour* (Goldstein). In brief, we may say that the individual requires to feel himself to be a useful and essential member of the community, with his abilities and interests fully used in his work and leisure. The importance of the first factor was illustrated by the decrease in the so-called minor mental and bodily illnesses which occurred on the outbreak of war and during the "blitz," instead of the expected increase.

The second factor will require tremendous organization and progress before it can be applied universally, but we must all strive towards it. Meanwhile little will be gained by blindly removing and prohibiting modern amenities. Thus one woman may fulfil herself in having a baby every year, while another may be crippled and prevented from living a full life by having even one child. These are obviously extreme examples, but the revival of individual medicine must be applied to the whole of life if everyone is to make the most of his life.—I am, etc.,

Harrogate.

JAMES CAMPBELL.

Sulphonamide Therapy in Tuberculous Empyema

SIR,—In connexion with the article on tuberculous empyema (June 26, p. 792) details of this case may be of interest.

An adult male who had been undergoing pneumothorax treatment for pulmonary tuberculosis at St. Brigid's Sanatorium, County Laoighis, since September, 1941, developed fluid in February, 1942. This recurred, despite aspiration and air replacement, on three occasions, and in July, 1942, was thickly purulent. On this occasion, after removal of 12 oz., 20 c.cm. soluseptasine was instilled into the pleural cavity. This pus showed no organisms on direct smear, but culture on Lowenstein's medium resulted in a profuse growth of tubercle bacilli. In August, 1942, 5 oz. of pus, which was, however, much thinner than on the last occasion, was removed and replaced by 10 c.cm. of soluseptasine, since when the pus has not recurred, and the pneumothorax treatment has since continued without further complications.

This is the only case of tuberculous empyema I have had the opportunity of treating in this manner, but three years ago a case of pneumococcal empyema, in which pus had recurred despite aspiration on three occasions and intensive oral and intravenous sulphonamide therapy, completely subsided after the removal of 10 oz. of pus followed by the injection of 20 c.cm. of soluseptasine intrapleurally.—I am, etc.,

Co. Laoighis.

M. CROWE.

Bovine Tuberculosis in South Africa

SIR,—Dr. Basil F. Sampson's letter (June 5, p. 708) states: "Moreover, surgeons will tell you that the typical non-pulmonary lesions of the disease in humans are not commonly seen by them." If Dr. Sampson will visit this hospital I can show him 75 cases of surgical tuberculosis (mostly tuberculosis of the vertebrae), which is the maximum number of cases for which I have accommodation. He can see a list of names of people, several of whom have been waiting more than two years for admission. In the surrounding districts are many patients with surgical tuberculosis who do not come for treatment because it is widely known that we cannot admit more because of lack of beds. I would go so far as to state that one of the commonest surgical conditions in this area, among Africans, is surgical tuberculosis, due, in my opinion, to widespread malnutrition.—I am, etc.,

Victoria Hospital, Moredale,
Cape Province.

W. C. J. COOPER, F.R.C.S.Ed.

Nurses' Pay and Hours

SIR,—The shortage of nurses was acute even before the war, and there were many complaints that the best type of girl was not coming forward. It was reiterated that improvement would only come when conditions of working, feeding, discipline, and salary were much more reasonable. Several committees have deliberated over the question of salary, and have recommended what they regard as munificent increases. But they are totally inadequate. It is now up to doctors to help the nurses; or are we too busy fighting our own battle?

Under the new recommendations student nurses will receive about £40 the first year. This is less than our parlourmaids receive. Yet the nurses work hours as long and hard as any manual labourer, and often, most unpleasant. It is said that their training is part of their salary, but this is a double benefit for the hospital cannot run without senior trained nurses. Moreover, they study and often have to attend lectures in the three hours of free time they are allowed daily.

The position of the trained nurse is equally ridiculous. A staff nurse, State-registered, after completing three or four years' training and passing her examination, is to receive £10

to £120 a year. At present State-registered Civil Nursing Reserve nurses paid by the Ministry of Health receive £105 a year, plus £65 living-out allowance. This works out at 65s. 6d. a week, whereas the L.P.T.B. are advertising for untrained women to become Underground Railway porters at a salary of 67s. 6d. a week.

Finally, may I point out that the 48-hour week still leaves a long working day, if a day and a half are taken off each week, identical with the old working day, since time taken off for meals is now added to the working hours.—I am, etc.,

London, W.6.

C. W. F. MCKEAN, M.B.

Obituary

SIR BECKWITH WHITEHOUSE, M.S., F.R.C.S.,
F.R.C.O.G., F.A.C.S. (Hon.)

President of the British Medical Association

The sudden death of Sir Beckwith Whitehouse, which took place while he was returning home after the meeting of the Council of the British Medical Association on July 28, was briefly recorded in our last issue. Sir Beckwith appeared to be in his usual health at the meeting, and the last remark he made was a graceful acknowledgment of the action of the Council in nominating him for a second year as President of the Association. He confessed that hitherto his presidential duties had been of the lightest, but he added that if the war

situation developed as favourably as some optimists predicted the duties might more closely approach to those of a peace-time President, even though the usual Annual Meeting in his own city was still out of the question.

Harold Beckwith Whitehouse, who was in his sixty-first year, was a man of the Midlands. He was born at Ocker Hill, Tipton, one of the "iron towns" of Staffordshire, only nine miles from Birmingham, in which city he spent the whole of his professional career.

He went to school at Malvern College, and later took his medical training in London, at St. Thomas's, where he was entrance science scholar in 1901 and William Tite scholar in 1902. He graduated M.B., B.S.Lond. in 1906, gaining in that year the Sutton Sams memorial prize for work in obstetric medicine and diseases of women, thus early declaring his bent. In 1908 he took the M.S. of London University, with honours, and qualified for the gold medal in surgery, and in the same year he became Fellow of the Royal College of Surgeons.

In Birmingham he quietly built up a solid reputation as an obstetrician and gynaecologist. His teaching and expository gifts were also quickly recognized. In 1920 he was Ingleby Lecturer at the University—a lectureship named after an early professor of midwifery at Queen's College and intended for the promotion of obstetric medicine and surgery. In 1924 he was appointed Professor of Midwifery and Diseases of Women, succeeding Thomas Wilson, who had held the chair since 1912. Whitehouse was the third occupant of the combined chair. Before 1910 there was at Birmingham a professor of midwifery and a professor of gynaecology, the first to hold the professorship of gynaecology being Lawson Tait. For nearly twenty years in his academic position Beckwith Whitehouse exercised a marked influence upon gynaecological opinion and practice. He was generally recognized as a careful and most illuminating clinical teacher, and united with this was his skill as an operating surgeon. In all that he did he took the most scrupulous care over detail. He was himself the originator of some surgical procedures, and among his inventions was a caecal retractor for appendectomy, whereby the appendix and

a portion of the caecum was isolated from the peritoneal cavity and the edges of the wound. He was also an eager research worker. The subjects within his specialty in which he took the keenest interest were uterine haemorrhage, its pathology and treatment—which was the theme of his Hunterian Lectures at the Royal College of Surgeons, delivered when he was little more than thirty years of age—and the innervation of the uterus.

Between the medical school, his several hospitals, and his private consulting room Beckwith Whitehouse lived busy days—and often nights—and no doubt the work took its toll. He was honorary gynaecological surgeon to the Birmingham United Hospitals (the General Hospital in Steelhouse Lane and the new Queen Elizabeth Hospital out at Edgbaston), and honorary surgeon to the Maternity Hospital in Loveday Street. In addition he was consultant to a large number of hospitals in the surrounding area—the Lucy Baldwin Maternity Hospital, Hammerwich and Sutton Cottage Hospitals, the Smallwood Hospital, Redditch, the Guest Hospital, Dudley, Walsall and Nuneaton General Hospitals—and to the Worcestershire County Council. The demands of all this work, not only upon his time and skill but upon his sympathy, must have been enormous. He once said that as a gynaecologist he heard an undue proportion of people's domestic worries. Certainly no man could practise this branch of the profession for thirty years, especially in a great industrial area in those Midlands which, according to Belloc, are "sodden and unkind," without being a humanitarian as well as a great physician and surgeon. Lady Baldwin consulted him fifteen years ago as to the usefulness of a maternity hospital for her countryside, and received his characteristically enthusiastic reply, "If you get your hospital going I will come night or day to lend a hand when needed." And, Lady Baldwin has added, "He kept his word, coming over twenty miles, often in the dark, to help save a mother and her baby: he never ceased his interest nor grudged the time spent in this work. He saved many a woman, not only at the time of childbirth but also from the suffering incidental to their sex."

His experience as a consultant also filled him with a great admiration for the family doctors, whom he saw carrying on their work under the shadow of the rolling mills and in the light of the furnaces. His appreciation of these men made him apprehensive of tendencies which seemed to him to threaten the survival of family practice and to portend some system of State medicine. An uncompromising individualist, his individualism was the result of his experience and observation of medical practice carried out often under the hardest and most testing conditions. The things which he saw and felt he could express with clearness and force in such a way as to win the respect even of those who disagreed with his conclusions.

Outside Birmingham he found further scope for his energies. At different times he was examiner in midwifery to the Royal College of Surgeons, the Universities of Sheffield, of Bristol, and of Leeds, and under the Central Midwives Board. For four years he served as a member of the Radium Commission. No one appreciated more the value of radium in the hands of the gynaecologist, but he was well aware of the risks and dangers of its injudicious use, and set these out with his usual care in what he wrote on the subject. In 1929, when the British (now the Royal) College of Obstetricians and Gynaecologists was incorporated, he became a Foundation Fellow, and served as a valued member of its council until 1937. In the early days of that College it owed not a little to his enthusiasm and common sense. Until he became President-Elect of the British Medical Association his voice was not often heard in London, but he was vice-president of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine, and a Fellow of the Medical Society of London, and he had been president of the Midland Obstetrical and Gynaecological Society. In 1933 he visited the United States at the invitation of the American College of Surgeons, and was made an Honorary Fellow of that body; he was also made an Honorary Member of the Canadian Medical Association, to which he gave an address on the menopause. He enriched his experience by frequent visits to Continental clinics and operating theatres, and his own writings and research made him well known beyond the borders of this country.



(Lafayette, Ltd.)

His contributions to the literature of midwifery and gynaecology were mostly in the form of papers in the medical journals, but one noteworthy literary task was his editorship of the fourth edition of Eden and Lockyer's *Gynaecology*, published in 1935. The earlier editions of that standard work were revised by the original authors, but on relinquishing their task they asked Beckwith Whitehouse to accept the responsibilities of editorship. The advances in both the science and the art of gynaecology which had been made during the eight years since the appearance of the third edition made it necessary to rewrite various sections, to add a great deal of new matter, and to rearrange the order in which some of the original matter was presented. One innovation was the inclusion of a discussion of the medical aspects of contraception so far as this was believed to be necessary for the requirements of medical practice, and without entering into the ethical questions involved. It was the new editor's feeling that the inclusion of this subject in a standard gynaecological textbook would be welcomed, and that it would have the advantage of placing the matter in its proper perspective.

Beckwith Whitehouse's career, otherwise devoted to midwifery and gynaecology, was interrupted by service in the first world war. Within a fortnight of the declaration of war in August, 1914, he was in France, where he served as officer-in-charge of the surgical division and surgical specialist to the No. 8 General Hospital, Rouen, and the No. 56 General Hospital, Etaples.

In the central work of the British Medical Association, which he joined soon after qualification, he took no large part, though he was for some years a member of the Consultants and Specialists Group Committee. But his counsel was for many years highly valued in the Birmingham Branch, of which he became president in 1934. It was intended that the Annual Meeting of the Association should be held at Birmingham in 1940, and Beckwith Whitehouse was the choice of his fellows in the locality for nomination as President. Although, by reason of the war, no meeting at Birmingham could take place, he succeeded Dr. Thomas Fraser of Aberdeen as President in 1942, and was nominated for office for a second year. It was the great regret of his colleagues that the war prevented Birmingham from showing what it could do in the way of entertainment and pageantry, and the President from proving his qualities as host. When the B.M.A. last met in Birmingham, in 1911, he held office as secretary of the Section of Obstetrics and Gynaecology, and in 1928 he was vice-president, and in 1936 president, of the same Section.

The inclusion of his name in the list of Coronation honours in 1937 was very welcome to a large circle of friends in the Midlands and far beyond. Beckwith Whitehouse was a very likeable man, a man of broad outlook and gentle tastes. At his home at Edgbaston he indulged, as much as his busy professional life allowed, his love of gardening and botany, entomology, and music. He married in 1909 Miss Madge Rae Griffith, a Birmingham lady, and had two sons and one daughter. Much sympathy is felt for Lady Whitehouse and her family in their sudden bereavement, and with the Birmingham school in the premature loss of one from whom several more years of distinguished service both in the home and in the clinical fields might have been expected.

Dr. SEYMOUR BARLING, F.R.C.S., sends the following personal tribute: The death of Beckwith Whitehouse leaves a gap in many circles in Birmingham and the Midlands; his vigorous and dynamic personality touched life at so many points in public and professional life, all of which he enriched by his enthusiasm and capacity for hard work. His appointment as assistant gynaecological surgeon to the General Hospital in 1908 gave him his first opportunity, and this appointment in the city which had known the brilliance of Lawson Tait served as his inspiration throughout life. He was well fitted to carry forward the development of his specialty, in which formerly manipulative dexterity alone was the hall-mark of distinction, for at this time the fundamental part played by the hormones in the sex cycle and the discovery of radium called for new aptitudes which his scientific training and outlook were quick to seize and develop in the service of his craft. So it was throughout his life: his restless mind was always seeking new ways and new ideas to incorporate into his work and carry it forward.

Beckwith Whitehouse found the ordinary social contacts of life difficult, and concealed a natural shyness of disposition beneath somewhat abrupt manner which made it difficult for his contemporaries, even colleagues whom he knew well, to get beneath the surface. It was quite otherwise with those who as students and residents looked to him for leadership, and some of his happiest moments were associated with his annual gathering of old residents, which, growing in size as the years passed, grew into an informal club. As professor he was clear and explicit in his formal lectures, but was happier in clinical teaching in wards and theatres and happiest of all in the daily contacts of hospital work with dressers and residents. In the club he saw those he had moulded and taught by daily intimate contact, and they found in him a friend and inspiring leader. He was devoted to his patients and they to him, and a busy practice claimed him unremittingly. In spite of this he found time for many activities. For several years he served on the Radium Commission, on which his professional knowledge and scientific training were valuable to advise in the control of the remedy which for a time was threatening to become a danger. His election as President of the British Medical Association in July, 1939, gave him great pleasure and pride, and the knowledge that he had behind him the whole-hearted support of the profession sustained him in supporting a position which necessarily would add much to an overfull life. In October, 1937, he was appointed president of the Birmingham Branch of the British Medical Association, and also in 1940 Acting County Director and Controller. He developed and followed the wartime activities of the British Medical Association with the greatest interest, and in none of his public interests will he be more missed than in the councils of that body.

Beckwith Whitehouse found time throughout a busy professional life for his two hobbies of entomology and gardening, and to last immerse himself in both of them in any spare moments he had. At his beautiful country house he found opportunities both, but it is characteristic of the man that even there practice followed him, and his week-ends were usually partly occupied with consultations and operations at the local hospital. Unknown to most of his friends—even those who saw him daily—he had for some time under the shadow of a possible breakdown unless curtailed his work, but the warning was unheeded. He passed away in the flood-time of his many activities, having given abundant throughout a long and busy life to his friends, his patients, and his profession. As one who knew him well, one feels that he would have preferred it thus had the alternative been the inactivity of invalidism. Deep in his mind, though, was the desire to enjoy a time leisure to indulge in his hobbies in the distant future, never to be achieved, when practice could be put aside and his garden claim him.

We regret to announce the death at Chichester of Dr. A. I. BARFORD, for many years a member of the visiting staff of the Royal West Sussex Hospital and M.O.H. for the City of Chichester. Educated at Wellington College and at St. Bartholomew's Hospital, Arthur Morton Barford qualified as M.R.C.S. in 1888 at the age of 20, obtained the Brussels M.D. with honours in 1897, the Edinburgh D.P.H. in 1904, and was elected F.R.F.P.S. Glasg. in 1918. For some years after qualification he was anaesthetist to the North-West London Hospital and the Throat Hospital in Golden Square. While engaged in general practice at Chichester he specialized in oto-laryngo-logy and was appointed aural surgeon to the Portsmouth and Southern Counties Eye and Ear Hospital, and afterwards in charge of the throat, nose, and ear department of the Royal West Sussex Hospital at Chichester; he also became chief surgeon to the West Sussex Constabulary and a member of the county council. His knowledge of public health administration was recognized by appointment as examiner for the Edinburgh and the Glasgow D.P.H. Dr. Barford joined the B.M.A. twenty years ago.

The death is reported from Suva, Fiji, of Dr. DUNCAN CAMPBELL MACEWAN MACPHERSON, Assistant Director of Medical Services, Fiji and Western Pacific. The only son of Hugh MacPherson, J.P., of Acharacle, Argyllshire, he was born in 1901. He graduated M.B., Ch.B. at the University of Glasgow in 1928, and was senior vice-president of the Glasgow University Medico-Chirurgical Society. After holding resident posts at the Newark General Hospital and the Glasgow Royal Mental Hospital he won a Fellowship in the International Health Division of the Rockefeller Foundation, and worked for a time at the Johns Hopkins University, Baltimore, where he was granted his certificate of public health in 1934, and subsequently obtained the D.T.M. of Liverpool. Entering the Colonial Medical Service, Dr. MacPherson worked as medical officer to the Gilbert and Ellice Islands before being transferred to Suva, where, in addition to his official post as A.D.M.S., he was lecturer in pathology, bacteriology, and forensic medicine at the Central Medical School. He had been a member of the B.M.A. since graduation.

Medico-Legal

APPEAL BY GENERAL MEDICAL COUNCIL DISMISSED

SPACKMAN CASE BEFORE HOUSE OF LORDS

The Meaning of "Due Inquiry"

The House of Lords delivered judgment on August 5 in the appeal of the General Medical Council from the decision of the Court of Appeal in the case of Dr. Eric D. Spackman of Worthing. The appeal was unanimously dismissed with costs. The report of the hearing in the House of Lords appeared in last week's *Journal* (p. 182).

Mr. Charles Harman, K.C., and Mr. Douglas Bartley appeared for the appellants on the instruction of Waterhouse and Co., solicitors, and Mr. Cecil Havers, K.C., and Mr. Henry C. Dickens for the respondent, Dr. Spackman, on the instruction of Hempsons, solicitors, who acted on behalf of the Medical Defence Union.

The LORD CHANCELLOR (Lord Simon), after recounting the facts of the case, which were sufficiently set out in the report of the hearing and also in the reports of the hearing before the Divisional Court and the Court of Appeal, said that it was not disputed that the General Medical Council, in exercising its jurisdiction, was not a judicial body in the ordinary sense: it was a master of its own procedure and was not bound by the strict rules of evidence nor subject to correction by the courts so long as it complied with Section 29 of the Medical Act, 1858. That section distinguished significantly between a case in which the practitioner against whom a complaint was laid had been guilty of felony or misdemeanour and a case in which the allegation of "infamous conduct in any professional respect" was not connected with a criminal conviction. In the former circumstances the decision of the Council was properly based on the fact of the conviction, behind which the practitioner could not properly go; but when the complaint was not connected with a conviction the decision of the Council, if adverse to the practitioner, must be arrived at, in the words of the Act, "after due inquiry"—meaning, of course, due inquiry by the Council.

The question, therefore, was whether the Council in the present case could be regarded as having reached its decision adverse to Dr. Spackman after "due inquiry," when it had refused to hear evidence tendered by the practitioner with a view to showing that he had not been guilty of the infamous conduct alleged, and that the finding of the Divorce Court, before which he appeared as a co-respondent, was wrong. This problem did not arise only in connexion with conclusions reached in divorce. Many other instances of adverse conclusions reached in a court of law might be cited—as, for example, in proceedings for slander, in judgment for the plaintiff in an action for seduction, or in a bastardy order made by a bench of magistrates—which might in certain circumstances lead to a charge against a medical man of infamous conduct in a professional respect. It seemed obvious in these other instances that, while the Council might regard the conclusion reached in the courts as *prima facie* proof of the matter alleged, it must, when making "due inquiry," permit the doctor to challenge the correctness of the conclusion and to call evidence in support of his case. The previous decision was not between the same parties; there was no question of estoppel or of *res judicata*, and while in such cases the decision of the courts might provide the Council with adequate material for its own conclusions if the facts were not challenged, if they were challenged the Council must hear the challenge and give such weight to it as it thought fit.

In the Lord Chancellor's view the same course must be taken if the practitioner challenged the correctness of a finding of adultery by the Divorce Court. The decree of that court provided a strong *prima facie* case which threw a heavy burden on the respondent if he sought to deny the charge, but the charge was not irrefutable. This followed from the wording of Section 29, with its requirement of "due inquiry," which meant that the accused party must be given a fair opportunity

of meeting the accusation. This was not to say that the Council must re-hear the whole case, though, in special circumstances, the recall of a previous witness, in the light of what the accused or his witnesses had said, might be desirable.

That there were special cases in which a finding of adultery by the Divorce Court was not to be treated by the Council as final was shown by the Council's own previous practice for if the further evidence tendered to the Council had been evidence which could not with reasonable diligence have been put before the court, the Council would have heard it. There was really no analogy here with the exceptional cases in which the Court of Appeal admitted further evidence. The Council was not a court of appeal. The rule of the Court of Appeal was based on the view that the time to call evidence was on the occasion of the trial, and that on appeal it was normally too late to do so. In the case of the Council, while the conclusion of the Divorce Court constituted a strong *prima facie* case, the procedure should be followed which was set out in the Council's own standing orders: "The practitioner will then be called upon by the president to state his case, and to produce the evidence in support of it." If it was considered desirable to make the decision of the Divorce Court conclusive, and so prevent the possibility of a second hearing on the question of adultery, Section 29 of the Medical Act must be amended. The appeal would be dismissed with costs.

Lord ATKIN, in agreeing with the Lord Chancellor, said that the conduct alleged against Dr. Spackman

"is conduct from which the public have every claim to be protected, and there would be none more ready to afford protection than the members of the medical profession itself. But it is obvious that the gravity of the charge does not diminish the weight of the evidence necessary to establish it; it increases it. The responsibility therefore thrown upon the General Medical Council in such cases is grave."

The practitioner charged was entitled to a judgment the result of the considered deliberation of his fellow-practitioners. They must therefore hear him and all relevant witnesses. It was true that the judgment of the High Court judge might afford *prima facie* evidence in support of the charge, for the Council was not obliged to hear evidence on oath.

"But the very conception of *prima facie* evidence involves the opportunity of controverting it, and I entertain no doubt at all that the Council is bound, if requested, to hear all the evidence that the practitioner charged brings before it to refute the *prima facie* case made from the previous trial. If this is inconvenient it cannot be helped; it is much more inconvenient that a medical practitioner should be judged guilty of an infamous offence by another than the statutory body. . . .

"Nor do I accept the view put forward on behalf of the Council that it is ill qualified to form an opinion upon such a charge as the present compared with a High Court judge. I can imagine no tribunal better qualified to draw deductions from the proved conduct between a doctor and his female patient than the very experienced body of men, for instance, who sat on the present inquiry."

Lord WRIGHT, who also concurred, said that enormous powers, which might close a man's professional career and ruin him financially and socially, had been vested in the Council by Parliament from a faith both in the members' expertness in regard to that grave issue and in their moral gravity and trustworthiness. Such was the eminence of the Council and so completely representative was it of a great profession, the honour and integrity of which were of the highest importance as matters of public policy.

After a long legal discussion of the Council's rules of procedure, Lord Wright continued:

"I am unable to see the force of the objection urged against hearing the evidence that the Council is not a court of law or equipped with the machinery for ascertaining facts. Parliament has put the duty of inquiry upon it, and it seems to have discharged its duty for the last 85 years. Most of the cases before the Council must involve questions of fact which it has to decide as best it can; it can only be in comparatively rare cases that the cause of complaint is a matter which has been decided in a court of law other than by a conviction for felony, or misdemeanour. The court decision should indeed ease that duty, because the proceedings and judgment of the court at least give the Council *prima facie* evidence which may be for practical purposes unanswerable by the practitioner. But he must surely

Medical Notes in Parliament

Constitution of Appeal Tribunals

Consideration of the Pensions Appeal Tribunal Bill was resumed by the House of Commons in Committee on July 22. Sir WALTER WOMERSLEY moved amendments to implement the new conditions announced in the White Paper which set out alterations in the Royal Warrant. These amendments were accepted.

Sir DONALD SOMERVELL moved an amendment providing that there should be a right of appeal from an interim assessment, and that this right of appeal should arise at the expiry of two years from when the man was notified of the interim assessment. He said these cases were under constant administrative review. Whenever a man complained that his circumstances had been worsened there was a new medical board or examination. Dr. HADEN GUEST asked the number of medical men on a tribunal in the Minister of Pensions' own assessment tribunals. Sir WALTER WOMERSLEY replied that the body was a board, not a tribunal. It always included two medical men at any rate. He would not consent to one. The House agreed to Sir Donald Somervell's amendment.

Sir DONALD then moved an amendment providing that when the appellant or a Minister was dissatisfied with the decision of a tribunal on a point of law an appeal might be allowed to a High Court judge. The amendment was accepted.

On the clause dealing with the constitution of appeal tribunals, the committee rejected a proposal that medical men should be attached to the tribunals as assessors and not as members. It accepted an amendment, moved by Sir HENRY MORRIS-JONES, that the medical referees on the tribunals should be practitioners of not less than seven years' standing. A further amendment was made to provide that a tribunal would have power to show to a man's medical adviser documents about his condition.

The committee stage was completed.

Health of Scottish School Children

Presenting, on July 21, the Education Estimates for Scotland, Mr. TOM JOHNSTON said that owing to the war it was not possible to insist upon the usual routine medical examinations of school children. What examinations had been made showed no deterioration in nutrition. On the contrary there was evidence of actual betterment. Of one-third of the school children of Lanarkshire (26,756), only 42 were shown as suffering from "bad" nutrition—an improvement on the previous year. Renfrew County disclosed only 20 out of 12,655 children suffering from "bad" nutrition; and Ayr County 14 out of 14,256 children. In 1942 boys at age 13 were 2½ lb. heavier and girls at age 15 over 2 lb. heavier than boys and girls of these ages in the 5 years before the outbreak of war. Lice, itch, and skin disease were found among no inconsiderable sections of the population. In Glasgow the local authority was making strenuous efforts to stamp out these body infestations and to foster habits of personal cleanliness and hygiene. At some 17 selected schools it had appointed senior women teachers to supervise operations. The consent of the parents and the interest and co-operation of the child were first secured for treatment, and the results achieved were remarkable. Reports from one school showed:

		Vermineous	Nitty
December, 1940	.. .. .	14%	56%
March, 1941	.. .. .	6%	39%
May, 1941	.. .. .	3.5%	12%

Glasgow Education Authority proposed to develop these arrangements. Girls were the worst offenders in vermin infestation of the head, a reason being the present custom of wearing the hair long.

Diphtheria and Scarlet Fever Incidence and Deaths

Mr. ERNEST BROWN furnished the following tables on July 22. They are for England and Wales:

Year	Notifications	Deaths	
		Under Age 15	Over Age 15
1938	65,008	2,687	174
1939	47,341	1,982	151
1940	46,281	2,300	180
1941	50,797	2,390	251
1942	41,404	1,635	191

Scarlet Fever			
Year	Notifications	Under Age 15	Over Age 15
1938	99,274	237	74
1939	78,101	129	52
1940	65,302	106	48
1941	59,432	88	35
1942	55,054	104	..

Midwives' Salaries

Mr. ERNEST BROWN announced on July 22 that he had accepted the recommendations of the Rushcliffe Committee on Midwives Salaries, and had commended them to local authorities for adoption as from April 1 last. The total annual additional cost was likely to be at least £500,000. In the case of midwives employed in institutional midwifery, the Ministry would make a grant to local authorities and voluntary hospitals of 50% of the additional expenditure incurred. To qualify for this grant an authority must adopt the committee's proposals in full. In the case of midwives employed in the domiciliary service the additional expenditure would be covered by the statutory grant provisions in the Midwives Act of 1936.

Increased Compensation for Workmen

Mr. HERBERT MORRISON on July 28 said the Government had had under consideration the claims put forward for increasing the rates payable under the existing Workmen's Compensation Acts. After discussions with the Trades Union Congress and the British Employers' Confederation it had decided to submit a Bill to Parliament embodying certain increases. These were intended to be of a temporary nature and were without prejudice to the introduction of a revised scheme of workmen's compensation which the Government had under consideration in relation to the Beveridge report. The Bill would be introduced forthwith. If there was a sufficient measure of agreement, it was hoped to take it on an early day after the House resumed after the recess.

Alien Doctors in the Colonies

The Secretary of State for the Colonies stated on July 28 that a shortage of qualified doctors had occurred in some Colonies, mainly as a result of secondments for military service, and a number of Colonial Governments had, under powers conferred by the Emergency Powers (Colonial Defence) Order in Council, extended recognition to alien doctors on lines corresponding generally to those permitting such doctors to practise in this country.

Artificial Insemination

Lord BRABAZON in the House of Lords on July 28 drew attention to the consequences of insemination on livestock and to its possibilities in the human race. In America, in childless marriages where the husband was sterile, there was a great demand that the wife, rather than adopt a child, should be inseminated by an unknown father and should produce a child herself. It was estimated that there were in the United States 10,000 applications of that kind. If the child was to be produced by another father the progeny might be looked upon by the world as legitimate, though the doctor would know it was illegitimate. Care and surveillance were needed of that development. There were women who would like to have children without marrying and without sinning. That development would have to be considered. The lawyers would be interested in the extraordinary experiment of the insemination of a female after the male had died.

Lord GLENTANAR said that not only was the artificial insemination of the female being studied but the process of transplanting the ovum of a female into the uterus of another female was also being experimented with, as also the division of the semen into its male and female elements for the purpose of sex determination. If the last practice became practical, profound sociological results might occur. Viscount BLEDISLOE urged the Government to turn its attention to accelerating the process of supplying animal semen for post-war rehabilitation of agriculture in Europe. Two Government stations—at Cambridge and Reading—had been established for producing semen under careful supervision. Artificial insemination of stock had gone on for several years in Denmark and to some extent in this country in reproduction of thoroughbred horses. The BISHOP of CHICHESTER thought the relationship between the sterile husband and the artificially inseminated wife would be anxious and unhappy. The DUKE of NORFOLK, as Joint Parliamentary Secretary of the Ministry of Agriculture, said the human part of the subject was being closely watched by the Minister of Health, who, if and when it became a live issue in this country, would consult the Lord Chancellor on the legal problems which were raised. The animal side of artificial insemination was started by the Arabs many hundred years ago. They used it with some success in the breeding of horses. Modern methods provided a means of improving livestock in a way hitherto impossible. In-breeding was a danger which came to mind. Strict control of the practice was necessary.

Notes in Brief

It is intended to arrange for the collection of haws as well as rose hins this year; haws have a certain medicinal value.

Medical News

The Chartered Society of Massage and Medical Gymnastics will hold its annual Congress on Friday and Saturday, Sept. 24 and 25, in the Great Hall of B.M.A. House, Tavistock Square. The lectures and demonstrations are open to all medical practitioners. The first day's programme includes lectures by Dr. R. D. Langdale Kelham on "The Preparation of Amputation Stumps for Limb Wearing from the Point of View of the Physiotherapist," by Lieut.-Col. St. J. D. Buxton on "Physiotherapy in the Middle East," and the Founders' lecture by Brigadier F. D. Howitt on "The Widening Horizon." On Saturday morning there will be lectures by Mr. R. Watson-Jones on "Rehabilitation, Physiotherapy, and Orthopaedics," and by Dr. J. L. Livingstone on "The Work of a Chest Unit." In the afternoon there will be demonstrations. Applications for tickets, price 1s. 6d. each lecture to non-members, should be made to the assistant secretary, C.S.M.M.G., Tavistock House, Tavistock Square, W.C.1.

A joint conference on "The Administration of the Health Services," arranged by the Institute of Public Administration and the National Association of Local Government Officers (Metropolitan Area Education Committee), will be held at County Hall, Westminster Bridge, S.E., on Saturday afternoon and Sunday morning, Sept. 11 and 12. The speakers will be: Dr. W. Allen Daley, Medical Officer of Health, L.C.C. (chairman); Prof. R. M. F. Picken, M.B., of the Welsh National School of Medicine; Mr. Norman Wilson, M.A.; Dr. J. A. Scott, Medical Officer of Health, Fulham; and Dr. Charles Hill, Deputy Secretary, British Medical Association. Further details will be announced later.

The Society for Experimental Biology is holding a Conference on Wound Healing at Cambridge from Sept. 22 to 24. The council of the society invites members of the British Medical Association to attend the conference. Papers will be given by both clinical and laboratory workers. Those wishing for further details of the programme, accommodation, etc., should write to Prof. T. A. Bennett Clarke, Department of Botany, University College, Nottingham.

Hull is to have a medical provident fund enabling subscribers with incomes higher than those fixed for the local contributory scheme to provide for hospital and nursing home charges, surgeons' fees, etc. The upper income limits of the fund are £450 for a single person and £550 for a person with one dependant to £750 for a subscriber with three dependants. Details may be obtained from the secretary at the Hull Royal Infirmary.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales the notifications of measles fell by 568, and of dysentery by 55—these being the only changes of note during the week.

For the sixth consecutive week the incidence of measles has fallen, the total now being about one-eighth of the spring maximum. In Monmouthshire, Dorset, Surrey, and Glamorganshire there were recorded respectively 101, 65, 59, and 50 fewer cases than in the previous week, but there were 33 more in Montgomeryshire.

The notifications of whooping-cough, which fell by 29 for the whole country, fluctuated widely in the counties. The largest of the local variations were increases in Durham 50, Lancashire 32, and decreases in Warwickshire 61, and Glamorganshire 34, and Staffordshire 30. The county totals for scarlet fever were fairly constant, a drop in Essex of 52 and a rise in Middlesex of 30 being the only variations of note.

The reduction of 55 in the incidence of dysentery was due mainly to the fact that no further cases were recorded from the outbreak in Kent, Easby R.D., where there were 49 cases last week. Although the notification of dysentery remains fairly high, there are no very large centres of infection; Lancashire reported 14 cases, and London 13.

The weekly total of 44 for cerebrospinal fever is the lowest since the end of 1939.

In Scotland a rise in the already high incidence of dysentery was due to increases in existing outbreaks, the cases in West Lothian County mounting from 39 to 50 and in Edinburgh from 12 to 22. The largest of the other outbreaks were Aberdeen 14, and Kincardine County 15. There was a rise in diphtheria in the North-Western area and in Glasgow, where 60 of the 136 cases occurred.

The Week Ending July 31

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,979, whooping-cough 1,896, diphtheria 609, measles 2,262, acute pneumonia 432; cerebrospinal fever 47, dysentery 99, paratyphoid 10, typhoid 13.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 24.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	44	3	22	—	3	89	4	25	1	4
Deaths	—	—	1	—	—	—	—	1	—	—
Diphtheria	591	38	136	62	16	710	35	156	65	14
Deaths	12	—	1	3	—	13	—	3	—	—
Dysentery	105	13	139	—	—	101	24	61	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	6	1	—	—	—	2	—	3	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	37	7	2	—	—	47	3	1
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	46	6	7	34	11	49	7	15	84	3
Deaths	—	—	—	18	—	—	—	—	9	—
Measles	2,486	135	41	16	10	6,817	695	209	40	142
Deaths	1	—	3	—	—	1	—	2	—	1
Ophthalmia neonatorum	77	4	14	—	—	110	3	17	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	9	1	1	—	—	11	—	3	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza*	445	24	2	—	3	479	12	4	—	3
Deaths (from influenza)	5	—	—	1	—	3	1	—	—	1
Pneumonia, primary	—	19	166	6	8	—	—	153	19	5
Deaths	—	—	6	—	—	—	—	—	—	6
Polio-encephalitis, acute	—	—	—	—	—	5	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	5	1	3	3	—	12	1	—	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	3	14	—	—	—	4	5	1	1
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	152	13	18	2	3	154	17	20	—	3
Deaths	—	1	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	2,099	211	189	44	34	1,516	80	242	37	35
Deaths	—	—	—	—	—	—	—	—	—	—
Small-pox	—	—	—	—	—	2	1	11	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	10	—	—	14	—	10	1	1	8	2
Deaths	2	1	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	2,081	121	53	22	51	1,125	105	13	57	12
Deaths	6	—	4	1	—	6	—	—	1	—
Deaths (0-1 year)	275	42	55	42	34	296	38	72	43	17
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	3,613	536	521	175	101	3,652	500	568	170	108
Annual death rate (per 1,000 persons living)	—	—	11.7	11.5	†	—	—	12.8	11.3	‡
Live births	6,677	774	1,005	368	313	6,028	708	894	347	307
Annual rate per 1,000 persons living	—	—	20.5	24.2	‡	—	—	18.5	23.4	‡
Stillbirths	195	18	28	—	—	207	23	39	—	—
Rate per 1,000 total births (including stillborn)	—	—	—	27	—	—	—	42	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proof's are not sent abroad.

ADVERTISEMENTs should be addressed to the Advertisement Manager (Hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be sent to the Secretary.

TELEPHONE NO.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES—EDITOR, *Antiology* Westcent, London; SECRETARY, *Medicera* Westcent, London.

M.A. SCOTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Vaccines for Common Cold

Q.—There is apparently evidence that immunity to typhoid may be obtained by the use of oral vaccines. From time to time one also sees it recommended that oral vaccines are effective for protection against the common cold. What is the present expert bacteriological opinion on the value of prophylaxis against the common cold with vaccines (a) injected in the usual way, and (b) taken by mouth?

A.—The "common cold," like "influenza," is probably a convenient term to cover a variety of clinically similar conditions of diverse aetiology in the upper respiratory tract. There is good experimental and epidemiological evidence that a filterable virus is a causal agent of the common cold, but unfortunately this virus is very difficult to grow artificially, so that a vaccine of it—such as is now available for influenza A—cannot be prepared. On the assumption that certain bacteria like the pneumococcus, haemolytic streptococcus, influenza bacillus, and the catarrhalis group are, either primarily or secondarily, causally related to coryzal infection, stock vaccines of these organisms have been prepared and used prophylactically. In controlled trials, both here and in America, these vaccines, given in three or more weekly injections in the autumn, have failed on statistical analysis to reduce the incidence of the common cold.

Regarding the use of oral vaccines, the evidence that they are effective in protecting against typhoid is flimsy; certainly they do not provoke antibody formation to anything like the same extent as subcutaneous injection of T.A.B. vaccine does. And if there is anything in Besredka's idea of local immunity, sprays or inhalations of anticold vaccines would probably be more effective than oral administration. There is thus no scientific support for the belief that anticold vaccines, given prophylactically either by injection or by mouth, will reduce the incidence of colds in, for example, a group of factory workers.

Unilateral Parkinsonism

Q.—Is there any treatment for the relief of tremors in one arm due to Parkinsonism? Benzedrine and hyoscine have not been effective.

A.—It is likely that tremor of one arm of a Parkinsonian type is caused by a lesion of the basal ganglia of one side, unrelated to encephalitis lethargica. Though unilateral tremors do occur in the post-encephalitic syndrome, they are not very common. Putnam in New York has treated many of these patients with some degree of success by unilateral chordeotomy, but the tremor has to be very incapacitating to justify so radical a procedure. His views are summarized in a chapter on the surgical treatment of post-encephalitic symptoms in Neal's *Encephalitis*, 1942. The most successful symptomatic treatment of the tremor is by increasing doses of belladonna. The evidence that the treatment by Bulgarian belladonna, first reported in 1935, is more effective than that by other forms of belladonna has been accepted by many, but really critical comparison between it and other methods of administration do not show any convincing difference in results. Belladonna should certainly be tried, and tried in increasingly large doses, depending upon the patient's tolerance, which varies enormously. The dose, small to begin with, should be increased until there is maximal improvement or until signs of intoxication, such as dryness of the mouth or paralysis of accommodation, occur. After this it should be reduced until the side-effects are not unpleasant or until there is evidence that the tremor is not being controlled. It is quite impos-

sible to state an upper limit for the dose of atropine in these subjects. Kleeman (1929) recommends one minim of 1/2% solution of atropine three times a day, increasing by one minim twice daily until an optimal dose is reached. Care should be taken to see that the patient has not glaucoma, but some will tolerate up to 30 minims a day. It is worth while using stramonium or hyoscine in conjunction with the belladonna.

Mycotic Nails

Q.—Two patients, the mother aged 70, the son aged 42 (in the R.A.M.C.), suffered for two years and four years respectively from mycotic infection of three nails of one hand. They have had all sorts of treatment, including x rays, from specialists in London and the Provinces, but without benefit. The son, now in the Middle East, is told that the heat there is bad for the complaint. Is there any satisfactory treatment?

A.—Long-standing ringworm infection of the nails presents a most difficult therapeutic problem because the nail-plate is an impenetrable barrier to a fungicide. Removal of the infected nails is the obvious preliminary step, and then the matrix should be thoroughly cauterized with phenol liq. and a dressing of iodox containing 10% thymol applied. After a week of this ointment, 2% of dithranol in vaseline should be used until local intolerance indicates a return to iodox or to Whitfield's ointment, and if the nail bed becomes macerated under grease it may be covered with dressings of 2% aqueous gentian violet. A milder fungicidal ointment, paste, or paint should be applied nightly until the nail is fully grown. Unless the nail groove is fully cauterized at the operation and is afterwards packed with iodox a relapse under the new nail-plate is likely to occur. Conservative methods usually fail, and success depends upon the subungual penetration of a potent fungicide to the limits of the infection. This entails a daily excavation beneath the free edge of the affected nails, cutting away the plate when it obstructs progress, and then a careful application of a paint of phenol liq., thymol, and iodine, equal parts of each, applied with a pointed stick so that the liquid fills the subungual space, which is daily extended to receive it. Tincture of iodine or undiluted dettol will serve as less caustic applications.

Liver Extract Intravenously

Q.—Is there any disadvantage or otherwise in giving parenteral liver intravenously for pernicious anaemia? I have several patients under my care with this condition, and they all prefer the intravenous route to the more painful intramuscular one, in spite of the slightly unpleasant reaction—bitter taste in the mouth and marked flushing of face—which follows intravenous injections. I know that the intravenous route is used for the severer cases at the beginning of treatment, but I wonder if it might be excreted rather quickly in this manner.

A.—Most observers are of the opinion that the reactions after intravenous injection of liver are more unpleasant than after intramuscular injection. They comprise chills, febrile reaction, fall in blood pressure, and a greater danger from allergic responses if sensitization occurs. There is no information about the relative rates of excretion.

Lag Sugar Curve

Q.—Two years ago, a lawyer, then aged 46, was rejected for insurance because of glycosuria. A younger brother of his had died of diabetes at the age of 18, and also an uncle at the age of 50. The patient's glucose tolerance curve at the time of rejection was of the "lag storage" type. In the interval up to now he has carried on with his food as usual, and he had a recent glucose tolerance test done which was again of the "lag" type. Am I justified in telling him not to bother with further glucose tolerance tests? What is the cause of this type of curve, and what does it signify? What sort of a prognosis does it carry in a man with such a family history?

A.—A "lag" or "steep" curve means that the stomach empties more rapidly than usual, as happens, for example, after gastroenterostomy, and the sugar reaches the blood stream more quickly than usual. It is probable that the insulin is not released quickly enough and the blood sugar rises to over 230 mg. per 100 c.c.m. blood or so after half an hour, but the supply of insulin is adequate and the blood sugar falls to normal very quickly. The prognosis in uncomplicated cases is excellent, but the patient is just as likely as anyone else, but no more likely, to develop diabetes in the course of time. In this case the strong family history suggests that the patient may develop diabetes sooner or later. It is unnecessary to repeat the sugar tolerance test if the total sugar excreted in the 24 hours on a full carbohydrate diet is estimated once or twice a year. If the output increases the sugar tolerance test should be repeated.

Renal Function Tests

Q.—Can modern renal function tests be used to distinguish between glomerular and tubular damage, and, if so, what is their practical application in clinical medicine? Perhaps a general statement could be given shortly, and the details of the most useful tests be supplied, in another issue of the JOURNAL.

A.—The estimation of the clearances of inulin and diodrast, as shown by Homer Smith in his book *The Physiology of the Kidney* (1937) and in subsequent papers, enables us to determine the rate of glomerular filtration, the renal blood flow, and the amount of functional tubular tissue. The technique requires intravenous infusion, continuous catheterization, and difficult chemical analyses, and is therefore not suitable for use in ordinary routine work. The main clinical application of those tests has been in the study of renal function in conditions such as hypertension, pregnancy, haematemesis, shock, and dehydration. It would probably be fair to say, however, that as a result of these studies there has been a distinct decline in the popularity of less specific tests, such as the urea-concentration and the water-excretion tests, except in so far as they may be used empirically for the determination of prognosis in diseases of the urogenital system. Treatment in renal disease can be adequately controlled by examination of the urine, the blood pressure, and the blood chemistry, without resort to special functional tests.

Tests for Hypogonadism

Q.—How far can one diagnose hypogonadism in male and female by biochemical investigation? For example, I have seen it stated that estimation of the blood cholesterol and of the hormone content of urine can be used as indicators of this condition. Are such tests reliable, and can they be used as a guide to treatment?

A.—Biological investigations are of little help in diagnosing hypogonadism. Estimation of blood cholesterol can be used as an indication of thyroid function, being raised in myxoedema and lowered in thyrotoxicosis. Examination of the hormone content of the urine, however, is helpful, especially in the male. The normal range of androgens expressed as 17-ketosteroids is 3.5 mg. to 15 mg. daily for men. In hypogonadism they may be very low or in the lower range of normal, so that the differentiation from normal is not necessarily absolute. However, patients with psychological impotence usually show normal values for androgens. In the female the question is less easy; the assay of oestrogens is not so well standardized as that of androgens, and the ranges of normal values are not only wide but variable, according to the phase of the cycle.

Doubtful Wassermann

Q.—Recently in a series of cases of blood examinations for a panel of blood donors in a voluntary blood transfusion scheme the Wassermann test in four cases was reported "doubtful"—the readings being +1; +2 weak; +2 strong; +1 weak. Are those bloods unsuitable? In the case marked +2 strong there was a suggestive history of contamination; in none of the others was a history obtainable and family history appeared clear. Do any of these cases indicate, from the Wassermann alone, grounds for instituting treatment?

A.—A "doubtful" result of a Wassermann test means that it was neither negative nor positive and suggests the advisability of further investigation of the patient, both clinical and serological, with a view to excluding or establishing a diagnosis of syphilis. A blood which gives a doubtful reaction should not be used for transfusion, at all events until it is certain that any *Treponemata pallida* which might be present are dead. It is said that these organisms lie if the blood is stored at a low temperature for 48 hours. In none of the cases mentioned does the result of the Wassermann test alone justify the institution of antisyphilitic treatment.

Gonococcal Proctitis

Q.—I have two patients suffering from gonococcal proctitis, which has failed to respond to both sulphapyridine and sulphathiazole. Although acute symptoms have subsided for over a year, bacteriological signs are still positive. Is there any record of sulphaguanidine being effective in these cases? Although apparently highly effective in some *Salmonella* infections, I should be interested to know if it has any effect on the gonococcus.

A.—There is no evidence to hand that sulphaguanidine is effective against the gonococcus, especially when sulphapyridine and sulphathiazole have failed. The cases quoted are very remarkable and raise the suspicion that (a) there was repeated reinfection, possibly from the vagina if the cases were females, or (b) the bacteriological findings were at fault; gonococci are not always easy to find or to exclude, whether by smears or cultures, in specimens taken from the rectum. Sulphadiazine sometimes succeeds where other sulphonamides have failed.

INCOME TAX

Purchase of Books

G. B. is assessed under Schedule E as an assistant. He forwarded a list of books he has bought, and states that the inspector of taxes has refused to allow the cost (£9) as an expense. Is correct?

* There is ground in the strict rule applying to assessments under Schedule E for the inspector's view. That rule restricts the allowance of the expenses of employment to sums expended wholly, exclusively and necessarily "in the performance of the duties" of the employment. It is possible that if it were a condition of G. B.'s employment that he should purchase such books as were necessary to his professional knowledge up to date the inspector might allow deduction, but even then he would probably regard as "capital outlay, therefore as inadmissible, books acquired to form a reference library rather than to keep it up to date.

War-damaged House and Property Tax

"INQUIRER" owns a house which was vacant for 1942-3 and likely to remain vacant for some time. It has "received war damage (£80) and requires £100 for internal and external decorations repairs in order to make it habitable." £40 has been assumed to be his annual income from the house.

* If the furniture has been removed from the house the premises should be claimed as being "empty" and the income accordingly regarded as extinguished for the period from the date of removal. Further, if the condition of disrepair owing to war damage renders the house uninhabitable the premises can be claimed as empty notwithstanding that furniture may remain there—until the defect have been sufficiently remedied as to render the house habitable. We understand that if the house is only partly inhabitable Revenue authorities will allow as regards income tax any proportion of liability which has been applied to payment of local rates.

LETTERS, NOTES, ETC.

Vitamin Therapy in Peptic Ulcer

Dr. J. J. O'MULLANE (London, S.E.2) writes: For seven months I have been prescribing vitamins for peptic ulcer. Treatment in this condition should be: (1) dietetic, (2) medicinal. Diet should be full and should be rich in foods containing the vitamin B₁ complex—i.e., peas, beans, lentils, yeast, or marmite. Medical treatment consists of vitamins A, B, C, and liver extract: 50,000 I.U. of vitamin A per day; one ampoule B₁ (25 mg.) subcutaneously once or twice a day—depending on need—until saturation, a rough index of which is the smell of burnt rubber in the urine; ascorbic acid 400 mg. a day and 2 c.c.m. of heparin forte. With some reservations regarding diet when the condition is acute, in my opinion, should be the treatment for peptic ulcer. Compound vitamin pellets and capsules were first used, the form being as follows: Pellets: A, 2,500; B₁, 160; C, 2; D, 250. Capsules: A, 5,000; B₁, 50; C, 200; B₂, 20; D, 5. Six pellets a day yielded 960 units; six capsules a day yielded B₁ units. The pellets proved to be much more effective than capsules. Some cases did very well; some did not. One of the causes of failure was adherent ulcers to liver or pancreas; five cases were revealed by resection; altogether there were five cases in nine months in one practice. Another cause was faulty technique, insufficient dosage, lack of experience, and lack of proper facilities and amenities in general practice.

Stilboestrol in Petit Mal

Dr. A. MINABAWY (Ilford) writes: I was interested to read of the two cases of petit mal reported (July 17, p. 93). This reminds me of a patient who had the same trouble three years ago. She was treated with luminal and pot. brom. mixture, with no success. When I saw her four months ago I realized the fact that she stated the symptoms one year after the menopause. I gave her stilboestrol and reduced the luminal tablets to two 1/2-gr. tablets a day and am pleased to say that she has had no fits since. Admittedly two cases reported were not exactly the same, but I think that use of stilboestrol in their case is worth trying.

Supply of Prepared Bran

The KELLOGG COMPANY OF GREAT BRITAIN LTD. write: We read with interest the letter of Dr. F. Parkes Weber in the JOURNAL of July 17. We would like to bring to your notice that a decision has been reached by the Government Department concerned that "all-bran" be released from the restrictions of the zoning self relating to other cereal breakfast foods, and the product will therefore be available throughout the country. Supplies are again being distributed in the area affected by zoning without delay.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 21 1943

WAR SURGERY IN THE MIDDLE EAST

BY

R. K. DEBENHAM, O.B.E., M.D., F.R.C.S.

Temporary Lieut.-Col., R.A.M.C.; Officer in Charge of a Surgical Division in a Military Hospital

During the last nine months of 1942 3,279 battle casualties were brought to a military hospital on the lines of communication in the Middle East. All types of casualties were seen, under various and changing conditions, as a result of three different battles.

First, during April and May some 300 battle casualties, including a large proportion of severely ill patients, were received from Tobruk by sea. They had already had hospital treatment, and had been held at Tobruk until fit to travel. Suppurating wounds of all types were seen; battle wounds do not heal by first intention. Secondly, during the month of July alone, 2,287 battle casualties were received from the first battle of El Alamein. They arrived from 12 to 48 hours after being wounded, and the great majority had received no treatment other than the application of the first field dressing. The hospital, in fact, worked as a C.C.S., and continued to do so during the following two months. Thirdly, during the second battle of El Alamein, at the end of October, the conditions were again different, and in two weeks about 500 battle casualties were received, mostly from 36 to 48 hours after being wounded. The particular characteristic of this group was that they were selected cases, and for the most part comprised seriously wounded men who were not fit enough for a long journey and who had already received treatment.

These three periods have been particularly instructive, and an attempt is made below to summarize the main features of this diverse group of casualties occurring in men of different colour, different race, and different language. Before dealing with the casualties themselves, a few words about adapting a base hospital to function as a C.C.S. are not out of place.

Hospital Acting as a C.C.S.

As a result of the enemy's rapid advance to El Alamein and the battle that followed, convoys of 100 to 500 men began to arrive daily at the hospital, which now acted as a C.C.S. Convoys almost invariably arrived in the evenings; and an evacuation took place the following morning. The entrance and exit were made as easy as possible, and one-way traffic

TABLE I.—Showing Region of Body hit in 2,287* Casualties from the First Battle of El Alamein in July, 1942

	Cases	Lesions		Cases	Lesions
Scalp and head	165	176	Genitals	4	6
Neck	36	37	Burns	91	130
Face and jaw (incl. M.-F.U.)	44	45	Blast	23	23
Chest	105	110	Mult. abrasions	30	30
Eyes	20	22	Fractures:		
Ears	11	11	Humerus	21	21
Scars	8	8	Forearm	7	7
Abdomen	32	32	Pelvis	8	8
Trunk	221	231	Femur	19	19
Limbs:			Tibia	22	26
Miscellaneous	735	780	Carpus and hand	17	18
Elbow	89	90	Tarsus and foot	12	12
Knee	123	123	Others	3	3
Ankle and foot	236	240	Multiple S.W.	72	72
Hand	97	104	Clavicle	6	6
Buttocks			Total	2,287	2,394

* Excluding 57 casualties admitted to the facio-maxillary unit.

was helpful. Stretcher-bearers became very tired with much carrying, and as many wheeled stretchers as possible were pressed into service.

At first sight one may imagine that a convoy from a battle consists exclusively of wounded men. This is not so. Out of 7,952 troops who arrived at the hospital during the heavy fighting of July, only 2,287 were battle casualties. Table I shows the parts of the body which were hit. The remaining 5,665 consisted of cases medically sick (especially enteritis and malaria), also an assortment of skin conditions, superficial suppurative lesions, piles, sore feet, cases of anxiety neurosis, and the counterpart in less-educated troops—viz., self-inflicted wounds. All these cases had to be rapidly sorted out. The surgical cases were divided into major and minor, which when stairs had to be surmounted often became synonymous with lying and walking. After admission a large reception ward was invaluable. A surgeon or an experienced medical officer with a sound knowledge of surgery acted as sorter, and decided what was necessary for each case. He was assisted by the transfusion officer, who treated shocked patients. A drink of tea was provided as soon as possible and antitetanic serum and morphine were given as required. Cases were written up by the sorting officer for theatre, x ray, or both. Coloured indicators placed at the end of the bed were a great help. These coloured tabs or bands were useful for theatre (blue), x ray (pink), special priority (blue with red cross), and operation completed (red). It is most important that surgery in a shocked patient should be done as soon as the shock has been adequately treated, otherwise his condition will deteriorate again.

A common source of delay in the theatre was waiting for patients. This can be avoided by having an adequate number of stretcher-bearers, and one intelligent orderly in charge of movement control. It is his job to see that there are always patients ready waiting in the anteroom to be taken into the theatre as soon as required. The operating surgeons often saw the patient for the first time in the anteroom, together with the wet x-ray film and report. The number of operations that can usefully be carried on at one time depends not only on the number of surgeons available but on anaesthetists, theatre staff, instruments, etc. Two surgeons working at two tables all night from 9 p.m. to 9 a.m. usually managed 50 cases between them, and during the month of July 1,004 cases went through the theatre. Much time is saved in minor cases by placing the patient and the stretcher on the operating table; this avoids much moving about. A table laid out with sterile instruments on the cafeteria system is also useful; each operating table can then be fed with the necessary tools as required.

For the usual type of wound only the minimum of instruments is necessary, since so much of the treatment depends on proper cleaning up and proper immobilization, and not on heroic cutting. Much of the value of good work is lost if concise notes are not written on the field medical card at the end of the operation. A convoy will be going out in the morning, and most patients should be written up for evacuation as soon as the operation is completed. Under these circum-

stances it is easy to see why no plasters should be skin-tight unless they are also split. A skin-tight plaster is only permissible if the surgeon who has applied it can keep it under his personal observation for a few days, and in busy periods this is out of the question. With a quick turnover all sorts of points need attention. For instance, at the end of the first night's operating we were left with a bowl full of false teeth: fortunately the owners were found before the convoy was dispatched. Incidentally, don't put dentures in dettol; they are out of sight and may get lost.

The Wounds in General

It is a point of cardinal importance that all wounds dealt with have been a result of fighting in dry sandy desert. The problem is quite different from that presented in the last war, in Flanders, where surgeons had to contend with highly manured wet mud. Secondly, the amount of clothing worn was very small, and only rarely was clothing found in a wound. Thirdly, sulphanilamide was used either by mouth or locally in the wound, or both, and this apparently greatly prolongs the time which may be allowed to elapse between wounding and surgical intervention. Prophylactic sulphanilamide technique in the Middle East has now been standardized as follows: Locally, 10 g. into the wound and another 10 g. after operation; by mouth, 5 tablets (2.5 g.) at 6 a.m. and 6 p.m. daily for 4 days. The dosage is printed on a ration card label, and is ticked off as given. The method is simple and works well. The greatest number of wounds were caused by fragments of H.E. shell, mine, grenade, or bomb.

Flesh Wounds

By far the largest number of wounds were minor flesh wounds. Patients arrived in July with the first field dressing applied, and a very good dressing it is. Treatment consists primarily in minimizing the infection, and to this end thorough cleansing of the surrounding skin is important, and if facilities permit it is well worth while to spend some time in cleaning the skin with soap and water and shaving off the hairs. Shaving in itself is a very good mechanical way of cleaning. Wide excision has not been found necessary, and a trim is adequate, usually combined with incision of the skin and deep fascia at each end of the wound to assist drainage. A Spencer Wells forceps or a finger is inserted along the track before this has closed up, and in a large number of cases the missile is easily located and removed. A preliminary radiograph shows whether removal of the foreign body is indicated or not. No prolonged search is justifiable. To allow adequate drainage the size of the external wound should bear a definite relation to the depth of the wound. Dead or damaged tissue should be removed even up to 48 hours after wounding. Treatment by trimming merges into establishing adequate drainage.

Sometimes a large wound at the front of the thigh, with a missile lodged in the posterior compartment, is well treated by making a counter-incision posteriorly to allow drainage and prevent the formation of a haematoma. I saw one case of profound toxæmia from gas infection which had developed from a large haematoma of the thigh and had spread to the surrounding muscles. A counter-drain posteriorly and removal of the large fragment would have prevented it. Adequate drainage combined with the usual general treatment cured the patient. Extensive operations for flesh wounds have been unnecessary and meddlesome. Sulphanilamide powder, and plenty of it, is placed in or blown into the wound, and rubbed into a paste with the finger. Enough dressing of gauze and wool should be applied to absorb all discharge. One hopes that the next dressing will not be done too soon, for repeated dressings are not only useless but harmful. One of the values of a plaster cast is that the wound will not be disturbed after proper treatment. Careful immobilization with plaster slabs or casts is of the very greatest value.

Fascia comes into its own in wartime; it determines the spread of infection. Sometimes a tense swollen thigh, due to a haematoma, requires decompression by longitudinal incision of the fascia lata and evacuation of the clot. The same thing occurs in the forearm: for example, an Indian soldier had a clean through-and-through bullet wound of the forearm; the track passed right through between the two

bones; the forearm was tense and swollen, the radial pi obliterated, and the fingers cold. A long incision was made through the tight constricting fascia. The space was decompressed and the circulation re-established.

In war wounds no sutures should be used, and no pad unless it is necessary to control haemorrhage. Drainage-tubes are quite unnecessary, and in one case at least caused secondary haemorrhage from pressure on the popliteal artery. The best initial drainage is obtained by a good honest through skin and fascia. A transverse cut across the fascia lata is often useful in addition to the usual longitudinal incision. Either the wound can be left widely open or a piece of rubber glove or a strip of vaselined gauze may be laid in the wound to keep it open. It is essential to see that the drain does not act as a cork and so prevent instead of assisting drainage.

Fractures

In forward areas another part of the body is often only splint available: e.g., one leg is tied to the other arm is bandaged to the side; morphine gr. 1/4 to 1/2 comes in the splinting. For fractures of the femur and wounds in and around the knee-joint the "Tobruk" plaster is excellent. Strapping extension is applied to the skin below the knee. Elastoplast extension strapping is much better than the ordinary strapping. It is kept in place by a bandage from above downwards. A posterior plaster slab is applied from mid-thigh to beyond the toes. A pad behind the heel prevents pressure on the toes, and a pad behind the knee gives comfort. A Thomas splint is applied and strapping extension (2 cords) is tied over the end. The splints supplied always have rings which are too big for the average limb, in order that they may be used for all sizes of patients; it is therefore necessary to put a large pad of wool, or the patient's underclothing, between the ring and the great trochanter to make the ring fit snugly. The pad is kept in place by a bandage; this is most important because pads have a tendency to shift during transportation. Finally a pad is placed in front of the knee and one or two plaster bandages are applied over the whole leg and splint to keep the apparatus firm. The site of the wound and fracture is drawn on the plaster with a copying-pencil; the surgeon initials it and records the date. If the plaster is a temporary one for transport only, and the wound has not received attention, this fact should be indicated in large letters on the plaster.

For wounds of the leg with fracture of the tibia and fibula an ordinary plaster is applied, mid-thigh to beyond the toes, with a pad behind the heel. It must be either split or padded anteriorly. If the plaster is to be split it is a great convenience to place a long piece of 1/2-in. rubber tubing smeared with vaseline on the antero-external (fleshy) part of the leg before applying the circumferential plaster bandages. It is pulled out after the plaster has set, leaving a gutter along which the cast can be easily cut with shears. Alternatively a strip of linoleum can be used, and a sharp knife to cut down on it, but the tubing is simpler. In cases complicated by nerve lesions special care is needed to avoid pressure sores.

For wounds of the arm with fracture of the humerus Böhler "U" with padding over the shoulder and over the internal epicondyle is excellent. A collar-and-cuff bandage applied and the upper arm fixed to the side with one or two flannellette or preferably plaster bandages round the chest wall. Fractures of the forearm are conveniently treated with anterior and posterior plaster slabs, from mid-humerus to knuckles, and kept in place by ordinary cotton bandage. A sling is necessary.

Head Wounds

A common injury is a small penetrating wound of the head just under the side of the helmet. The patient may feel a look well, the wound may appear small and be readily missed, yet a fragment of shell may be lodged in the brain. A radiograph shows the hole in the skull, usually less than 1/2 in. in diameter, with comet-like fragments of bone passing inward. Treatment is essentially that of trying to get the wound healed by first intention and so prevent escape of C.S.F. The onset of meningitis. After thorough shaving, the wound is narrowly excised and enlarged at either end in a listerian manner. The mastoid self-retaining retractor is most useful to get a view of the hole. Loose fragments of bone

removed. It is often impossible to close the dura. On but our occasions (out of about 25 penetrating wounds) was the oreign body removed, and then only when it was easily accessible near the surface. The wound is powdered with sulphamilamide and the scalp is closed in two layers, preferably with fine silk sutures; a small glove drain is inserted through the stab wound, or through the extremity of the incision, to drain the subaponeurotic space. When transport was available patients were evacuated to the head centre. The good blood supply and consequent good healing properties of the scalp must have saved many lives, and several of these patients have now returned to duty.

Neck Wounds

It was remarkable how important structures in the neck apparently escaped injury. One patient sustained a wound of the oesophagus. Gastrostomy saved his life. Another had a wound perforating the carotid artery and jugular vein. He developed a traumatic false aneurysm (pulsating haematoma) which gradually enlarged and displaced the trachea to the opposite side. It was left as long as possible before any surgery was attempted, to allow the collateral circulation to establish itself. Finally surgery became imperative owing to pressure on the trachea. Under intratracheal anaesthesia, and with a pre-operative blood drip transfusion, the haematoma was opened, the proximal and distal ends of the common carotid artery compressed, and the rent in the artery and vein were easily seen. Both were ligatured. Unfortunately the patient developed severe pneumonia and had to be propped up in bed. Complete hemiplegia (probably due to thrombosis) developed 48 hours after operation; however, the hemiplegia cleared up and the patient recovered completely.

In one case of perforating wound of the neck the cervical sympathetic cord was involved, as shown by a typical Horner's syndrome; the patient was otherwise quite well.

Chest Wounds

Among the 500 battle casualties from the second battle of El Alamein, 65 suffered from wounds penetrating the pleural cavity. Contrary to what one would expect, these patients travelled very well. Remarkably little surgery was required after arrival at hospital, certainly in the early stages. Two cases were taken to the theatre for the arrest of haemorrhage, and one for closing a sucking wound. Most of the small sucking wounds were well treated by a vaselined gauze pad to close the wound, and a piece of elastoplast or a few silk-worm-gut sutures to keep it in place. The treatment required was almost entirely medical, and was carried out by the medical specialist. Patients were propped up, and in many cases the haemothorax required aspirating on one or more occasions. A few developed empyemata, which were drained by closed under-water intercostal drainage. When fit to travel they were transferred to the chest centre, under the care of Major Logan, R.A.M.C., who tells me that all the patients did well except one who died of poliomyelitis. Further surgery was required in several cases, either for draining pus or for removal of foreign bodies when the sepsis had settled down.

Abdominal Cases

Of the 300 cases received from Tobruk 3 had injuries perforating the bowel (one died). Of 2,287 casualties from the first battle of El Alamein 8 received perforating wounds of the gut (3 died).

Among the 500 casualties from the second battle of El Alamein there were 30 perforating thoraco-abdominal or abdominal wounds, including one extensive wound of the sacrum, in which perforation of the rectum had been suspected and colostomy performed. Although in fact the rectum had not been perforated, the colostomy proved valuable in that it saved the large sacral wound from faecal contamination. Twenty-three patients were operated on in forward areas, and 3 in the hospital (see Table II). They can be divided into four groups:

(1) Thoraco-abdominal wounds, of which there were 11, with a mortality of 10. These figures bear out the very serious nature of this type of wound.

(2) Penetrating abdominal wounds with perforation of the bowel, of which there were 11, with a mortality of 2.

TABLE II

Case	Wound	Other Wounds	Hours before Operation	Abdominal Injuries	Operation	Result
1	Abdomino-thoracic	—	48	Spleen; stomach	Splenectomy; stomach sutured	Died 3rd day
2	"	—	72	Spleen; kidney; colon perforated	Splenectomy; nephrectomy	Died 4th day
3	"	+	56	Upper gut, retroperitoneal, pancreas	Drainage	Died 17th day
4	"	—	18	Liver	Nil	Died 3rd day
5	"	++	18	Stomach	Sutured	Died 17th day
6	"	—	35	Liver	Laparotomy	Died 6th day
7	"	—	51	Stomach; spleen	Sutured	Died 7th day
8	"	—	—	Liver	Subdiaphragmatic abscess; drained 13th day	Died 14th day
9	"	+	—	Diaphragmatic hernia; stomach in left pleural cavity	Nil	Died 9th day
10	"	—	—	No abdominal symptoms or signs; severe chest wound	Nil. P.M. showed perforated diaphragm. No gut injury	Died 21st day
11	"	+	10	Stomach and small intestine	Sutured	Recovered
12	Penetrating abdominal	—	7	Small intestine; right kidney	Gut sutured	Died 13th day; sepsis
13	"	—	7	3 small intestine; 2 sigmoid perforated	S.I. sutured; sigmoid exteriorized	Died 10th day; chest and jaundice
14	"	—	17	Stomach; transverse colon (mult.)	Stomach sutured; colon exteriorized	Recovered
15	"	—	9½	Upper small intestine (9 perforated)	Sutured	"
16	"	—	7	Ileum (6 perforated)	"	"
17	"	+	9	Jejunum and ileum (7 perforated)	"	"
18	"	+	8½	Mult. perforations jejunum; 3 perforations ileum	Jejunum resected 9 in.; ileum sutured	"
19	"	—	4½	4 perforations lower ileum; 2 caecum	Ileum sutured; caecostomy	"
20	"	—	40	1 small intestine; 1 sigmoid	S.I. sutured; sigmoid exteriorized	"
21	"	—	5	Ascending colon destroyed	Resection ascending colon; ileocolostomy	"
22	"	—	Under 10	Perforated pelvic colon	Exteriorized	"
23	"	(+)	9	Contusion of small intestine	Laparotomy	"
24	"	—	12	Haemoperitoneum	"	"
25	"	—	36	"	"	"
26	"	—	24	Retroperitoneal haemorrhage in pelvis	"	"
27	"	(+)	7½	Gross protrusion of small intestine	Laparotomy; gut replaced; faecal fistula later	"
28	"	—	7	Buttock and sacral wound	Colostomy for suspected bowel injury; actually bowel intact	"
29	"	(+)	—	T. and T. bullet wound; R.I.F. to left loin; clinically bowel perforation	Nil	"
30	Wound back	—	48	Wound back; foreign body anterior to L.I.	Laparotomy; retroperitoneal haematoma and foreign body removed	Died 3rd day

(3) Other penetrating abdominal wounds without gut perforation: 7 cases, mortality 1.

(4) A single case of through-and-through bullet wound of the abdomen from right iliac fossa to left loin. Clinically, perforation of the gut must have occurred. No operation: recovery.

The most instructive cases are the 11 wounds with bowel perforation. The 9 who recovered owe their lives to 9 different surgeons who were working in forward areas. Operation had been performed as early as possible and the patients had been held in forward areas for from 5 to 16 days. Post-operative intravenous saline drip, continuous gastric suction, and sulphadiazine had been used as a routine. The sulphadiazine had usually been given intraperitoneally by catheter inserted through the wound—10 g. suspended in 50 c.cm. saline at the end of the operation, and repeated if necessary. Small-intestine perforations had been sutured (resection in one). Large-intestine perforations had been exteriorized (resection in one). The cardinal points seemed to be early operation, late evacuation, intravenous saline drip, continuous gastric suction, and sulphadiazine. All this is very difficult with mobile warfare, but was possible when the line of battle was static.

During convalescence two laparotomy wounds burst open and had to be resutured, and one patient developed secondary intestinal obstruction due to a band of adhesions which had to be divided.

Wounds of Buttock, Genito-urinary Organs, Spine

The chief point to remember about buttock wounds is that the missile may have penetrated into the pelvis, so injuring the bowel or bladder. Suppuration in the buttock is very troublesome (especially if it tracks up from a fracture of the upper end of the femur). A few huge open buttock wounds were seen. They responded well to sodium sulphate dressings (12%) and subsequently needed secondary suture or skin grafting. A wound of the buttock in association with a fractured femur is very difficult to treat, because the ring of the Thomas splint comes up against the wound. One case of this type was put in a hip spica plaster cast. This appears to be the best treatment, but the plaster soon gets sodden unless a window can be cut.

A wound of the genitals is likely to involve also the cave of Retzius, the urethra, and perhaps the bladder. The uncomplicated bladder wound does well with suprapubic drainage. One patient had received a wound of his penis, and a piece of his shorts had been driven into the wound near the base of the organ. It had been passed naturally along the urethra and was emerging, rolled up, from the external urinary meatus, from which it was easily picked out. In one instance the membranous urethra had been completely shot away, and a perineal urethra had to be established. He had control of his urine, because the internal sphincter was still functioning, though the external sphincter had been destroyed. Two cases of ureteric fistula were seen, due to wounds in the loin; and I recollect two cases in which the kidney had been removed in forward areas. A wound of the kidney alone is certainly not common.

Wounds of the spine are usually associated with complete paraplegia, and are apt to arrive during rush periods when there is little time to deal with them. In the few cases in which operation was performed it was usually found that pressure on the spinal cord was produced by bone fragments and not by the missile itself. Suprapubic cystostomy is often necessary in these cases.

Vascular Lesions; Amputation

Ligature of a main vessel with extensive damage to the limb distal to it is fraught with grave danger and usually ends with amputation. The subclavian artery was divided in one case and thrombosed in another. Amputation had to be performed through the middle of the upper arm. In the only two cases in which the popliteal artery was ligatured amputation was subsequently required in each. One case of ligature of the femoral artery in Hunter's canal subsequently required amputation, though in a few others the result was quite satisfactory. The result seems to depend to a considerable extent on the damage to the limb itself and the attendant infection; but, apart from this, the conclusion to be drawn is that ligature of the femoral artery is to be preferred

to ligature of the popliteal. Ligature of the tibial vessels has been entirely satisfactory. The accompanying veins have been tied as well as the artery.

In the last group of 500 wounded there were 3 cases of traumatic (false) aneurysm—the right common carotid, the brachial, and the superficial femoral. In order to allow the collateral circulation to develop they were left alone as long as possible (3 to 5 weeks) before operation was performed. Pressure symptoms or rapid increase in size made further delay unjustifiable. At operation much clot was found in each case, and this tended to mask the pulsatile nature of the swelling, which may readily be mistaken for an abscess. In each case a direct attack was made on the aneurysm itself; the haematoma was opened and the vessels tied in the wound, with satisfactory results.

Thirty-two amputations of arm or leg have been performed in the hospital—upper arm 7, forearm 3, thigh 10, below knee 12: five (2 arm, 3 leg) were for gangrene due to arterial lesions; 4 (1 arm and 3 leg) for secondary haemorrhage; 23 for gross trauma and sepsis, one of which (forearm) was for gas gangrene. The chief points concerning amputation are as follows. The limb should not be removed at the site of election, for infection is almost sure to follow. The maximum length of limb should be preserved, because secondary amputation is often necessary. Some form of flap should be fashioned, as guillotine amputation is so painful. The flaps should not be sutured. The best dressing is probably a vaselined gauze pack; sometimes one or two sutures can be inserted to hold the flap in place over the pack. In badly infected cases the flaps are sutured back to the limb itself, thus leaving the stump widely open; secondary suture can be undertaken later. A liberal quantity of sulphanilamide powder is rubbed into a paste on the stump.

Nerve Lesions and Blast Injuries

Lesions of the ulnar and musculospiral nerves are common; the median is less often involved. Musculospiral lesions were not always due to the wound itself, but sometimes due to pressure—e.g. if the limb was allowed to hang over the operating table. External popliteal lesions were also frequent, and occasionally the whole sciatic nerve was paralysed. Special care must be taken to see that plaster casts do not cause pressure sores in these cases, when the skin is insensitive. It is important to look for nerve lesions before the operation is begun.

The only common blast injury was bilateral rupture of the tympanic membrane. The ears must on no account be syringed, for this invites infection. Patients are often badly shaken after blast, but recover in a few days. Only one case of crush syndrome was seen, and this proved fatal.

Burns

The worst cases of burns came from fighting in tanks. In peacetime, tanning the burn is highly satisfactory; but this is not so in war, because the facilities for preliminary cleansing of the burns are unobtainable, and tanning a dirty burn is as harmful as suturing a dirty wound. Moreover, a tank burn needs skilled and careful nursing, which is impossible on lines of communication. Almost all the burns seen during the period under review had been cleaned up more or less then powdered with sulphanilamide and dressed with vaselin gauze. Patients travelled best with plenty of padding, and the case of the limbs a light well-padded plaster-of-Paris cast was definitely beneficial. In the early stages plenty of intravenous plasma or serum is essential. After the first week ten days the haemoconcentration disappears and secondary anaemia develops. Blood transfusions at this stage help considerably.

Cases of severe burns travel very badly even up to two weeks after burning. After a long journey they arrive toxic and ill; the tongue is dry, and this is a good indication for pushing fluids. The tongue and the pulse are the most helpful guides to the general condition. The colour is often difficult to determine because the face is involved. Where all four limbs are burnt a transfusion may be given into the sternum.

It is easy to put too much sulphanilamide powder on burns, especially in severe cases, as sulphanilamide is read

and quickly absorbed from burnt areas and gives rise to profound toxæmia. I have seen one patient with a blood sulphamylamide of 20 mg. per 100 c.c.m., and another (fatal) dose of 40 mg. entirely due to local absorption (optimum concentration 5 mg. per 100 c.c.m.). These patients were very cyanosed, and showed marked dyspnoea, tachycardia, and restlessness, and later unconsciousness. There were no physical signs in the chest. Lieut.-Col. W. C. Wilson pointed out that alphanilamide was responsible. Sulphanilamide is now kept in the theatre in little gauze bags containing 10 g. each—that is the ration per patient. When, after a long journey, a burnt patient arrives toxic and ill the worst thing to do is to dress him the same evening. Plenty of fluids, and morphine $\frac{1}{4}$, should be given, and the patient must be left alone to recover from the journey. The burns should be dressed before and not after evacuation, and frequent dressings are harmful. Burns of the back are difficult to treat and to move.

Nursing and General Treatment

After heavy fighting the casualties arrive dead tired, and desire nothing but sleep, and lots of it. If they are not overcome with tiredness they want plenty of tea, a good meal, a good wash, and a good sleep. Next morning the bowels need attention. Constipation is very common, perhaps owing to the lack of water in the desert; many patients had not had their bowels open for four days or a week. A No. 9 pill, followed by mag. sulph. in the morning, is the answer. Ill patients are less disturbed if an enema can be given. Many complained of sore backs, from being jolted in an ambulance. Some huge bedsores were seen in patients who were too ill for evacuation and had to be nursed in the forward areas for some days on stretchers without ring pillows. Morphine $\frac{1}{4}$ or mist. 315s (pot. brom. gr. 15, chloral hydrate gr. 15, iact. opii gr. 15) is most useful, and certain cases of battle euphoria respond very well to luminal gr. $\frac{1}{2}$ t.d.s. for two days. Patients do not bother much about their wounds or the loss of a limb; this is in marked contrast to the mental distress caused by an amputation due to an accident. A grenade exploding in the hand causes the most ghastly wounds; several cases have been seen. One or both hands are blown off or mutilated; the face is spattered and the sight of one or both eyes is destroyed. Life continues and the patient recovers, but without hands or sight. For multiple superficial grenade wounds of the limbs a hot soapy bath is excellent treatment if sufficiently sterile conditions are obtainable.

Transfusions.—In all, 328 pints of blood (mostly stored) and 96 pints of plasma or serum were used in the hospital during the last six months of 1942, apart from a considerable quantity of 5% glucose in N/5 saline. Transfusions were used for shock, for burns, and during convalescence when the haemoglobin fell below 60%. For shock two to four pints of blood or plasma were required; the first pint was run in quickly. Patients have been received from forward areas who have had as much as 13 pints of protein-containing fluid during the first day or two. When blood is transfused to anaemic patients with suppurating wounds stored blood has to be given slowly and used with caution, because reactions are common and in the presence of undrained pus the benefit of transfusion is quickly lost.

Gas Gangrene and Tetanus.—Gas gangrene in the true sense has been very rare, and gas infection uncommon. It developed in a badly lacerated forearm with vascular block, in a large undrained haematoma of thigh, and as a terminal event in severe infection of an amputated leg and arm. No case of tetanus has been seen.

Anaesthesia.—Pentothal has been the anaesthetic of choice, especially for short operations. It was used for induction, followed by ether when longer anaesthesia or abdominal relaxation was required. If a drip saline was being given, pentothal was injected into the rubber tubing. Ethyl chloride was also used for induction, especially when the supply of pentothal was running short. Only a very light anaesthesia is required for most cases, and the tired wounded man is easily and quickly anaesthetized.

X Rays.—When the hospital was acting as a C.C.S. a wet x-ray film and report were made available by the radiologist in most cases, and were seen in the anteroom adjoining the

theatre. A radiograph was valuable for showing the presence or absence of fractures and foreign bodies. If the surgeon knows the approximate size and location of a shell fragment he can decide whether to go for it or not. No precise location by x rays was found necessary. The size of the external wound often gave a misleading idea of the size of the missile: a long thin fragment can make a large or small entrance wound, depending on its angle of entry. It was especially helpful to know of the presence of foreign bodies in the knee-joint, skull, spine, and chest. In wounds of the buttock or thorax, where abdominal injury was suspected clinically, a radiograph sometimes settled the matter for or against laparotomy. On one occasion the presence of gas under the diaphragm was a deciding factor.

Deaths

Table III indicates the main causes of death. Probably the figure of 1.3% is approximately accurate for most C.C.S. work. If a patient is fit enough to reach a C.C.S. his chance of

TABLE III.—Mortality in Hospital

	Head and Face	Neck	Chest	Thoraco-abdominal	Abdominal	Shoulder and Scapula	Trunk	Lower limbs	Multiple	Local	Percentage	Died within 1 week of wound	Lived over 1 week
300 casualties from Tobruk, including many serious cases	1	2	1	2			1	1	3				
2,679 casualties from 1st battle of El Alamein and subsequently when acting as a C.C.S.	5	1	2	1	1	3	2	6	9	5	37	1	35
500 casualties from 2nd battle of El Alamein; many seriously ill	8	4	1	3	3	10	3	1	2	12	5	10	35
Total	14	4	4	2	5	11	8	1	2	9	21	11	97

recovery is excellent. The high mortality rate of 3% for the casualties from Tobruk and 10% from the second battle of El Alamein is due to the fact that seriously ill patients were sent to the hospital; this figure is far in excess of the mortality figures in most hospitals.

"Don'ts"

In conclusion, a few "don'ts" may be added:

- Don't suture wounds.
- Don't suture amputation stumps.
- Don't amputate at the site of election; go below it.
- Don't use packing except to stop haemorrhage.
- Don't use drainage tubing.
- Don't use unpadded plasters.
- Don't let a plaster dry with the heel resting on the stretcher.
- Don't forget to give morphine before a long bumpy journey.
- Don't forget to sling a Thomas splint on the stretcher bar.
- Don't forget to give plenty of fluids by mouth.
- Don't forget that the ligature of a main vessel should be prominently recorded on the field medical card and underlined. Gangrene is so dangerous.

Conclusions

The salient features of war surgery in the Middle East have been the value of organized resuscitation and local and general sulphamylamide: the importance of thorough immobilization; the adequacy of conservative surgery and wound trimming (even up to 48 hours after wounding), instead of wound excision; the dangers attendant on tension around wounds and the necessity for a good blood supply in damaged limbs; the satisfactory way in which the wounded man travels (except the abdominal cases and those with severe burns); and, finally, the need to adapt and improvise articles to fulfil functions for which they were never intended. War surgery is not difficult, but careful attention to important details is well repaid by results.

I should like to thank the commanding officer, Colonel G. B. Hadden, for permission to publish this paper, and members of the staff for help and criticism.

ACUTE LYMPHOCYTIC MENINGITIS IN "EPIDEMIC CATARRHAL JAUNDICE"

BY

JOHN WARING, M.B., B.S.

The purpose of this article is to record the occurrence of acute lymphocytic meningitis in a case of epidemic catarrhal jaundice and to criticize the terms "epidemic catarrhal jaundice" and "infective hepatitis." It is suggested that the infectious disease described under these names is not of necessity a condition affecting the liver, but is in fact a general virus infection, such as influenza, in which the primary site of invasion is frequently the gastro-intestinal tract. The advent of hepatitis and meningitis should be regarded as an indication of increased invasive power in subjects whose resistance is low. The conception of influenza should be generic and not specific, so that it may include a number of virus diseases epidemic in nature which at present have not been identified.

The objection to the terms "epidemic catarrhal jaundice" and "infective hepatitis" is that they give a false impression of the disease they represent, because they do not include the diarrhoeal cases, of which there are many, and the simple gastric types, in neither of which jaundice occurs. In support of this view some personal observations are described.

A Gastro-intestinal Epidemic in Letchworth

During the past 15 months there has been prevalent in Letchworth an infectious disease characterized by acute gastro-intestinal disturbance and frequently jaundice, obstructive in type. Three distinct forms have been observed: (1) the diarrhoeal group; (2) the vomiting group; (3) the jaundiced group. These forms have occurred repeatedly in the same household. The diarrhoeal variety has been more commonly seen. The incubation period has been difficult to assess, but may be short or as long as four weeks. There were no symptoms referable to the upper respiratory tract.

The Diarrhoeal Group.—The onset was abrupt, with diarrhoea, colic, and tenesmus, some patients vomiting once or twice during the first few hours. Slight general abdominal soreness was present, but there was usually little constitutional disturbance, and fever was mild or absent. The frequent watery motions continued for 1 to 5 days, then ceased abruptly. In a few cases recovery was delayed and small evacuations of clear mucus were passed in decreasing frequency for 3 to 5 weeks. Only in the acute stage was a fleck of blood to be seen in the motions. In several typical cases cultures from a stool passed within the first 24 hours revealed no pathogenic bacterium.

The Vomiting Group.—In these cases the onset was sudden, with shivering, epigastric discomfort, nausea, and vomiting. At times one or two loose motions were passed on the first day, but subsequently constipation was the rule. There were considerable malaise and prostration, and continuous fever, which rose to 102°, persisted for 4 to 6 days, then fell by crisis. Vomiting continued during the period of fever.

The Jaundiced Group.—The clinical picture was similar to that of the vomiting group, but epigastric discomfort was more severe, amounting to pain. Patients complained bitterly of this symptom. Repugnance to food was usual, being associated with marked nausea and vomiting, which continued until the fourth or fifth day, when jaundice appeared. Thirty-four jaundiced cases have been observed, and in nearly all of them the liver was palpable and tender; sometimes the enlargement was considerable. In only one case was the spleen definitely felt, and this accompanied a much swollen liver. Jaundice may be slight, visible only in the urine or eyes for a day, or deep and fluctuating, persisting for five weeks. The average case was yellow for 6 days. A considerable degree of debility was present after convalescence was established, which delayed return to normal health for 4 to 6 weeks.

A Case of Acute Lymphocytic Meningitis

A man aged 27 developed meningitis *pari passu* with jaundice. His case was made more perplexing by the fact that he is a proven case of pulmonary tuberculosis, in which clinical arrest was achieved one year ago.

On Dec. 20, 1942, he became shivery and complained of headache. Vomiting occurred once or twice each day, and his temperature fluctuated between 99° and 101°. On Dec. 25 the conjunctivae became definitely yellow, but were clear the next day. Headache varied in intensity, but on Dec. 30 its severity became agonizing, with paroxysmal shooting pains between the temples. The patient did not look ill though he was obviously suffering considerably with his head. There was no neck rigidity, a questionable Kernig's sign was present, arm and leg reflexes were sluggish, abdominal reflexes were absent, plantar responses were flexor, there was no papilloedema. The urine gave a green reaction with Benedict's solution. On admission to hospital lumbar puncture revealed a slightly opalescent fluid under increased pressure. Mr. relief from headache was obtained after 30 c.cm. of fluid had been drained away. Examination of the c.s.f. showed a small fib web-cloth. A cell count gave 544 mononuclears (mainly lymphocytes) and 24 polymorphonuclear leucocytes per c.mm. The chloroform content amounted to 710 mg. and protein to 75 mg. per 100 c.c. Sugar was absent, and globulin increased. A scanty centrifuged deposit gave the following results: Gram film—no organisms seen; Ziehl-Neelsen stained clot—no tubercle bacilli seen; cultures on blood, legumin agar and in peptone broth were sterile after 24 hours incubation.

Jan. 1, 1943.—Lumbar puncture performed and 25 c.cm. of colourless fluid under increased pressure allowed to escape. Cell count, 300 per c.mm. Reflexes still sluggish, but abdominal reflexes now present.

Jan. 3.—Vomiting ceased. Temperature normal.

Jan. 5.—Patient looked well, sitting up in bed. Arm and leg reflexes were easily obtained. Lumbar puncture performed and 20 c.cm. of clear fluid under slightly raised pressure drained away. Examination of c.s.f. showed a clear colourless fluid with no cell count. A cell count gave 336 mononuclear cells (mainly lymphocytes) and 56 polymorphonuclear leucocytes per c.mm. The chloroform content was 715 mg. and protein 80 mg. per 100 c.cm. Sugar: Fehling's reduction present. Globulin slightly increased. Convalescence uninterrupted except for intermittent headache of mild degree for three weeks.

An intensive course of sulphathiazole, which was well tolerated, was given by mouth for five days (12, 8, 6, 6, 6 g.) after admission to hospital. Since the cerebrospinal fluid became clear in 48 hours it would seem that the drug was beneficial.

Conclusion

It seems reasonable to deduce from these observations that the current epidemic in Letchworth is a virus infection primarily affecting the gastro-intestinal tract; that the weight of infection more commonly falls on the small and large bowels, producing an acute catarrhal ileocolitis, the degree of gastric involvement being minimal and hepatitis absent. Less often the stomach bears the brunt of the infection and colitis is minimal. The present epidemic the majority of gastric cases develop hepatitis in greater or lesser degrees of severity. Approximately one case of jaundice has been seen for every six cases of diarrhoea—i.e., an incidence of 14%. Uncommonly the virus invades the leptomeninges, causing an acute lymphocytic meningitis reaction.

A number of severe cases of influenza, as distinct from febrile catarrh of the respiratory tract, have occurred recently in which diarrhoea with colic and abdominal discomfort was the initial phase. After 36 to 48 hours invasion of the respiratory tract occurred, starting as a tracheo-bronchitis and later becoming a bronchiolitis with pulmonary congestion. Outbreaks of jaundice in other parts of England have been reported in which the upper respiratory tract seemed to be the primary site of invasion.

The influenzal epidemic has different features each year. It may be gastric or intestinal with vomiting or diarrhoea, gastro-hepatic with vomiting and jaundice, tracheal with cough and substernal soreness, pharyngeal with pain in the throat or simple fever with malaise. Retro-orbital pain and headache are almost constant and often severe, but may be slight or absent in the gastro-intestinal forms. Whichever type invades the community, it seems to breed true to a remarkable degree for about a year. The cases which differ from the current

form frequently start with the usual symptoms, and thus a different variety becomes established imperceptibly.

What benefit is to be derived from describing epidemic catarrhal jaundice as a separate clinical entity? It is stated that outbreaks of the disease often accompany an increased incidence of diarrhoeal disorders and that the initial symptoms may be of the "influenzal" type. Only one form of the disease is described by this name, and therefore it is misleading. These facts surely support the adoption of a wider conception of influenza.

Summary

It is suggested that the application of the term "influenza" be generic; that the names "epidemic catarrhal jaundice" and "infective hepatitis" are unsatisfactory, and that "influenzal jaundice" or "hepatitis" would convey a clearer conception of the disease.

A case of acute lymphocytic meningitis occurring in influenzal jaundice is described.

I wish to thank Dr. P. F. Wilson for his permission to publish this case, and the pathologist, who desires to remain anonymous, for allowing me to include his reports on the cerebrospinal fluid.

PSEUDOSCLERODERMIA

BY

R. B. McILLAN, B.Sc., M.D., M.R.C.P.E.

Physician-Superintendent, Eastern General Hospital, Edinburgh

The following case of pseudoscleroderma arising from multiple deficiency may be of interest owing to the rarity of the condition.

Case History

A man aged 63 was admitted to hospital on July 15, 1941, complaining of stiffness in his legs, which prevented him from walking. He stated that he had been perfectly well until approximately one month before admission, when his right knee-joint suddenly swelled and became painful, forcing him to rest in bed. This swelling was attributed to a slight injury received to the same knee two days earlier which caused only momentary discomfort. After a few days in bed he noted that the skin of both his legs below the knee was becoming darker in colour than usual, the right leg being more involved than the left. This discoloration extended, and within he next seven to ten days it had involved the skin all over his body, being most pronounced on the face and neck, the backs of the hands and the wrists, and the legs from mid-thigh down. During this time he had been rising to attend to his own wants, but about 14 days before admission he began to have difficulty in straightening his legs at the knees. This stiffness progressed, and for some days before admission he was confined to bed with his knees fixed in a position of semiflexion. He stated that he had been feeling tired or an indefinite period, and that for the past month his bowels had been loose. There was no history of sore tongue or of Raynaud's syndrome.

The patient was unemployed, and his total income was 16s. 6d. a week from public funds. His expenditure was 4s. 6d. a week for his bed in a lodging-house, 2s. for tobacco, and the rest for food, etc. He did not drink alcohol. He cooked for himself, and lived mainly on pies, sausages, white bread, and scones, never eating fruit or any vegetables except a very occasional potato, and using condensed milk and margarine in place of fresh milk and butter. There was no previous illness of any note.

Clinical Condition

Routine examination revealed a small, thin, wasted man with a light-sepia-coloured skin with uniformly darker areas on the face and neck, backs of hands, and legs from mid-thigh to mid-dorsum of the foot. There was no special pigmentation around the nipples, in the pubes, or on points where pressure from clothing normally occurs. He was edentulous, had pale mucous membranes, a dry flazed but not inflamed tongue, atrophic ribbed finger-nails, pure white luxuriant hair, and patches of brown pigmentation on his uveal mucosa. There was no circumferential injection or cheilosis. Both corneae appeared healthy, and there were no petechiae or evidences of deeper haemorrhages. He appeared comfortable, but was slightly inattentive and confused. The skin around both his legs from 6 in. to 9 in. above the knee-joints to about the middle of the dorsum of his feet, but not on the soles, was brown in colour, thick, hard, and glossy to touch, was hairless, and could not be moved on the underlying tissues. The skin elsewhere, although discoloured, was of normal consistency and mobility. The thickened skin was raised slightly above the normal skin, and the junction between was sudden (within 1/4 in.) and uneven. The legs were

not swollen and were not tender on pressure. Sensation over the affected area was dulled but not entirely absent. Both legs were held flexed at 45 degrees at the knees, and movement at these joints, which were not swollen, was painless but limited to a range of 45 to 60 degrees flexion by the tightness of the surrounding skin. Movement at the ankle-joints was also slightly limited. Movement at all other joints was normal. Further examination revealed no physical defect, and the remaining points of particular interest which helped in making a diagnosis are:

Skin temperature steady at 97.4°; pulse 75 to 80 a minute, regular; blood pressure 145/80. Test-meal (including histamine): no free HCl. Faeces 4 to 6 soft paste motions daily; total fat 33.9 g.—split fat 27.2%, unsplit fat 72.8%. Urine: routine tests negative; ascorbic acid (estimated as reducing substance), nil; creatin, 14 mg. per 100 c.cm. Blood: W.R. negative; plasma proteins, normal; urea, etc., normal; B.S.R. (Westergren), 6 mm. per hour; plasma ascorbic acid, 0.10 mg. per 100 c.cm.; sugar tolerance, normal curve; R.B.C., 3,310,000 per c.mm.; Hb, 38%; C.I., 0.58; W.B.C., 8,200 per c.mm. Film showed poor filling of red cells, anisocytosis and poikilocytosis, and a normal differential white count. Radiographs of knees showed only slight atrophic arthritis. Cuff test (Hess), negative. Microscopical examination of biopsy from affected skin resulted in the following report:

"The tissue consists mostly of vascular scar tissue. Enveloped in it are small foci of adipose tissue and dense fibrous fascial bands; on one side is striped muscle, which, at margin of scar tissue, is partly atrophied, partly hyperplastic (sarcolemmal cells proliferating). There are recent haemorrhages in the scar and also scattered granules of old blood pigment (previous haemorrhages probably). The appearances suggest scar formation in and adjacent to muscle and perhaps accentuated by haemorrhage."

Diagnosis

On the history and findings recorded above a multiple deficiency state was diagnosed, obvious deficiencies being nicotinic acid, ascorbic acid, and iron. The general pigmentation was considered to be part of the pellagroid change, and the thickened skin on the legs to be the result of this plus very minute multiple haemorrhages, the result of the vitamin C lack. The probability that other deficiencies aided in producing the curious localized change in the legs was great, but it was impossible to estimate their part in doing so. The diagnosis was made, therefore, of pseudoscleroderma the result of vitamin deficiency, and support was lent to this by the earlier records of a precisely similar change occurring in the legs of old people with scurvy (Pfeiffer, 1918). Other causes of the changes that were considered and excluded on the facts which have been given were: (a) true symmetrical diffuse scleroderma (sclerodactylia); (b) chronic cellulitis of legs with, as superadded causes of the general pigmentation, Addison's disease, haemochromatosis, and chronic vermin infestation of the skin. The presence of creatine in the urine was considered normal at the patient's age.

Treatment

Treatment was designed to test this diagnosis, and was conducted in various stages. The first stage was the maintenance of the patient for a period on the ordinary hospital diet, in order that its action could be assessed: the successive stages consisted in the addition to this diet of the obviously absent vitamins, in order that their action in promoting cure could be assessed also. Ascorbic acid was replaced first, mainly because the condition had been described before in association with scurvy.

Table showing Results of Treatment

Clinical Feature	Stage I: 18/7/41 to 18/8/41 Ordinary Hospital Diet	Stage II: 18/8/41 to 8/10/41 Ord. Diet + 7,000 mg. Vit. C in 14 days, then 200 mg. Daily by Mouth	Stage III: 8/10/41 to 24/1/42 Ord. Diet + 200 mg. Vit. C + 400 mg. Nicotinic Acid Daily by Mouth	Stage IV: 24/1/42 to 9/3/42 As Stage II + 1,000 I.U. Vit. B.I.M.I. Daily
Blood R.B.C. Hb	3,970,000 50%	4,150,000 66%	5,000,000 75%	5,000,000 79%
Bowels	Stools still frequent and soft	Improved but not normal	Normal	Normal
Mental state	As on admis- sion	Slight improve- ment	Marked improve- ment to normal	Normal
Pigmentation	" "	Slight improve- ment	Marked im- provement	Normal
Skin thickening	" "	Very slight improvement; smaller area involved	Great im- provement; small slightly thick- ened area on skin only re- mains	Completely healthy skin
		Knee move- ment 35°-60° flexion	Knee move- ments full and free	

The accompanying table shows the details of each stage of treatment, its duration, and the changes in the clinical features of the case as each stage was concluded.

On completion of treatment the initial tests were repeated, and it was found that all those previously abnormal were now normal. Creatine in small amounts was still being excreted in the urine. The patient was discharged well on May 1, 1942, and when last seen (Oct., 1942) was still free from recurrence of the skin lesion.

Comment

The little change shown in the skin, etc., of the legs when only ordinary diet was given, and the marked improvement ending in complete cure when the diet was supplemented and the existing deficiencies were corrected, suggest that the diagnosis of pseudosclerodermia arising from multiple vitamin deficiency was correct. According to the table the most marked improvement occurred when nicotinic acid was given, suggesting that it was lack of this factor which was mostly responsible for the condition. This may be so, but whether nicotinic acid would have had such a marked action in the absence of adequate vitamin C nutrition is doubtful, as in multiple deficiencies vitamins are notoriously interdependent for their action. It is only possible to suggest that the combination of deficiency of nicotinic acid, ascorbic acid, and thiamin, in that order of importance, precipitated the pseudosclerodermia.

The slow response to treatment was not considered abnormal, as this is often a feature in multiple-deficiency states, and particularly so in lesions affecting the skin (O'Leary, 1942). Quicker results could have been obtained had all the missing factors been supplied together. The failure of the lesion to respond to replacement of vitamin C only, plus the failure of the author to observe any condition really closely resembling sclerodermia—although skin thickening was often seen—in 58 old people with clinical scurvy observed over the past five years suggests that the lesion noted in association with scurvy by Pfeiffer, if really resembling sclerodermia as did the case described above, was the result also of multiple deficiency, vitamin C not being the most important lack.

Changes faintly resembling certain stages of true sclerodermia may result from vitamin deficiency and are not uncommonly found. The changes seen and the factors responsible are: (a) subcutaneous oedema, causing apparent skin thickening and fixation and muscle tenderness from lack of vitamin B (Eddy and Dalldorf, 1941); (b) atrophy of epidermis, papillary oedema, papillary capillary dilatation, slight oedema of the dermis, and pigmentation from lack of nicotinic acid (Eddy and Dalldorf, 1941); (c) subcutaneous haemorrhages causing thickened skin and pigmentation due to lack of vitamin C; and (d) atrophy of muscle fibres in experimental animals, due to lack of vitamin E (Pappenheimer, 1939; O'Leary, 1942).

Other records of pseudosclerodermia of nutritional origin are few. Reports of cases which might have had this origin are: (a) a lesion similar to that described in this paper in a patient in association with Sjogren's syndrome (Sheldon, 1939); and (b) a lesion in a poorly nourished woman in whom cure resulted when a good diet was given (Meakins, 1926). It is suggested that it might be more common than is thought, and, as support, attention is drawn to the reports of sclerodermia appearing in patients debilitated by cancer of various organs, in some of whom it disappears when the cancer has been treated and the general nutrition improved, good food being noted to be particularly beneficial in one instance (Behrman and Forman, 1939; Bezecny, 1935).

It is not suggested that vitamin deficiency is the cause of true sclerodermia, and a search has failed to reveal any example of vitamin deficiency or deficiencies causing a change which microscopically resembles the true condition. As the clinical resemblance may be very great the importance of a biopsy in making a diagnosis of sclerodermia is obvious, as without it mistakes could be made and the patient given an entirely wrong prognosis and treatment.

Lastly, although it is not intended to discuss vitamin C in general, the need of this substance by healing wounds (Crandon *et al.*, 1940) is well shown by the behaviour of the biopsy in this case. The wound made on Aug. 3, 1941, when the patient was subscorbutic, showed little healing by Aug. 18, after which date the rate of healing accelerated markedly, the wound being

firmly closed by Aug. 27. This acceleration corresponded to the addition to the patient's diet of 500 mg. of vitamin C daily by mouth, and was obviously governed by it, as all other factors were unchanged.

REFERENCES

- Behrman, S., and Forman, L. (1939). *Proc. roy. Soc. Med.*, **32**, 1575.
 Bezecny, R. (1935). *Arch. Derm. Syph.*, Berlin, **171**, 223.
 Crandon, J. H., Lund, C. C., and Dill, D. B. (1940). *New Engl. J. Med.*, **2**, 353.
 Eddy, W. H., and Dalldorf, G. (1941). *The Avitaminoses*, 2nd ed., Baltimore: London.
 Meakins, J. (1926). Quoted by McCallum, W. G., *Trans. Ass. Amer. Phys.*, **190**.
 O'Leary, P. A. (1942). *Arch. Derm. Syph.*, Chicago, **46**, 628.
 Pappenheimer, A. M. (1939). *Amer. J. Path.*, **15**, 179.
 Pfeiffer, L. R. (1918). *Dtsch. med. Wschr.*, **44**, 625.
 Sheldon, J. H. (1939). *Proc. roy. Soc. Med.*, **32**, 255.

PNEUMONIA TREATED WITH SULPHAMETHAZINE

REPORT OF 77 CASES

BY

B. A. PETERS, M.D., D.P.H.

Medical Superintendent, Ham Green Hospital, Bristol
AND

M. L. EASBY, M.B., Ch.B.

Assistant Medical Officer, Ham Green Hospital, Bristol

During the latter part of the past winter we have treated 77 cases of pneumonia with sulphamethazine (2-sulpha-4:6-dimethyl pyrimidine), one of the latest additions to the sulphonamide group. It is built up on the same plan as sulphadiazine, with the addition of two methyl groups to the pyrimidine ring. This addition is claimed by the makers (I.C.I.) to increase the solubility of the drug and render its deposition in the kidneys unlikely. This effect was a serious disadvantage of sulphadiazine.

Of the 51 bronchopneumonias treated in the under-12 group 30 were secondary to measles, 2 to whooping-cough, and the rest primary. The ages varied from 4 weeks to 85 years. The normal dosage of sulphamethazine employed, as recommended by the makers, is 8 g. daily for an adult, given six-hourly in 2-g. doses. As children take these drugs better than adults we assumed the adult weight for the standard dose to be 8 st., and gave a fraction of this dose according to their weight—that is, a 4-st. child received half the adult dose and so on. The full dose was given for four days, and half the dose for a further two days. Plenty of fluids were administered, and oxygen tents were used as considered necessary.

We were unfortunately unable to estimate the blood concentration with these doses. All the cases responded more promptly to the drug the earlier in the disease it was given. We think the response in cases responding favourably is slower than with sulphyridine, but the mortality was low, as only three died (4%). One 13-weeks-old baby with whooping-cough and bronchopneumonia was admitted on the sixth day and died four days later. Another fatal case had measles and bronchopneumonia, was admitted on the sixth day of disease, and died on the fifth day after admission. One patient with extensive bronchopneumonia—a female aged 26—survived only 12 hours after admission. Nine other cases showed no obvious response to the drug within six days, but eventually recovered.

Out of 77 patients, therefore, 65 appeared to respond and 12 did not; three of the latter died. Of those not responding, 6 cases in adults appeared to be aberrant cases of lobar pneumonia. From one of the children who did not respond a nearly pure culture of *Staph. aureus* was found in the sputum, and she developed a staphylococcal pyaemia. Not one case in the series developed an empyema.

Toxic Effects

Owing to the risk of renal blockage and urinary suppression with the related sulphadiazine, a careful watch was made on renal secretion. One child aged 2 showed almost complete sudden urinary suppression for one day. On stopping the drug the renal flow was restored within 24 hours. No crystal

were visible in the urine, which showed only a trace of albuminuria. This patient, and two others under 2 who showed no chemical or microscopical abnormalities in the urine or any suppression, developed a curious painless brawny oedema of the whole legs and arms. The tissues did not pit on pressure. The appearance of the extremities was such as is sometimes seen in children with a tendency to chilblains during cold weather. It appeared to be due to some form of circulatory disturbance. It was not due to cold, as the wards were well heated, and the condition passed off in all three cases within 36 hours of stopping the drug. All three children were acutely ill, and were being treated in oxygen tents. They had some cyanosis of the face, due to the primary disease. All three made a good recovery. We had not observed this condition previously in any patients treated with other sulphonamides. In one other case there was a transient haematuria without any crystal deposit and without diminution of urinary flow. The drug was continued in this case without any obvious ill effect.

Apart from these possible toxic effects, sulphamethazine was extremely well taken. Vomiting was entirely absent. Slight nausea in three cases did not necessitate stopping the drug. There was no mental disturbance or depression, which are such a marked feature of cases treated with sulphapyridine. Many of the patients developed good appetites during early convalescence and were able to take large amounts of food without inconvenience while still receiving the drug. The non-toxicity of the drug was especially noticeable with middle-aged and old patients. Cyanosis was not as pronounced as with other sulphonamides. Our conclusions so far are that this is the best drug we have used for pneumonia, especially for older patients.

Working in this hospital, Ormiston, Woodman, and Lewis (1942) had a very similar mortality rate in a similar series of 140 cases treated with sulphapyridine. In another series of 120 cases (Peters, Woodman, and Lewis, 1939) reported from this hospital the mortality rate was 9% with sulphapyridine. In the accompanying table we mean by "response" that the patient became afebrile and began to improve within the period stated.

Age Group	Response to Sulphamethazine in Days								No Response within Six Days	Total
	2 Days		3 Days		4 Days		5 Days			
	Br.	Lobar	Br.	Lobar	Br.	Lobar	Br.	Lobar		
0-2	6	1	4	1	4	-	-	-	5*	21
2-12	6	3	9	4	5	1	1	1	5*	30
12-40	2	3	-	3	-	-	-	2	1*	15
40 and over	1	2	-	2	-	4	-	-	2	11

* 2 died. † Died.

Summary

A series of 77 cases of pneumonia treated with sulphamethazine is reported, with a death rate of just over 4%.

The drug is extremely well tolerated at all ages, and appears to be remarkably free of serious toxic effect, especially in middle-aged and elderly patients. The results are as good as with sulphapyridine.

REFERENCES

- Ormiston, G., Woodman, D., and Lewis, F. J. W. (1942). *Quart. J. Med.*, n.s., 11, 155.
Peters, B. A., Woodman, D., and Lewis, F. J. W. (1939). *Med. Officer*, 62, 55.

Full details of the official forms of help available to local authorities in running publicity campaigns for the immunization of children against diphtheria are contained in a special brochure put out by the Ministry of Health, the Ministry of Information, and the Central Council for Health Education. This provides in handy form a complete guide for any local authority wishing to embark on, or intensify, an antidiphtheria campaign. It is pointed out that as the result of the vigorous efforts already made about 4,000,000 children have been immunized. But there are still over 4,000,000 children unprotected. The need for action, both national and local, therefore remains urgent if the aim of immunizing at least three out of every four children between the ages of 1 and 15 is to be achieved.

THE EFFECT OF INJECTIONS OF H 11 ON THE GROWTH OF MOUSE TUMOURS

BY

DENNIS LEYTON WOODHOUSE, Ph.D., M.Sc., A.I.C.

(From the Cancer Research Laboratory, Pathology Department, The Medical School, Edgbaston, Birmingham*)

In view of the account by Gye, Ludford, and Barlow (1943) of their experiments with H 11 on tumour-bearing mice a summary of tests with similar extracts which were carried out in this laboratory in 1941 and recorded briefly in the Annual Report of the British Empire Cancer Campaign, 1942, may be of value, particularly as the two neoplasms for the most part employed were different from those utilized by the above workers.

The first is a spindle-celled sarcoma, which was produced in 1934 by inoculation of dibenzanthracene into the hind leg of a mouse and has since been transplanted through 170 passages with a high percentage of successful grafts and a very small number of spontaneous regressions. Its characteristics and histology have been intensively studied (McDonald and Woodhouse, 1938), and it has been utilized in a number of investigations, including the anti-cancer properties of various chemicals (Annual Reports of British Empire Cancer Campaign, 1941, 1942), tissue-culture experiments (Jacoby, 1940), and inoculation experiments on the chorio-allantoic membrane of the chick embryo (Jacoby, McDonald, and Woodhouse, 1943).

The second type is represented by benzpyrene-induced skin epitheliomas which also have been employed on a considerable scale for testing the possible inhibitory effects of chemical and physiological substances. Spontaneous regression of these tumours is very infrequent, and the animals may survive in good general health for several months after the appearance of papillomas, so that therapeutical injections can be made over a long period. Moreover, this type of growth permits injection experiments to be started before active invasion of the underlying tissues has taken place—i.e., in the pre-malignant phase (see protocols 4 and 5)—and in a way seems more comparable to spontaneous tumours than to a grafted neoplasm after many passages.

A small number of mice inoculated with a strain of Carcinoma 63 were also therapeutically injected. This tumour material was derived from an animal kindly given by Dr. Ludford to my colleague Dr. F. Jacoby, and is presumably identical with the Carcinoma 63 described in the paper by Gye *et al.*

The Injection Material

The examples of H 11 used were: (a) A specimen kindly supplied by Mr. Thompson of the Hosa Laboratories described as of twice the concentration for normal use. (Designated in the protocols as "Hosa.") (b) Three extracts prepared according to the directions of Thompson and his collaborators (1941) from different samples of normal male urine. (Designated in the protocols as "Birmingham, 1, 2, 3.")

Animal Material

The total of tumour-bearing mice in 8 separate experiments was 104—43 with spindle-celled sarcomas (controls included), 19 with skin epitheliomas, and 22 with "Carcinoma 63" (controls included); 20 epithelioma-bearing animals served as controls for the "epithelioma test," some receiving injections of various chemicals and others no injections or saline only. Large and vigorous animals about 5 months old were used for the grafted tumours. The applications of benzpyrene had been begun when the animals were about 10 weeks old. Although the mice were not of a pure strain they were taken from the same stock of "albino-whites."

All the injections were made intraperitoneally and, in the case of the carcinoma-grafted animals, through the flank opposite to the site of the growth.

Results

A survey of the outcome of all the tests clearly indicates that the H 11 preparation has no inhibitory effect on any of

* Carried out for the British Empire Cancer Campaign, Birmingham Branch.

these tumours. The experiments with Carcinoma 63 (12 animals treated) conform exactly to those of Gye and his co-workers, and need not be reported in detail, and only the protocols dealing with the dibenzanthracene sarcomas and benzyrene skin epitheliomas are given below.

It will be noted that, in experiment 2b, 6 animals were injected with H 11 on the same day as the grafts were introduced. In spite of this, four large tumours developed. Also, in experiment 5, minute warts, at probably a precancerous stage, were in no wise inhibited.

The sarcomas from two animals which had received injections daily for 16 days were examined histologically (experiment 3). Some central necrosis, such as is generally found in tumours at this period, was present, but there were many portions of normally staining sarcomatous tissue. Moreover, the tumours were still capable of vigorous growth, as was proved by re-inoculating fragments into three mice, two of which developed typical sarcomas. The microscopical appearance of a skin epithelioma from a mouse after 20 days' therapeutical injections (experiment 6) showed no material difference from sections of benzyrene-induced epitheliomas in control animals.

Protocols of Animal Experiments with H 11

(1) 18 albino mice, average weight 30 g., inoculated with 155th sarcoma graft August 24, 1941. 16 definite tumours palpable August 29. 6 retained as controls. 10 injected twice daily with preparation Birmingham No. 2 until death of animal.

Results.—Controls: 1 tumour regressed by Sept. 29; remainder grew—period 16 to 35 days. Injected: 1 tumour regressed by Sept. 17; remainder grew similarly to controls—period, 8 to 28 days.

(2) 20 mice inoculated with 154th sarcoma-graft August 6, 1941. 2 animals died, August 9 and 10. (a) 6 untreated, for control. (b) 6 injected H 11 ("Hosa" extract diluted with equal volume of water), starting August 6. (c) Ditto starting August 11.

Results.—(a) One graft—no take. One graft regressed by August 20. 4 large tumours developed; animals survived 30 to 40 days. (b) 2 grafts—no take. 4 large tumours after 24 to 68 injections—i.e., 12 to 35 days. (c) One graft—no take. 5 definite tumours after 26 to 80 injections—average duration 28 days.

(3) 12 mice implanted with sarcoma August 12, 1941. 11 successful takes visible August 17. 6 inoculated with H 11 "Hosa" double strength 1 c.cm. daily for 16 days. (One injected animal died after 10 days' treatment.) Killed with 5 controls Sept. 3 and legs with tumours removed. Combined weight of tumour-bearing legs of 5 controls, 15.3 g.; of 5 injected, 19.2 g.

(4) 6 mice with skin papillomas resulting from 5 months' application of benzyrene solution in acetone. Applications suspended for 1 week before injecting with H 11 (Birmingham 1). These tumours were of different sizes and at various stages of "malignancy." Injections of H 11 for average of 43 days. In all cases the tumours grew, in several instances producing large keratinized masses which appeared by inspection to be at "malignant" stage at death of animal. This was confirmed in some cases by microscopical examination.

(5) 7 mice with papillomas selected at varying stages of development from small "wart" to medium-sized growth, 10 by 10 mm. Injected extract Birmingham 2 twice daily. All the tumours enlarged, and in instances in which two or more warts were present these fused into one large mass, 12 by 20 mm. Average injection time, 26 days.

(6) 6 mice with epitheliomas $7\frac{1}{2}$ by 10 mm. Injected 24 days with "Hosa" extract. Final size, 20 by 28 mm.; no instance of reduction in size. This corresponds to rapidity of growth in many series of control animals used in a variety of experiments.

Summary

In 54 mice bearing grafted dibenzanthracene sarcomas, Carcinoma 63, or induced benzyrene skin epitheliomas no inhibitory effect on the tumour growth was found after prolonged injections of the urine preparation H 11 or similar extracts.

Two sarcomas removed from mice after such injections were successfully grafted into other animals, and histological examinations of treated tumours showed no difference from control material.

REFERENCES

- Annual Report of British Empire Cancer Campaign (1941), p. 121, London.
 — (1942), p. 46.
 Gye, W. E., Ludford, R. J., and Barlow, H. (1943). *British Medical Journal*, 2, 65.
 Jacoby, F. (1940). *Nature*, 146, 301.
 —, McDonald, Stuart, and Woodhouse, D. L. (1943). *J. Path. Bact.*, in press.
 —, McDonald, Stuart, and Woodhouse, D. L. (1938). *Ibid.*, 47, 615.
 Thompson, J. H., Holt, P. F., Forbes Jones, R., Haydu, N., and Kennedy, G. Y. (1941). *Med. Pr.*, 205, 334.

COMPOSITE ZIEHL-GRAM STAINING METH FOR SPUTUM, PUS, AND EXUDATES

BY

STANLEY MARSHALL, M.D.

Pathologist, Brompton Chest Hospital

The majority of sputa sent to the pathologist for examination are accompanied by a request for tubercle bacilli "organisms," or for "predominant organisms." Culture usually not required, though this may be undertaken by laboratory either for interest only or to confirm the presence or give more detail of the organisms seen by direct examination. These specimens are examined by the Ziehl-Neelsen Gram staining methods. At least two films must be prepared, stained, and examined. The same applies to pus from various sources—e.g., pleural cavity, glands, or kidney—where tubercle bacilli are suspected. Where large numbers of such specimens are examined daily, as in chest hospitals, big general hospitals, and public health "swab and sputum" laboratories, much time is spent in staining and examining the films. Moreover, the preparation of stains and slides occupies a great deal of the time of the technical staff. A single staining method which would show the presence of tubercle bacilli and "other organisms," both Gram-positive and Gram-negative, would be of great value. The more lengthy search for tubercle bacilli could then be made, while at the same time noting the presence of a probable nature of other organisms. Further examination by culture or inoculation would follow as usual when indicated. Such a method, as used at the Brompton Hospital laboratory, is described below.

Technique of Method

Thin evenly spread films are essential, as three different colours are used; poor films—a disadvantage in any method—are useless. For this reason the method is not recommended for beginners, nor in laboratories where only a few specimens of this type are dealt with.

Fix the films by heat in the usual way.

The following stains and reagents are required: (A) Car fuchsin: a 1% solution of basic fuchsin in 5% aqueous ph (as for Ziehl-Neelsen). (B) Picric acid decolorizer: saturated solution of picric acid in ethyl alcohol, 5 parts; acetone, 1 part. Keep in a well-stoppered bottle or a staining trough with fitting cover. (C) Crystal violet: 0.25% aqueous solution. Gram's iodine. (E) Acetone. (F) Auramine green counterstain.

Only one new stain is used. This I have called "auramine green." It consists of a combination of two basic dyes, auramine, an orange-yellow stain, and China green (or malachite green), which in solution gives more of a blue than a green colour. Gurr's reagents are used. The stain is prepared as follows:

Make 1% solutions of auramine and China green in distilled water. Shake occasionally for 24 hours. A deposit will be obtained with the former; this may be filtered off either before or after the combination of the two stains. Alternatively, the supernatant may be pipetted off after standing. Mix in the proportion of 10 parts of auramine to 11 of China green and filter if necessary. Alcohol is not needed for solution. The mixture keeps well for several months with occasional filtering.

Flood films with A and heat to "near boiling" on the slide. Wash off stain with water. Add B. Wash off stain with water. Add C. Wash off stain with water. Add D—1 minute. Wash in water. Add D—1 minute. Wash quickly in water and apply (auramine green counterstain)—15 to 30 seconds. Do not let the stain on too long or overstaining of the background may occur and differentiation of the organisms be rendered less clear. Wash in water, blot, and dry.

The picture is as follows. Tubercle bacilli are stained crimson, with their beading showing as black dots at intervals.

along the bodies of the organisms. This feature is more obvious in older specimens. *Myc. smegmatis* is decolorized and takes up a greyish-green colour, losing some of its Gram-positive character when treated with acetone. Thus urine sediments or pus from the urinary tract are suitable for examination by this staining method. Gram-positive organisms such as pneumococci and staphylococci appear violet-black, as in the usual Gram stain; while Gram-negative organisms such as *N. catarrhalis* and Friedländer's bacillus are grass-green in colour. The background of fibrin, mucus, and debris takes up a light-green tint, while cells vary somewhat according to their type and age. Thus epithelial cells show bluish-green nuclei with a light yellowish-green cytoplasm. Polymorph leucocytes, if not degenerate, show a deeper staining of both nuclei and cytoplasm, the latter being paler. Old degenerate pus cells take up a more uniform pale-green stain with more or less differentiation between nuclei and cytoplasm. Lymphocytes show a deep bluish-green nucleus, while endothelials appear more mottled, with a paler cytoplasm. As in the ordinary Gram stain, old degenerate Gram-positive organisms take up the counterstain and appear Gram-negative.

Incidentally, auramine green counterstain has been found useful in the direct Ziehl-Neelsen technique in place of methylene blue, and also in Gram's method in place of neutral red or safranin, both for pus smears and films from culture. The colour is restful to the eye (as noted by Mackie and McCartney (1942) for malachite green in the former method). In my opinion, however, the cellular appearances are rather clearer when methylene blue is used, and where this feature is of importance the latter stain is recommended.

REFERENCE

Mackie, T. J., and McCartney, J. E. (1942). *Handbook of Practical Bacteriology*, Edinburgh.

Medical Memoranda

Blast Perforation of Ear-drums

The following short notes on 60 cases of blast-perforation of the ear-drums occurring simultaneously among Indian troops in the Middle East following a land-mine explosion may be of enough topical interest to merit publication.

HISTORY OF CASES

All these men were within fifteen yards of the mine, and some as near as five yards. Casualties were admitted to hospital within three hours of the explosion, and the ears of all 82 immediate survivors were examined, when 60 were found to have traumatic perforation of one or both tympana. In all, 100 drums were perforated, 50% in the antero-inferior quadrant, the remainder showing either a posterior perforation or a horseshoe perforation involving the greater part of the membrane. Tuning-fork tests revealed a middle-ear deafness in each case, and, although sepoy are not very suitable subjects for such tests, the majority of them showed a diminution of absolute bone conduction also for several days after the accident.

Preliminary treatment in all cases consisted in the insufflation of sulphanilamide powder, followed by packing the ear with sterile gauze. Nine ears were occluded with wax and were left severely alone until three weeks after the injury. Only three of these nine drums showed a perforation at the end of that time. Of the two cases in which syringing was employed to remove wax both became infected, although they dried up subsequently within a fortnight. The proportion of drums infected was 38%, four of which were classed as severe infections, while two of these required a cortical mastoid operation two weeks after the accident. In both these cases the drum and the post-auricular wound were dry and had healed five weeks after operation. All infected cases received sulphyridine, 1 gramme 4-hourly for five days, and many of the cases were put on sulphyridine for their other injuries.

All but four drums were dry within four weeks; but as it was impossible to keep all the patients in hospital until their drums had healed the percentage of complete recovery is not available; 45% were healed within four weeks.

CONCLUSIONS

The antero-inferior quadrant is the commonest site of injury. The proportion of infection to be expected under the most ideal conditions is 35 to 40%.

Insufflation of sulphanilamide powder is probably of value in preventing infection.

Deafness is of the middle-ear type, superimposed upon a permanent nerve-deafness.

The subsequent damage to hearing is not marked.

G. W. PALMER, M.R.C.S.,
Captain, I.M.S.

Reviews

LECTURES ON MEDICAL ETHICS

Medical Ethics. By Rupert M. Downes, M.D., M.S., F.R.A.C.S. Based on a course of lectures by Dr. A. V. M. Anderson at Melbourne University. (Pp. 78. 5s.) Melbourne: Published by Ramsay (Surgical) Pty., Ltd., 340, Swanston Street. Obtainable at all booksellers.

This modest volume may certainly be commended to the junior practitioner as he enters on the responsible duties of his profession. It offers information and advice relative to positions which are met but imperfectly in the technical medical curriculum but are none the less important in the doctor's life and conduct as these are related to his colleagues, to his patients, and to the State. The advice in all the circumstances contemplated is excellent in itself and is based throughout on the recognized traditions of the profession. The author's persuasive style gives the book an attractive literary quality. If the subject offers little opportunity for originality in substance the manner in which the teaching is presented is both pleasing and effective.

There is no attempt to cover all the situations included in the department of forensic medicine. Rather the purpose is to explain and justify professional obligations which arise less from rigid rules than from personal opportunities and seemingly customs and courtesies. In this respect the book is both comprehensive and well balanced. If we may suggest an addition it would be a paragraph on the value of personal insurances as a wise protection against the risks and contingencies which are part of the common lot.

The author acknowledges his indebtedness to the well-known textbook of the late Dr. Saundby, but he is mistaken when he suggests that there are not more recent counsellors in the field. Two limitations may be noted. First, not all legislation affecting medical practice in Australia—for example, the compulsory notification of venereal disease—applies in Great Britain; and, secondly, the book wants, and the anxious inquirer desires, an index.

NUTRITION OF MOTHER AND CHILD

War-Time Food for Mother and Child. By Geoffrey H. Bourne, D.Sc. (Pp. 78. 2s. 6d.) London: Oxford University Press, 1943.

In less than 100 pages the author has succeeded in simplifying the nutritional problems that beset expectant and nursing mothers and their offspring. There are chapters which deal lucidly with the difficult periods in a child's life—infancy, kindergarten, and school. The advice given on weaning is excellent and should prove most helpful to the harassed mother. Since the publication of this book official action has been taken to supplement the maternal diet with cod-liver oil and vitamin C. However, there are still women who do not know that capsules of the oil are available, who have difficulty in obtaining them, and who think that liquid paraffin is just as beneficial. A wise dispensation of the Ministry of Food, announced by Lord Woolton, is that from July 25 the expectant mother is to be entitled to two ration books, the additional one enabling her to obtain supplies of food beyond her normal adult ration.

On page 29 the advice about eating cheese seems to be out of its context: there is little iron in this food. The author has rightly stressed the importance of an adequate intake of vitamin C during lactation. He points out that dilution of cow's milk with cereal waters like barley and oatmeal and with limewater is no longer supported by medical opinion. Sugar in excessive quantities for the pre-school child is condemned. It is a pity the "Oslo breakfast" has not been described in more detail. Dr. Bourne asks what has happened to the health sandwiches introduced by those perspicacious medical officers of health, Drs. Milligan, French, and Hunt. These sandwiches were excellent supplements for children, and the author would like them provided throughout the country. We must agree that even in the "best" boarding schools diets are provided which do not contain all the essentials. We would go further, and include hospitals, both voluntary and municipal, in this indictment; and it is a good sign of the times that a

conference on hospital meals has lately been held on the initiative of the Food Education Society. There is no excuse for hospital food being so badly balanced, cooked, and served. It is the old story of good food spoilt in the kitchen. Until the kitchen staff is upgraded in status and pay to that in the operating theatre we cannot hope for improvement.

This book is intended for intelligent parents. It is doubtful whether the mass that throngs our maternity and child welfare clinics will digest some of its contents. But everyone working in these clinics, every health visitor, every midwife, every medical student should possess this nutritional guide.

STONES IN THE KIDNEY

Renal Lithiasis. By Charles C. Higgins, M.D. (Pp. 140; Illustrated. 53.00, post paid.) Springfield and Baltimore: Charles C. Thomas. 1943.

The subject-matter of this book comprises the Beaumont lectures delivered by the author last year. He reminds us that the first x-ray diagnosis of a renal stone was made in 1896 by MacIntyre; Henry Morris first performed nephrolithotomy in 1880, and Beck in 1881 is credited with being the first pyelotomist, but we were under the impression that Czerny of Heidelberg preceded him. From a brief consideration of the history of the occurrence and behaviour of urinary stones the author passes to a discussion of the aetiology, and in this connexion the importance of vitamin A deficiency in giving rise to their formation. The "stone areas" of the world which Dr. Higgins associates with this deficiency are depicted on a map. A poorly balanced diet, particularly on deficient in vitamin A content, was probably the cause of the high incidence of urinary stones in children in the last century both in England and on the Continent. This no doubt explains the fact that accounts of operations on children for stone in the bladder are so often found in pre-Listerian surgical literature. Both renal and vesical calculi have been produced in experimental animals by withholding vitamin A from them, and the author quotes his own and other experimental work bearing on this, and also claims to have produced complete dissolution of calculi by administering a high vitamin-A alkaline-ash diet. On this regime a cystine stone dissolved in 11 months, and after the patient, a young boy, had been free from urinary lithiasis for 6 years, a high-purine vitamin-A-deficient diet produced a small cystine kidney stone in 5½ months. He thus demonstrates the influence of diet in both producing and causing the dissolution of urinary calculi. Other factors in aetiology, such as infections, hyperparathyroidism, gout, etc., are also discussed. Further sections of the book are concerned with the analysis of calculi and their surgical and dietary treatment. Diet tables, a bibliography, and an index complete this valuable little monograph, which should be widely read not only by physicians and surgeons but, we suggest, also by practitioners of preventive medicine, since it would appear that many urinary calculi are preventable.

Notes on Books

Sir ALMROTH WRIGHT has followed Volume I of his series of collected researches, which dealt with *Pathology and Treatment of War Wounds* and was noticed in our issue of Aug. 8, 1942 (p. 159), with Volume II entitled *Researches in Clinical Physiology* (William B. Saunders Medical Books; 12s. 6d.). These miscellaneous papers, which are of wide general interest, are reprinted from various sources, including the *Lancet*, the *British Medical Journal*, the *Journal of Physiology*, and the *British Journal of Dermatology*. The chief subjects treated are the feeding of infants with undiluted citrated cow's milk; the arrest of haemorrhage; the reduction of excessive transudation through the capillaries; coagulability of the blood; and the procedure for dealing with respiratory collapse. The book ends with excerpts from Sir Almroth's *Technique of the Teat and Capillary Glass Tube*. No one should fail to keep the dust-cover on this volume, because the author's preface is to be found there and not in the usual place—between title-page and contents. Like everything he writes, this conversational prefatory letter reflects something of Sir Almroth's personality and is meant to make the reader think for himself.

It is not surprising that a sixth edition and several reprintings of the excellent textbook *A Short Practice of Surgery*, by Messrs. HAMILTON BAILEY and R. J. McNEILL LOVE, have been called for since its first appearance towards the end of 1932. There is little to criticize in this new edition—the best part is undoubtedly the

section on genito-urinary surgery, and perhaps the weakest that the surgery of the nervous system. Although cerebral contusion referred to, its complications and treatment are not mentioned. The commonest intervertebral disk lesion to give rise to sciatica is the lumbo-sacral and not that mentioned on p. 650. Illustrations plentiful and good throughout, but no meningeal haemorrhage have been seen has ever looked quite like that on p. 598 (Fig. 651). The blood clot has always been considerably darker than that shown. The sixth edition will no doubt maintain the well-deserved popularity of this book. It is published by H. K. Lewis at 36s.

A Synopsis of Surgical Anatomy, by Mr. A. LEE MCGRE (John Wright, Bristol; 25s.), has the merit of being written by a practising surgeon who keeps it in line with current practice. The fifth edition is a welcome revision in this respect. The section on intervertebral disk lesions, for example, is an excellent account of modern views. Not all will agree with the author's long (6–10 years) condemnation of Syme's amputation, however, and were disappointed that Lister's tubercle was not referred to in connexion with excision of the wrist or the complications of a Colles' fracture. The recent accounts of the subdeltoid bursa and supraspinatus tendon are good. Throughout the book there are valuable injunctions such as: "In thinking of the shoulder and its lesions, it behoves the practitioner to think of it in terms of joints, the shoulder joint and the subdeltoid bursa." We have the highest praise for this book and can confidently recommend the latest edition.

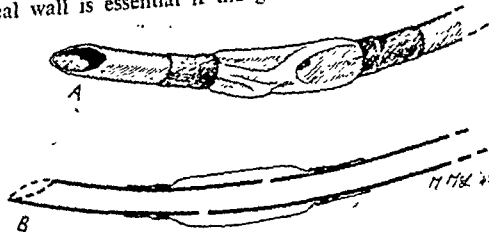
The small book entitled *First Aid at the Incident*, by E. MACDONALD, M.D., D.P.H., has been written chiefly for instruction, at the instance of the Leicester Civil Defence Committee. It has two novel features: one "The Administrative Code of the Air-raid Incident," this is good; the other, "Material during an Air Raid," a possibility but probably rare. Twenty pages out of 123 seems a large proportion to be given to "Warfare." Transport problems are well dealt with. On alcohol it is stated to be a "stimulant": this is not correct. Terms "closed" and "open" in connexion with fractures are not in their right place. There is an excellent index. The manual is on sale to the public at present, but we are asked to state readers who are interested in the matter may apply to Dr. Macdonald, Civil Defence Headquarters, 24, Halford, Leicester, who would then be able more easily to gauge what to seek authorization for the issue of further copies.

Preparations and Appliances

SELF-INFLATING CUFF FOR ENDOTRACHEAL TUBES

Prof. R. R. MACINTOSH, D.M., writes from the Department of Anaesthetics, University of Oxford:

Leakage around an endotracheal tube is of little importance during the maintenance of anaesthesia with an ether mixture from an Oxford Vaporizer, since the ether concentration can be increased at the source to compensate for this leakage. When, however, the anaesthetist wishes to inflate the patient's lungs to achieve "controlled respiration," as, for example, in thoracic surgery, an air-tight junction between the tube and tracheal wall is essential if the gases in the reservoir bag are



to be transferred to the alveoli. The First Assistant to the Department, Dr. William W. Mushin, has suggested a self-inflating cuff on an endotracheal tube which solves this difficulty. It consists of a thin rubber cuff (finger-stall) about 2 to 3 in. long, cemented at each end to the endotracheal tube which has two or three holes cut in that part of its wall which lies under the cuff. When pressure is applied to the reservoir bag the cuff blows up and forms an air-tight junction between the endotracheal tube and trachea, thus allowing the lungs to be inflated easily. I have used the Mushin cuff-tube in combination with the Oxford Vaporizer for major thoracic surgery and have found it entirely satisfactory.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY AUGUST 21 1943

THE NUTRITION MOVEMENT IN CANADA

A review of the development of the nutrition movement in Canada and an attempt to draw conclusions from Canadian experience may at this moment help us to bring matters into focus. A Canadian Nutrition Council first emerged in the spring of 1938 from the consultations of a special committee that had been formed by the Dominion Council of Health in the preceding year. The committee that had given it birth was constituted as the Council's executive body in association with its scientific advisory committee under the chairmanship of Dr. C. H. Best. A broad programme of investigation was drafted. Few surveys of Canadian diets had so far been carried out, though some investigations into the consumption of milk and other protein foods had been initiated by the Department of Agriculture; and in the course of 1937 an inquiry into food purchases in Alberta and into the dietary conditions of low-income families in Toronto had been undertaken. Four further surveys were therefore completed, under the direction of the Council, in Toronto, Halifax, Quebec, and Edmonton; the results were summarized in the *Canadian Public Health Journal* (May, 1941, 32).

The findings of these surveys indicated to the Council that the nutrients in which the diets of low-income Canadian families were peculiarly deficient were ascorbic acid and other members of the B group, calcium, iron, and vitamin A, in that order. It was tentatively estimated that some 20% of the subjects studied were seriously undernourished on a dietetic assessment, while a further 40% were in a borderline state. It has been further remarked that the average gain in weight by recruits to the Canadian Army during the first month of their service is 7 lb. The cumulative effect of these discoveries and of experience both in our own country and in the United States was sufficient to persuade the Nutrition Council to appoint a special committee in the November of 1941, charged with the task of expressing the ascertained deficiencies in terms of food. The committee's report was approved by the Council, and at the same time the Dominion Department of Pensions and National Health established a Nutrition Services Division under the directorship of Dr. L. B. Pett of the University of Alberta. The function of Nutrition Services has been to carry out recommendations of the Nutrition Council. To this end its staff of five (including three field workers) has been directed to work along the following lines: (a) to visit, inspect, and confer with those maintaining canteens in industrial plants with a view to assessing the nutritional value of the food served and to suggest improvements; (b) to help the public by advice on the choice of food, on suitable purchasing to secure a balanced diet, and on proper methods of preparation; (c) to make expert opinion available for the information bureau of the Department of National War Services.

The broad programme laid down by the Nutrition Council in the December of 1941 placed special emphasis upon the requirements of war workers. Accordingly the staff of Nutrition Services had by July, 1942, inspected about 150 war industries, comprising some 200,000 workers; additional information was assembled from a number of other plants; and a report was published summarizing the can-

teen facilities in 363 plants, which are stated to include well over half the war workers of the Dominion. It may be remarked that the delicate task of factory inspection was carried out under the authority of an Order in Council; but in June of the same year the Nutrition Council had suggested that, to avoid annoyance to industry and labour alike, the primary function of assistance to and inspection of canteens in war industries should rest with qualified representatives of the Federal Office (Nutrition Services), but that local groups were urged to make investigations into industry and the homes of industrial workers a part of any nutrition programme after consultation with Nutrition Services. A series of wholesome suggestions follows, closing with the recommendation that Divisions of Industrial Hygiene in Provincial Departments of Health shall co-operate with Nutrition Services.

The supplementary features of the programme proposed for the guidance of Dr. Pett and his colleagues are of some interest. All pamphlets used for nutritional education were to be reviewed and suggestions made for their simplification and standardization; studies were to be undertaken as to the best method of spreading nutritional information; use was to be made of the schools and the education departments; and, finally, Nutrition Services was envisaged as a central clearing-house of information on nutrition, which might assist in co-ordinating nutritional research in Canada. At the same time it was suggested that various existing groups might well be organized into provincial committees as a basis for the development of future campaigns. It is evident from the published material that the provincial committees, set up during 1942, are viewed as the intermediate link between the central authority in Ottawa and the community nutrition committees, through which the essential work is done. The provincial committees have been formed under the Provincial Departments of Health; and it has been their function to organize the province for the advance of the nutrition programme in all its aspects, as well as to advise the central authority on appropriate methods of education. The community nutrition committees are assumed to spring from the initiative of local interested groups or individuals. In the literature officially distributed such groups are recommended to establish a committee with representation from as many suitable bodies as may be approached. A model structure for local committees is laid down; and it is stressed that *liaison* with the provincial committee shall be maintained. The main work of the local committees is recognized as being education; and it is proposed that, through the activities of volunteer trained home economists, small classes of "leaders" shall be trained from every part of the community. The need for a carefully thought out plan for a prolonged campaign through lectures and study groups is stressed, and an outline course of six lectures on the main dietary defects believed to be common in Canadian homes has been issued by Nutrition Services. The mention of the use of posters, of well-advertised public meetings, of the radio, and of the co-operation that might be invited from restaurants and retail stores suggests that the promoters of the movement contemplate a popular campaign of some size.

It will be instructive to observe, as news comes through, how this campaign succeeds. The results of inquiry into factory canteens and cafeteria will be of import to every country that has to deal with the problems of war industry. Similar surveys in our own country, where detailed figures are still inaccessible to the general public, would also bring out useful information. We already have here a fair number of housewives' groups organized by the Women's Voluntary Services, and a few of them have taken up the study of elementary dietetics. But these occasional efforts

appear to be subject to chance interest or local eccentricity. These "patrolling activities" will be largely wasted unless they are followed up by a mass attack on the whole problem.

MEASUREMENT OF CLOT RETRACTION

Most blood clots contract on ageing, the phenomenon being known as syneresis or clot retraction. It has long been recognized that retraction may be defective in disease, and in recent years haematologists have sought methods for its quantitative measurement. Normally retraction begins as soon as the blood has clotted completely, and proceeds rapidly to a maximum. We may therefore measure either the rate or the extent of retraction of the clot. The latter is the procedure usually employed, the extent of retraction being determined by the amount of serum expressed. The conditions of observation must be rigidly standardized, in particular the calibre of the tubes, for extrinsic factors influence both the speed of coagulation and the amount of retraction.¹ In this country the technique of Macfarlane² is commonly followed, which makes use of a graduated centrifuge tube into which is fitted a cork bored to receive a glass rod. To perform the test, 5 c.cm. of blood obtained by venepuncture is immediately introduced into the tube, the glass rod and cork are fitted, and the tube is placed in a water bath at 37° C. One hour after a firm clot has formed the tube is taken from the bath and the clot is carefully freed and removed on the glass rod. The volume of serum is measured directly, and the result is expressed as a percentage of the original volume of blood. Macfarlane found that the normal serum volume fluctuated between 43.9% and 65.5%; he made no correction for anaemia. Since the entire bulk of the clot is proportional to the formed elements of the blood, some correction for anaemia or polycythaemia seems desirable. The simplest way of doing this is to compare the amount of serum extruded with the plasma-corpuscle ratio of the unclotted blood as determined by the haematocrit. We may call this the serum-plasma (S/P) ratio. Using this index of clot retraction, Van Allen³ found a normal serum output in rabbits of 87% to 100%. A more difficult and less meaningful way of recording the results has been suggested by Aggeler, Lucia, and Hamlin.⁴ They subtract the volume of the corpuscles from the volume of the clot and obtain a figure for the extracorporeal volume of the clot. The mean value for this figure in man was 9.1%. However the results are recorded, it is generally agreed that clot retraction is characteristically decreased in thrombocytopenia and hypoprothrombinaemia, and it may indeed be used as a measure of the latter defect. The test is in no way specific, and low values are also obtained in pneumonia, malignant disease, and occasionally in health.

It is interesting to put up two clot-retraction tubes and observe the second at 24 hours. In health little change will have occurred, but in other cases a greater or less number of red cells will have freed themselves from the clot. Van Allen³ was of the opinion that the quantity of corpuscles which escaped from the clot was directly proportional to the rate of retraction, and could indeed be used to estimate that rate. It would seem probable, however, that both the extent and the rate of retraction are in inverse proportion to the tendency to bleed, and Van Allen's anomalous results are probably to be explained by the fact that he exposed his clots to a good deal of mechanical strain. Certainly most workers with the

Macfarlane technique would agree with Reimann,⁵ who suggests that any considerable extrusion of corpuscles from the clot is an indication of a haemorrhagic tendency. Reimann speaks of this as the "escape phenomenon," and suggests that it indicates an undue readiness of the clot to break down *in vivo*. Nevertheless the sequence of events may be more complex than this. In some cases it may be found that the clot has completely dissolved again at the end of 24 hours. This is the phenomenon of fibrinolysis, which is prone to occur after trauma or operations and which is the basis of the employment of corpse blood for transfusions.⁶ Fibrinolysis may be regarded as the next step after the coagulation of the blood, just as autolysis follows rigor in muscles, though not all would agree with this simile. In any event, fibrinolysis is not evidence of a haemorrhagic tendency but rather the reverse. Taylor and co-workers⁷ have shown that when plasma is clotted by the addition of chloroform fibrinolysis invariably follows, and this fibrinolysis is slower in haemophilia than in health. The "escape phenomenon" may therefore be due either to friability of the clot, which indicates a haemorrhagic tendency, or to fibrinolysis, which does not. To study clot retraction completely, therefore, we should need to measure at least four things: the plasma-corpuscle ratio in the haematocrit; the volume of serum expressed at the end of 1 hour; the output of corpuscles at the end of 24 hours; and the rate of fibrinolysis as determined on the citrated plasma. None of these tests is particularly time-consuming, but it is doubtful whether the energies of the ordinary laboratory would really be well spent on measurements whose clinical and physiological bases are so obscure. In the present state of knowledge it seems wiser to regard the study of clot retraction as a research and not a routine procedure.

ORIGIN OF CHORIONIC GONADOTROPHIN

The evidence that the gonadotrophin excreted in the urine during human pregnancy is produced in the placenta has in the past been largely indirect, since the substance is only transiently excreted in pregnant monkeys and not at all in the lower experimental animals. The theory is based on the appearance of the gonadotrophin in the urine soon after the implantation of the egg and its abrupt disappearance after parturition. Contributory evidence has been supplied by studies of the amount of gonadotrophin that may be extracted from the placenta at different stages of pregnancy. One such study has been made by Bickenbach,⁸ who found that the largest amount present in the placenta two to three months after the onset of pregnancy, when the concentrations in blood and urine were also maximal, was equal to 100 mouse units per gramme of placenta.

Recently, however, definite evidence that the gonadotrophin is actually formed in the placenta has come from America, where Seegar Jones, Gey, and Gey⁹ have reported the formation of chorionic gonadotrophin in placental cells grown in tissue culture. Tissues cultured included 5 placentae obtained at hysterectomy in women 4 to 5 months pregnant, 2 placentae from ectopic pregnancies, 2 full-term placentae, and 2 hydatidiform moles. The supernatant fluid from the cultures was injected into 21-day-old rats, and histological changes produced in their ovaries were studied. Positive results were obtained in 20 out of 28 samples of supernatant fluid: follicle growth in 6 cases and the formation of corpora lutea in 14. There

¹ Emile-Weil, P. and Perles, S., *Le Sang*, 1934, 8, 1014.

² *Lancet*, 1939, 1, 1199.

³ *J. exp. Med.*, 1927, 45, 69.

⁴ *J. Lab. clin. Med.*, 1942, 28, 89.

⁵ *Acta med. scand.*, 1941, 107, 95.

⁶ *Lancet*, 1937, 1, 10.

⁷ *J. clin. Invest.*, 1943, 22, 127.

⁸ *Arch. Gynäk.*, 1941, 172, 152.

⁹ *Johns Hopk. Hosp. Bull.*, 1943, 72, 26.

were positive responses in all the types of tissue cultured, and it is noteworthy that the assays were carried out when the cultures were at least 2 weeks old, by which time there had been several changes in the fluid medium and the culture consisted of several generations of new cells. The cells of all the cultures tended in time to be of a uniform type, identified as that of Langhans's layer of the chorionic villus. Gonadotrophin was demonstrated in the supernatant fluid from one ectopic chorion that had been cultured for six months, though the production of gonadotrophin generally declined throughout the culture period. The authors were not able to show that any oestrogen or progesterone was produced. Their results, however, clearly prove that the gonadotrophin in pregnancy urine is of placental origin, and amply justify its international designation as chorionic gonadotrophin (or -trophin). Incidentally the authors use the term "cyonin," which was coined by Astwood and Greep¹⁰ and is gaining some currency in the U.S.A., though it has at present no international status.

DIMORPHIC ANAEMIA

The two best-recognized nutritional anaemias are the microcytic iron-deficiency anaemia of temperate climates and the nutritional macrocytic anaemia of tropical and subtropical zones. A fact which tends to be forgotten is that iron deficiency may complicate nutritional macrocytic anaemia, the resulting blood picture being confused and at first sight puzzling. Such cases have been observed in both India and Macedonia, and a recent report by Trowell¹¹ describes a large series of cases of anaemia among the natives of Uganda, many of which were found to have the characteristics of a "dimorphic anaemia." In the Tropics there is a tendency to regard anaemia as secondary to some tropical disease until it is proved otherwise. But, as Trowell points out, with modern methods of diagnosis nearly every inhabitant of the Tropics may be found to harbour an occasional malarial parasite in the blood or a hookworm in the bowel. It therefore becomes a matter of some difficulty to decide what constitutes a severe enough infection to be the prime cause of anaemia. In approaching the problem of diagnosis he considers that the first decision should be whether there is any nutritional deficiency present, then whether any disease such as hookworm or malaria is causing or accentuating the deficiency, and, lastly, what other serious conditions are present which might affect erythropoiesis. Trowell analyses his cases on these lines, and further classifies them on the basis of the values for the mean cell volume and mean corpuscular haemoglobin concentration. The colour index and mean diameter are not so useful in diagnosis, as they are frequently within normal limits in the cases of dual deficiency.

Between the two extremes of pure nutritional macrocytic anaemia and pure iron deficiency a high proportion of the Uganda cases fall into the groups "macrocytic hypochromic" and "normocytic hypochromic" anaemias. The former are all undoubted cases of dimorphic anaemia, but the latter may include a few cases of pure iron deficiency. In a typical case of dual deficiency the appearance of the blood smear is quite characteristic. Small hypochromic cells are found in the centre of the slide, forming a striking contrast with the large well-stained cells which collect at the edges and tail. Examination of the marrow shows that there is a mixed megaloblastic, normoblastic, and hypochromic type of erythropoiesis, the proportions varying according to the predominant deficiency. A therapeutic test is a simple additional diagnostic measure, a double

reticulocyte response being obtained with treatment first with iron and later with a crude liver extract. Purified liver extracts are best avoided, as the response is uncertain in nutritional macrocytic anaemia. It is naturally important that any complicating disease should be treated concurrently.

Under wartime conditions it may well be that similar cases of "dimorphic anaemia" may be encountered in Western Europe; the facts assembled by Trowell are therefore of considerable interest.

THE GENUS SHIGELLA

Bacillary dysentery in man is characterized by an acute inflammation of the large intestine, and cases may be epidemic, endemic, or sporadic. Ervin Neter¹ in a review of the genus *Shigella*, the most important members of which cause bacillary dysentery, points out some of the gaps in our knowledge of this group of microbes. Diagnosis is made by successful isolation of the specific organisms from the stool; particles containing pus and blood are the most likely to give positive results. When immediate examination is impossible, the infective material can best be preserved in 30% glycerin in physiological saline tinted with neutral red. More recently good results have been obtained by preserving in a buffered saline solution (pH 8.5) containing 1% sodium citrate and 0.5% sodium desoxycholate. The successful isolation of dysentery bacilli by direct plating on desoxycholate agar is one of the greatest improvements in bacteriology in the last year or two. The Widal test applied to bacillary dysentery presents much difficulty compared with its application in the enteric fevers, and, if employed, a standardized procedure should be carefully followed with proper positive and negative controls. Therapeutic sera and bacteriophage have both been employed in the treatment of dysentery infections, but recent experience with the sulphonamide drugs indicates some of them to be particularly bacteriostatic to the dysentery bacilli. Sulphathiazole and sulphaguanidine have proved most efficacious, not only by inhibiting members of the genus *Shigella* but also because they are fairly soluble in water and are absorbed but slightly from the intestine. Active immunization against the disease would be of value, particularly in wartime; the formaldehyde-treated exotoxin (toxoid) of Shiga's bacillus may be worth a trial.

Several of the species of dysentery bacteria are known under a variety of names, a fact which often leads to confusion. The following members of the genus *Shigella* are recognized as pathogenic to man: *S. dysenteriae* (Shiga bacillus), *S. schmitzii* (Schmitz bacillus), *S. sp.* (Newcastle type), *S. paradyenteriae* (Flexner bacillus), and *S. sonnei* (Sonne bacillus). There is increasing evidence that *S. alkalescens* is pathogenic to man. A primary subdivision of *Shigella* is best obtained by classifying its members according to their action on lactose and mannitol. Group I consists of lactose-negative, mannitol-negative types, including the type species of the genus, *S. dysenteriae*. The only other pathogenic member of this group is *S. schmitzii*. The former organism is indole-negative, forms an antitoxin, and is antigenically distinguishable, in these ways differing from the latter. *S. paradyenteriae* is the chief member of the second group—lactose-negative, mannitol-positive types. This genus is characterized by its members undergoing bacterial dissociation, and each species having several antigenic types; *S. paradyenteriae* (Flexner bacillus) is the chief offender in this respect. Boyd has added considerably to our knowledge of the antigenic

¹⁰ Science, 1939, 89, 81.

¹¹ Trans. roy. Soc. trop. Med. Hyg., 1942, 36, 151.

¹ Bact. Rev., 1942, 6, 1.

make-up of this group by the demonstration of a group-specific antigen. The old biochemical subdivision of Flexner types on the fermentation of maltose and sucrose should be abandoned, as it bears no relation to antigenic types. *S. alkalescens*, another member of this group, is distinguished by fermenting dulcitol and xylose and producing an extremely alkaline reaction in litmus milk. The fact that certain members of the genus are late lactose fermenters was apparent long ago, but it was not until 1915 that Sonne proved conclusively that such an organism could produce clinical dysentery in man. Late fermentation of lactose is due not to a slow utilization of the carbohydrate but to the appearance of lactose-fermenting daughter colonies.

The rapid differentiation of Flexner from Sonne often presents difficulties, as the fermentation of lactose by the latter may require several days or weeks. Usually, however, colonies of Sonne, appearing first as yellow on solid media, soon turn pink to red after 24 to 48 hours' incubation; the smooth Sonne colony is said to be more convex than the Flexner colony. Both soon undergo dissociation to rough forms. The fermentation of rhamnose is said to aid in their differentiation; Sonne's bacillus produces acid in 24 to 48 hours, whereas strains of Flexner fail to do so, or do so only after prolonged incubation. The differential diagnosis of Sonne from Flexner infections by agglutination tests may be difficult owing to an antigenic relation between the two organisms, particularly if rough forms are encountered. *B. dispar*, first described by Andrewes, is identical with *S. ceylonensis* and *S. madampensis* of Castellani. These organisms are included with *S. sonnei* and are differentiated by being indole-positive. There is no conclusive evidence as yet to indicate that these organisms cause dysentery. These strains could be included in a single species—e.g., *S. castellanii*.

Many species of the genus have been studied comprehensively, but knowledge of the other species is lacking, and competent investigators should collect and study strains of these little-known varieties and identify the accuracy of the strains, reconsider their taxonomic position, and determine their pathogenic significance. Again, with the exception of Shiga's bacillus, little is known as to why one species may cause epidemic outbreaks of dysentery whilst a very closely related species does not. Further investigations are required on this basis as well as chemical analysis of their antigenic components.

AN APPEAL FOR BACK NUMBERS

Members who do not preserve the *Journal* for binding are invited to send their copies (preferably in bulk) to B.M.A. House, Tavistock Square, W.C.1, addressed to the Secretary of the Journal Board. The cost of carriage will be repaid.

There is a constant demand for back numbers, and each goes quickly out of print; hence any spare copies published during the war will be welcome. The steady growth in membership to a figure well above 43,000 has increased the circulation of the *Journal* by 12% in the past four years, because every new member must have his weekly copy. Meanwhile there has been a very severe and progressive cut in the amount of paper allowed to be used for printing. Every means of economizing space has been adopted in order to make the paper ration go as far as possible, and nothing more can be done except to reduce the number of pages still further. A member who returns his copies at any time after reading them will in that way put them back into circulation through the Head Office. If the response to this appeal is widespread the help thus given will be very material at a time of great and increasing difficulty.

CHILDREN IN BONDAGE

The Save the Children Fund, founded in England after the 1914-18 war, to bring relief to the suffering children of Europe, made a most important contribution to European recovery. Its founder, Eglantyne Jebb, received less recognition than was her due for her self-sacrificing devotion to child welfare. The subsequent creation of the Save the Children Union linked together the national child welfare associations of 27 States and did much to stimulate increased activity in this vitally important branch of public health and endeavour in many of its constituent countries. The Save the Children Fund has set up a committee to study the problems of post-war reconstruction in Europe in its own special domain. The report *Children in Bondage: Child Life in Occupied Countries*¹ has been prepared for the use of that committee. It contains such information as was available up to June, 1942, regarding conditions of child life in the occupied countries of Europe with the exception of the occupied portions of Soviet Russia, and in Finland. It further provides some information regarding economic and health conditions generally in these countries. All this information is of necessity fragmentary and disjointed. Such vital statistics as the report contains are for the most part bereft of significance by the absence of other essential data. Moreover, conditions are constantly changing, and in the main, unfortunately, for the worse. In spite of this the small volume is a useful reminder of the extent to which the continuation of the war is sapping the vitality of the rising generation and of the nature of the formidable problems that await us in this vitally important aspect of post-war reconstruction. The most informing chapter of the report is that devoted to Finland, which contains information collected by Dr. Herceod during a visit to that country early in 1942. In the chapter on Greece the national child welfare organization, whose work receives appreciative recognition, is called the Patriotic Institute; the Patriotic League is its usual appellation.

THE R.S.M. IN WARTIME

At the recent annual meeting of the Royal Society of Medicine it was announced that the membership of the Society is now just over 6,000, the highest level it has ever attained, and marking a 50% increase within the last fifteen years. No. 1, Wimpole Street is nowadays a very active centre. The meetings of the Society during the past year have been larger in number and better attended than ever, and the Barnes Hall has often been crowded out. In the annual report 55 set discussions which have taken place in the various Sections are listed. Many of these, which have been briefly reported in these columns, have had a close practical application to medical service in wartime, both in the military and in the civil field. The Society has given hospitality to members of the medical services of the British, Dominion, and Allied Forces, and many of the discussions have been enriched by contributions especially from United States and Canadian colleagues. Two distinguished medical men of the United States, Dr. Thomas Parran and Dr. Hugh Young, as well as Prof. A. T. A. Jurasz of Poland, have been elected honorary Fellows. Inter-Allied conferences on military medicine have also been arranged for the benefit of the fighting Forces, the discussions taking place in private. Committees of the Society are now dealing with the subject of interned medical aliens, with education in otorhino-laryngology, and, in collaboration with the Royal Medico-Psychological Association, with the future of psychiatry in all its branches.

POSSIBILITIES OF RESEARCH IN SENILE DISEASES*

BY

S. CIEMAN, M.R.C.S., L.R.C.P.

Medical Superintendent, Southend Municipal Hospital, Rochford

The scope and opportunities for systematic study of and research into diseases affecting the aged are limitless. According to the Life Insurance Underwriters' Association, it is estimated that in 1945, 1 in 8 of the anticipated population of the British Isles will be over the age of 60. Since unemployed elderly men are dependent upon State aid, it is of interest to the State to encourage investigation of diseases peculiar to age and to extend preventive medicine to this field. At present the attitude of both the public and the profession towards the aged and their ailments is negative. Arteriosclerosis, arterial hypertension, cardio-respiratory disorders, nephritis, cancer, diabetes, and arthritis continue to rise. There are books, journals, societies, and University chairs devoted to other special branches of medicine, but, apart from small organizations interested in particular homes for the aged, there is no general or professional body concerned with disease affecting the aged. Special courses or at least lectures should be included in the curricula of medical schools. Clinics should be established, where necessary with adequate laboratory facilities, if knowledge of the normal retrogressive alterations in the anatomy and physiology of the aged is to be developed. In America a research unit has been established under the Federal Health Department to study human clinical problems of ageing and of diseases characteristically associated with advancing years and which involve the mental as well as the physical changes of senescence.

Heredity is probably the capital factor in longevity and the maintenance of a healthy old age. In order to assess heredity as a causative factor in premature degenerative changes, periodic examinations are necessary, since they lead to the discovery of disease tendencies and correction of errors in the mode of living. If a patient's father died of nephritis or his mother of cerebral haemorrhage in the early sixties, a regimen tending to prevent arterial hypertension should be advised. If there is a positive family history of diabetes (and there is believed to be a hereditary factor in 25% of cases) an ageing patient should have "urinalysis" done every three months and blood-sugar estimates or glucose-tolerance curves twice yearly. Heredity is probably the most important aetiological factor in coronary artery disease, the greatest number of deaths from which occur between the ages of 62 and 74. The same applies to hypertension and obesity.

The Actuarial Society of America has shown that at the age of 55, 20% overweight means 25% higher mortality. As obesity in old age is often associated with diabetes, degenerative cardiac, arterial, and articular diseases, and gall-bladder pathology, it is important to pursue investigations into causative factors. The basal metabolic rate is often lowered in obese persons; but this does not signify thyroid deficiency, and thyroid medication is unlikely to succeed in weight reduction. It is now believed that the hypothalamus contains a fat-regulating centre and that there is abnormal irritation of this centre, where feelings of hunger originate an increase of appetite in the absence of exercise, occupational activity, etc.

Study of Subjective Symptoms

There is an immense field for the modification of the clinical descriptions of the various diseases and syndromes as they affect persons of age. In the pre-disease period there are no specific symptoms except a feeling of ill-health, uneasiness, apathy, unexplainable fatigue, and loss of appetite. These subjective symptoms call for a study of the organism as a whole, a complete inventory of the body systems and nutrition, and a synthesis of the data so obtained. Thorough practical laboratory investigations of such elderly people will eventually succeed in detecting the onset of senile diseases, prolonging the duration of

their usefulness to the community, and maintaining their will to live and their self-respect.

Rollston aptly stated that in old age the organs suffer in silence. In the aged, pain is not a safe clue. Owing to diminished nerve sensibility and excitability there may be appendicitis, peritonitis, or strangulated hernia without much pain. Pneumonia may exist with little pain in the chest and little if any rise of temperature or pulse rate. Such patients may be just drowsy, apathetic and prostrate, or restless. Chills are rare at the onset of such acute infections as influenza, pneumonia, or pyelonephritis. The onset of diabetes may be insidious and almost invariably without typical symptomatology. Mild forms with intermittent glycosuria and hyperglycaemia may be of several years' standing, with the patient feeling well, and yet may suddenly become acute, requiring rigid diet and insulin. Hence the importance of glucose-tolerance tests in the aged person with glycosuria, so instituting earlier control, but using a higher blood-sugar figure as the normal physiological basic level.

Investigation into Various Complex Conditions

If the complex conditions which determine arteriosclerosis and its sequelae, cerebral haemorrhage and thrombosis, coronary artery and renal disease, and peripheral gangrene were investigated more thoroughly, it would lead to the discovery of the main causative factors of senility and premature senility with their attendant incapacity. We are aware of the roles of heredity, infectious illnesses, disorders of metabolism, nutritional imbalance, mode of living, etc., but the actual mechanism remains a mystery. To diagnose arteriosclerosis at an early stage remains difficult. Palpation of vessels, examination of ocular fundi, x-ray examinations of chest and extremities, and blood-pressure estimations are not enlightening enough.

It would seem that the approach by thorough blood cholesterol studies is the most helpful at the moment. By feeding cholesterol to rabbits, atheromatous changes in the heart valves and in the intima of the great vessels have been produced. At the age of 45 it may be permissible to try a low-cholesterol diet and desiccated thyroid if hypercholesterolaemia is present, supplemented by the usual measures of correction of overweight, adequate rest periods, avoidance of fatigue, undue excitement, and strain.

Arterial changes are associated with an increase of cholesterol esters in the blood. The possibility of controlling the blood cholesterol through diet is being acted upon. Hypercholesterolaemia is constant in myxoedema. The cholesterol-cholesterol-ester ratio is abnormal in diabetes and obesity, and if the B.M.R. is normal in these conditions and the blood cholesterol high, marked improvement occurs when small doses of desiccated thyroid and a low-cholesterol diet are given.

Occasionally very low blood-pressure values are found in apparently healthy old people. Blood-pressure readings should be taken and charted as are T.P.R., as they vary after a meal, from day to day, from month to month, and from year to year. It is not unusual to find patients who have had an increase in blood pressure over a period of years, and whose blood pressure has become normal again without treatment when they reach the ages of 70 and 75. However, as a prophylactic measure, the cardiac and renal functions should be assessed in every hypertensive. Some observers regard endocrine imbalance as a cause of hypertension, but there is no definite evidence to justify this belief. Goldblatt's experiments in the production of hypertension by clamping the renal vessels and of renal failure by occluding the renal artery promise to shed light on the aetiology of hypertension and its relation to nephritis. Many attempts to detect a pressor substance in the blood plasma which could reproduce the vasopressor state in either animals or men are being made.

Diagnostic Tests

It is necessary to estimate quantitative degrees of renal impairment in treating almost any organic disease in old age, including cancerous conditions of the alimentary tract, pelvic tumour, and arteriosclerotic gangrene requiring surgical intervention. While there is a choice of laboratory investigations for this purpose, no single one of them by itself is reliable, and

* Read to the London and Home Counties Branch of the Medical Superintendents' Society, Feb. 13, 1943.

there is still scope for a renal function test to enable a surgeon to decide on the proper pre-operative preparation and the type of operation. In old age leucocytes and casts are frequently present in urine, often in large numbers, without in any way being pathological.

Various tests for hepatic function are being used, but hitherto none have commanded the confidence of the clinician. Yet it is important from the point of view of pre-operative measures and scope of operation to have a quantitative estimate of the degree of liver damage associated with gall-bladder disease or obstructive jaundice. In such cases, cholesterol esters may disappear from the blood and reduction of hippuric acid will show the degree of damage to hepatic cells.

A clinical diagnosis of chronic myocarditis or myofibrosis should not be made. These labels do not present a picture which can be proved clinically or radiologically. It is only when coronary disease or angina of effort is present, and confirmed by electrocardiographic examination, that it is possible to make a diagnosis which can be substantiated. Heart disease in old age in the absence of valvular disease and renal defect is generally arteriosclerosis of coronary arteries. Since it is difficult to diagnose myocarditis one has to depend upon a study of the function of the heart by its reaction to ordinary physical activity. It is rather discouraging to find that when an elderly patient dies from cardiac defeat after operation necropsy may fail to show any change which would logically account for the condition.

Gastric Disturbances

Absence of gastric acidity increases with age. In a series of 110 elderly people there was absence of free HCl in 66 who were apparently in good health; 76 of the 110 showed signs of atrophic gastritis, demonstrated gastroscopically with diminution or absence of free HCl; but only 14 of these had mild discomfort, while the remainder had good appetites and tolerated their food well. The Hb in this series was frequently diminished, and 24 had red cell counts between 2,900,000 and 3,800,000 per mm. Hence hypochlorhydria is common in old age, and is probably dependent on a symptomless atrophic gastritis. Similarly the proteolytic, lipolytic, and amylolytic enzymes are normally diminished in persons of advanced years. Peptic ulcer is common between the ages of 55 and 79, cancer of stomach between 50 and 79. Gastroscopy and x-ray examination following an opaque meal are the most accurate aids to diagnosis. Many persons manifest the first evidence of peptic ulcer after the age of 60.

Achlorhydria increases in incidence as the years advance, and may precede definite anaemia or cancer by several years. It is not uncommon to discover the first symptoms of pernicious anaemia at 75 or 80 years of age. Every patient complaining of a "weak heart" or symptoms pointing to disturbance of the nervous system must be investigated with pernicious anaemia in mind, although diabetes, myxoedema, or nephritis may be present also, double pathology being quite common in senescence.

It is commonly stated that pernicious anaemia is rare in old age. The majority of cases now seen are in the age period 40-79. If blood counts were done as a routine many more cases would be discovered. Physicians have neglected to look for pernicious anaemia in the aged because they have been taught that it is a disease of middle life.

Defective Nutrition

We have all seen persons who are unable to make the effort to venture out in inclement weather to obtain their rations, with the result that they are admitted to hospital in a cold, wasted, asthenic, and neglected condition or perhaps in coma with an intercurrent infection, feeble and shallow respiration, and a pellagra-like dermatosis. The response to the giving of a balanced diet and parenteral vitamins is dramatic. The debilitated and depressed condition of many persons of advanced age and their vulnerability to infection may be traced to defective nutrition if a review is made of their daily intake, especially in respect of vitamins, minerals, and caloric value. The aged, often faddy in their likes and dislikes, are unlikely to have the necessary variety in their meals, because this entails

partaking of certain foods to which they have never been accustomed. The condition, too, may be aggravated by defective absorption from the alimentary tract and by defective utilization.

Thrombophlebitis is a fairly common condition in the aged—especially in those who are confined to bed for any reason, in the obese, and after operation. It has been shown that the interruption of vasoconstrictor impulses with procaine by infiltration of sympathetic ganglia brings about a normal interchange of intravascular and perivascular fluids. There follows rapid relief of pain and oedema, and fever soon disappears. As with coronary artery and cerebral thrombosis, heparin may be used prophylactically, but the prohibitive cost prevents its general use. Vitamin K has not proved efficacious in the thrombotic conditions of the aged.

Future Possibilities

The future may hold the possibility of using endocrine therapy for prostatic enlargement. Periodic medical examinations with routine attention to the prostate gland will reveal many incipient hypertrophies. Oestrogens, androgens, and gonadotrophins have been tried, but results are not convincing. Much work remains to be done before the possible relationship of the endocrines to prostatic hypertrophy can be visualized. In the meantime, earlier detection of prostatism favours transurethral resections, the mortality rate of which at the Mayo Clinic is 1%, while delay and neglect mean prostatectomy, the risk depending upon the state of the cardio-renal-vascular system and the lungs, and the presence of infection.

Space does not permit me to refer to the preventive measures or the investigations which might be pursued with advantage in elderly patients with incipient impairment of hearing and vision. There is an immense scope for research into the cause and prevention of progressive degeneration of the lungs and the cardio-respiratory complex. Much is to be gained by focusing attention upon the appropriate housing and hospital conditions required by the aged to minimize accidents and to maintain optimum health and usefulness.

Nova et Vetera

THE VIENNA SCHOOL

To medical students at the beginning of this century study abroad was alluring; one envied those lucky enough to be able—not always with solid reasons—to record in the *Medical Directory* the names of foreign universities in which they had continued their studies. Whether the goal were clinical or laboratory study, the chosen schools were, in a great majority of instances, situated in Germany; the names of Vienna and Paris occurred fairly often, Leyden rarely, Padua hardly ever, if ever. If one turns the pages of Munk's *Roll*, which gives a picture of the educational habits of three centuries of English experience ending rather more than a hundred years ago, we see first the lure of Italy and France and then the attraction of Leyden, which throughout the 18th century attracted a considerable majority of the young British physicians who studied outside these islands. The attractiveness of a foreign school is the resultant of several components, of which accessibility and the reputation of its teachers are the most important. Leyden in the 18th century had both merits; Boerhaave was a great teacher, and after his death his tradition continued. A decreasing resort to foreign universities at the end of the century was due partly to the increasing reputation of our own schools, partly to war, and possibly to the decay of Latin as an international means of communication. When, in the 19th century, foreign study revived, it was purely postgraduate education.

The distinguished historian of medicine, Dr. Max Neuburger, has published a monograph on the Vienna School and its contacts with British medicine which will interest all readers and recall pleasant memories of some senior colleagues.¹ It

¹ *British Medicine and the Vienna School: Contacts and Parallels.* By Max Neuburger, M.D., Ph.D. (Pp. 134; Illustrated. 10s. 6d.) London: William Heinemann, 1943.

is usual to speak of two periods in the history of the Vienna School, approximately a hundred years apart, as golden ages. After the death of Boerhaave, his disciples van Swieten and de Haen were shining lights of the "old" Vienna School. Boerhaave, an enthusiastic admirer of our Sydenham, had immense influence in spreading the Hippocratic methods which Sydenham's clinical genius had quickened; van Swieten and de Haen carried on the good work in the metropolis of 18th-century Germany. It is not likely that many Englishmen studied in the old Vienna School, but Prof. Neuburger illustrates the spiritual affinities of the best British thought with the Viennese teaching. This mutual influence persisted over more than a century.

Of the many hatreds corrupting the soul of Adolf Hitler, a loathing of imperial Austria was not the least. No doubt the principal motive was personal, but it is possible that a dim perception of the good side of old Austria had its part. The Austrian Government often treated vassals with the Teutonic brutality which Hitler might naturally praise, but undoubtedly Vienna was, down to our own day, a civilized capital city, and its intellectual society had an urbanity and respect for the work of other nations which have never been conspicuous in North Germany. The successors of van Swieten and de Haen, in particular Stoll and Johann Peter Frank (whose thought was much influenced by the writings of John Brown), worthily carried on the tradition; and Richard Bright, who visited Vienna in 1814, gave a glowing account of the teaching, mentioning Beer's instruction in ophthalmology, which William Mackenzie described in more detail a few years later.

Prof. Neuburger remarks that one of the most significant achievements of the old Vienna School Auenbrugger's researches on percussion, had small honour in its author's day in Vienna and was brought to the notice of the world by Corvisart and Corvisart's pupil Laennec. After the time of Frank the fame of Vienna waned and Paris attracted a majority of foreign postgraduate students for a generation; accessibility and a succession of brilliant teachers provide a sufficient explanation. But this was not the end. A great clinician, Joseph Skoda, and a great pathological anatomist, Karl Rokitsky, appeared, and the new Vienna School was born. In the early and mid-Victorian period, the zenith of the new Vienna School, the liaison between British and Austrian medicine was close; not only did Rokitsky take great interest in the British literature of pathological anatomy—which, in some points, anticipated his own conclusions—but colleagues such as Hyrtl the anatomist, Brücke the physiologist, and Hebra the dermatologist were well acquainted with English work in their fields. The classical work of Semmelweis—whose treatment by the Vienna faculty did it little honour—attracted much favourable attention in our country. At that time a succession of brilliant ophthalmologists and other specialists were responsible for teaching which earned a reputation assuring a steady flow of foreign students. Indeed, efficiency in special teaching continued to draw students after the general reputation of Vienna as a medical school had been eclipsed by the fame of teachers in North German schools. Felix Semon, who studied in Vienna in 1874, spoke in high terms of the teaching, although he found something to criticize, especially "the want of human feeling shown in the various clinics. In Hebra's skin clinic that indifference occasionally increased to sheer brutality. . . . In Vienna hospitals the patient was merely regarded as 'material.' The poor sick submitted to this with a dull resignation which surprised me at first as much as the want of sympathy of some of their medical attendants."

The primacy of Vienna was over before our younger generation were old enough to be graduates, but the names of Wenckebach and von Pirquet are familiar even to the young. In general one may say that the intellectual sympathy between the English and Viennese Schools was due to a respect for rational empiricism and a distaste for theoretical systems—a Hippocratic rather than Galenic attitude, which the great teachers of both adopted. Vienna is now submerged by a tidal wave of barbarism, but it is not fantastic to expect that the dark waters will recede sooner in Southern than Northern Germany. Vienna has been, what Berlin never was, really cosmopolitan; she may be again.

M. G.

NEW ZEALAND

[FROM OUR CORRESPONDENT IN WELLINGTON]

Advertising of Medicines

Regulations dealing with advertisements of medicines have been gazetted by the Minister of Health, who explained that they were framed at the request of the board set up under the Medical Advertisements Act passed last year. The board had settled details at a number of preliminary meetings, and would now be in a position to put into operation the provisions which it, as a body of experts, had recommended to the Government.

The main effect of the regulations is to prohibit any claim in medical advertisements (1) to diagnose, prevent, alleviate, treat, or cure a large number of diseases or disorders (including alcoholism, cancer, diabetes, female irregularities, pleurisy, pneumonia, sexual weakness, tuberculosis, and venereal diseases); or to prevent or cure asthma, gout, influenza, obesity, haemorrhoids, or pyorrhoea; (2) that any article or mode of treatment is used or recommended by doctors or other professional men or bodies, with the exception that reference may be made to a named doctor registered in some part of the British Dominions; (3) that any article or mode of treatment is a universal panacea or infallible in its action; or any claim (4) that is false, indecent, or expressed in offensive terms; (5) that, in so far as it relates to therapeutic value, is not based on the advertiser's honest and reasonable belief; and (6) that is intended or likely to mislead or deceive, or to suggest the fear of serious consequences from trivial complaints.

No medical advertisement may invite public correspondence for diagnosis or consultation, nor may it refer to any testimonial for which payment or other consideration has been given. A warning against use without medical advice must appear in every advertisement relating to glandular preparations, and advertisements accompanying preparations containing or purporting to contain a dangerous drug or poison must name the drug or poison and state the proportion present and the maximum adult dose. Recognized pharmaceutical names of drugs must be used in advertisements, and any drug not referred to in standard pharmaceutical works and possessing no recognized botanical name must not be mentioned. Every medical advertisement accompanying any article is to contain specific directions for use.

The board has power to grant exemption from some provisions of the regulations, but not from (1) or from the provisions relating to poisons and dangerous drugs or to the names of drugs. The operative parts of the regulations came into force on Aug. 1, 1943, and in order to give holders time to dispose of made-up packages a further period to Nov. 1, 1943, is allowed in respect of advertisements on or attached to an article or its container. Advertisers who, at the time the regulations came into force, held a stock of advertising material which offends against the provisions relating to the naming of drugs and to preparations containing dangerous drugs or poisons are permitted to continue using it for 12 months thereafter.

The intention of the Act is admirable, and no doubt any defects can be remedied as the result of experience. It does not, however, seem proper to authorize the names of registered doctors in advertisements. Also, the fact that a medicine is approved by a Government board appears to give it official sanction and so greatly enhances the value of the advertisement.

Speaking at the annual meeting of the British Hospitals Association, the Minister of Health (Mr. Ernest Brown) said he had been encouraged by the obvious desire of hospital representatives to work out proposals for an efficient service and by the spirit of give and take which had prevailed. The discussions which had taken place so far had served to make it clear that no onslaught was being planned against the voluntary system; this was a complete misconception. The Government's policy was, and always had been, to make the fullest use of voluntary resources in any post-war hospital service. Changes would be necessary, and if we were to have an integrated and comprehensive hospital service we should have to learn to give up some of our lesser liberties of the past in order to enter into the greater freedom represented by that service. We could not find room in such a service for an independence which was really a disguise for selfish ambition, or a liberty which was really licence.

RADIUM COMMITTEE OF THE KING'S FUND

The Radium Committee of King Edward's Hospital Fund for London, which was first appointed in 1939 and to which there have been references in the last three annual reports of the Fund, has now issued its first general report. The committee has been principally concerned with such matters as wartime precautions in the use of radium, emergency radiotherapy centres, a consultant panel of physicists, organization of radiotherapy in London, and the King's Fund radium pool.

Precautions in the Use of Radium.—One of the committee's first tasks was to see that steps were taken to safeguard radium and to avoid the danger that might be caused to the general public through its dispersal by high explosive. On the outbreak of war, therefore, all the radium was deposited in deep boreholes. Later, however, safeguards were devised which have allowed much of the radium to be withdrawn and put into use. This problem has taken up a great deal of the committee's time, and it has kept in touch with the Radium Commission, which had to deal with the same problem in the Provinces. Following a joint recommendation by these two bodies the Ministry of Home Security issued a pamphlet on the precautions to be taken by all holders of radium.

Emergency Radiotherapy Centres.—The recommendation of the committee and the Radium Commission that special emergency centres should be established for such target areas as London where radiotherapy could be carried on in greater safety was accepted by the Ministry of Health. A scheme was agreed and arrangements made to set up two centres, one of which is now in operation while the other is expected to be ready soon.

Consultant Panel of Physicists.—As a result of the committee's efforts a panel of physicists has been established, which will assist hospitals that have no physicist on their staff and help them to maintain a good standard of technical efficiency. The panel consists of the physicists with the members of their departments from the Medical Research Council and the Middlesex, Royal Cancer, St. Bartholomew's, and Westminster Hospitals.

Organization of Radiotherapy in London.—The committee has expressed its agreement in principle with the views of the Radium Commission on the need for team work in the treatment of cancer and on the requirements of an efficient radiotherapy centre. It has told the Joint Co-ordination Committee that it considers that radiotherapy in London should, subject to the requirements of treatment and teaching, be concentrated at certain of the existing centres attached to general hospitals, and these centres developed by expansion of the staff, equipment, and number of patients served.

King's Fund Radium Pool.—The service of the pool was suspended for some time on the outbreak of war, but it has been gradually resumed. It is still operating on a reduced scale only, and has consequently required less transport.

NEW SALARIES FOR MIDWIVES

In the preamble to the report of the Rushcliffe Committee on Nurses' salaries (*Journal*, Feb. 27, p. 264) stated that a separate committee, with Lord Rushcliffe as chairman, was considering midwives' salaries. The latter committee has now reported,* and its chief recommendation is that State-certified midwives shall be paid according to national salary scales. In making this recommendation the committee has been mindful of the need for making the midwifery service attractive enough so that young midwives will still leave it for nursing. Some of the salaries suggested are as follows:

	Annual Salary	Total Value of Salary and Emoluments
Matron:		
Training institution (50-99 beds)	£275, rising by £25 a year to £400	£425-£550
Assistant matron: 50 beds or over	£230, rising by £10 to £290	£350-£410
Peripartient midwife: Training institution	Range of £240-£340	£360-£460
State-certified midwife and State-registered nurse ..	£150, rising by £10 to £200 (plus £20 after ten years' service in grade)	£250-£320
Midwife: C.M. and S.R.N. ..	£120, rising by £5 to £160	£210-£250

A pupil midwife who is already a State-registered nurse is to receive £65 a year during training (in addition to emoluments worth £5), and a pupil midwife who is not a trained nurse £40 for the first year, £45 for the second, and £60 during the second period

* Cmd. 6460. H.M. Stationery Office. (6d.)

of training. As regards domiciliary midwives, a district midwife who is non-resident and who is also a State-registered nurse is to receive an annual salary of £270, rising by £10 to £360; while a midwife who is not a State-registered nurse will receive £250, rising by £10 to £350.

The committee next recommends that in future midwives should have a uniform, and that the Central Midwives Board should be given power to make rules regarding the uniform, and that it should be an offence for other than State-certified midwives to wear it. It is thought that a uniform will contribute to the public standing of midwives, who bring into the world 400,000 of the 600,000 babies born each year, and act as maternity nurses under doctors' instructions in most of the remaining confinements. The report gives a reminder that midwifery has its own traditions; it is a closed profession, the title of "midwife" being protected by law: unqualified practice being illegal.

Other recommendations are that institutional midwives should work a 96-hour fortnight, have not more than six months' continuous night duty (two months for pupil midwives), free uniform and one day off duty a week. For domiciliary midwives local authorities should establish more district hostels, or in suitable areas provide furnished houses or unfurnished rooms or lodging attendance; they should also provide professional equipment, a stationery, medical supplies, uniform and professional laundry, and should maintain a telephone. All midwives, except pupils, whether institutional or domiciliary, should have 28 days' annual leave with pay. The report also recommended that the practice of charging fees to pupil midwives should be discontinued. Of the shortage of midwives it says the number who complete training would be sufficient to meet demands if they all continued in the service, but the wastage is high. Out of some 65,000 women on the roll only about 16,000 are practising. The wastage has been aggravated by the war because many midwives with the double qualification have turned nursing.

(The Rushcliffe report applies only to England and Wales; recommendations concerning the salaries of midwives in Scotland appeared in the report of the Taylor Committee (*Journal*, Feb. 2, p. 264; and May 29, p. 668).)

PROTECTION FOR THE PRACTITIONER

Sir Robert Hutchison, who presided over the annual meeting of the London and Counties Medical Protection Society in the absence of the president, Sir Cuthbert Wallace, said that every member of the medical profession from the beginning of his career, whatever position he held, should be a member of a defence society. The importance of this was not lessened by the possibility of a State Medical Service. It might be that there were newly qualified men who were neglecting to join such a society in the belief that as servants of the State no action could be taken against them for malpractice. The London and Counties had had to defend its members who were serving in the E.M.S. or in the Forces or were employed by local authorities. If a State Medical Service came into being there was no reason whatever to suppose that a doctor would not still be liable for his actions as a professional man. Sir Robert also said that it would be a great advantage to the society in defending its members if they kept careful records. On many occasions owing to pressure of work, especially in wartime, doctors failed to keep records, and this made the handling of cases on their behalf much more difficult. Another point that constantly cropped up was the importance of a radiograph when there was the least suspicion particularly of fractures. The reasons for not taking a radiograph were understandable and even creditable to the doctor, in that he wished to save his patient expense and fatigue, but it was necessary to have the record. The importance of accurate certification has again been emphasized. Laxity in this respect might involve a member in trouble and the Society in considerable expense.

The Society in its fiftieth year is in a very flourishing condition. Mr. W. M. Mollison, the treasurer, said that during last year recruited a record number of new members (1,349), and the excess of income over expenditure was £6,000, of which £4,000 goes to the accumulated funds and £2,000 to an investment depreciation reserve. The number of applications for advice and assistance from members was nearly one thousand. The officers were re-elected, and votes of thanks were accorded to them and to the staff for their services during the year.

J. A. Dillon and L. R. Evans (*Ann. Intern. Med.*, 1942, 17, 72) illustrate the rarity of primary amyloid disease by the fact that in 120,785 admissions to the Peter Bent Brigham Hospital, Boston, an of 41,551 necropsies there were 23 of amyloid disease, of which only 3 were found to be primary. One of these simulated sclerotic coronary artery disease with heart failure, a second terminated in subacute bacterial endocarditis, and the third showed the symptoms of the nephrotic syndrome.

Correspondence

Health and Social Medicine

SIR.—May I express approval of your leading article on health and social medicine (Aug. 7, p. 174) and, incidentally, in agreement with the letter of Dr. J. Shackleton-Bailey (p. 181) with its pseudo-realistic outlook. It is not the duty of the medical profession to bow to ill-instructed popular clamour any more than it is—as he seems to think it is doing at the moment—to fight for its own privileges. The doctor's duty is to speak and act as he thinks right without fear or favour, and his privileged position has been freely accorded in the past to ensure that his opinion should be free from outside pressure. The Beveridge report seeks to undermine this position in order to transform him into a minion of the State.

The more one considers the Beveridge report and its implications the more one is forced to the conclusion that it is really conceived in plausible ignorance of what doctors can do. As things are they can do relatively little to reduce sickness absence compared with those environmental factors to which your reader alludes and which have been stressed in various letters to the *Times*. Their ability to act like policemen to prevent the abuse of sickness benefit funds is even more limited. For years doctors have tried to do their best, but when I attended a meeting some while ago which discussed, *inter alia*, industrial sickness absence, we had evidence to show that in the case of those firms which continued to pay some of their employees the most reliable and responsible ones, but not of the black-coated class) their wages when off sick, the sickness-absence rate in this class was no less than two and a half times that of the other employees. Considering all the facts one can only come to the conclusion that these employees—who were obviously least likely to malingering—were really the only ones who stayed off long enough to get thoroughly fit. All the others were forced back to work by financial stringency due to the miserable N.H.I. allowance rather than through real physical fitness. This opinion is supported by the way that sickness absence has increased greatly since higher wages have diminished financial stress, in spite of the urgent need for workers to get back to work. The Government actuary, in the Beveridge report, realized that the increased benefits offered might lead to increased sickness claims, and, in the absence of any official figures, he suggested the moderate increase of 12½%. Industrial experience suggests that this figure should have been more like 150% (making a total of 250% compared with pre-war figures). Furthermore, industrial experience does not support the view that financial comfort diminishes sickness absence, nor does medical experience suggest that doctors will be able honestly to diminish it either. For a long time I have realized that many of my N.H.I. patients were going back to work before they were medically fit, and as a doctor I should rejoice to see the length of sickness absence increase for many of them.

If this is true, and I think it is, both the finances and Assumption B of the Beveridge scheme are seen to need very considerable revision, for Assumption B is asking of the medical profession something that it is quite powerless to give without losing its status of being composed of honest physicians instead of time-servers. We may offer a "flea-bite" to offset the 250%, but that is all. A disturbing thing about the Beveridge report is that it can only function in a world at peace, and yet, for the preservation of that peace, we seem destined for many years to have to exercise, as a nation, just those qualities which the Beveridge report tends to lull to sleep in the individual. This paradox may be resolvable, but at least it should be squarely faced. Personally I find very little enthusiasm for Beveridge among my patients. Many of them realize subconsciously what the report says of itself, that it is an attempt at revolution—"A revolutionary moment in the world's history is the time for revolutions, not for patching" (para. 7). Many of us think that wartime is about the unwise time of all to attempt a revolution of such social complexity and significance, especially when those most likely to be affected are unable to take any part in enacting it. If the doctors can call a halt until the matter has been more

fully considered in all its implications we shall have justified our existence as custodians of sanity as well as of health.

There is another passage in the Beveridge report, in paragraph 440, which is never quoted, although it is perhaps the most important of all. It says: "Fourth and most important, income security, which is all that can be given by social insurance, is so inadequate a provision for human happiness that to put it forward by itself as a sole or principal measure of reconstruction hardly seems worth doing." The key to happiness and healthy living is not more doctors, or regimentation of or by the doctors or the State, but in developing a healthy community spirit and paying attention to those physical, environmental, social, and spiritual factors which promote health or predispose to disease.

I should perhaps add that I am heart and soul in favour of social advancement. But a scheme which has been put before the public so much as "get" instead of "give," emphasizing rights rather than duties, is bound in the long run to lower the temper of our living and increase selfishness and therefore misery. There must be a community before rights can be exercised, so social obligations must be admitted before social rights can be claimed. This is not overlooked in the report, but it has been obscured by the blaze of publicity with which it has been accompanied.—I am, etc.,

W. N. LEAK.

Responsibility and Freedom

SIR.—I must admit that one of the reasons for my claiming a few lines of your space is that I do really believe we are in danger of losing what the letters to the *Journal* most especially symbolize—the free expression of individual opinions. If we are all to be State paid we shall not be able to publish our critical feelings, except, perhaps, in the form of scientific papers, and scientific psychology is not yet able to provide a vehicle for every shade of feeling. The actual thing which I wish to say concerns one aspect of the State medicine controversy. State medicine and personal medicine have interests which only overlap; they are not identical, and in regard to extremes they are actually *opposed* to one another. Are this and its significance fully recognized?

Take vaccination. The State obviously needs the maximum control of small-pox. We, as individuals, expect the State to take over this matter, and in an epidemic we blame the State medical service. But even in this obvious case there is also a personal problem, and many a doctor who has advocated compulsory vaccination has found it difficult to have his own baby vaccinated. If he has happened to witness one of the rare complications of vaccination he may easily have felt that a good case might be made out for postponing vaccination in the exceptional case of his own baby. How much more does the uninformed member of the public need to be personally represented against the State. Only if his own doctor, who has helped him fight battles before, advises in favour of vaccination is he led to agree to have it done. The fact that the State advocates it is scarcely an argument at all, since it is obvious that the State cannot take much account of individual needs. If it did it would fail to control small-pox. This meagre example must suffice to illustrate the contrast that exists between the aims of State medicine and personal medicine.

In this matter the public should be actively educated by us before they vote away our power to be their personal doctors, since we are the ones who know most about their own need of both personal and State medicine. And we should also tell the existing State service how it needs the services of a personal doctor, by which, in this context, I mean the clinician whose aim contrasts with the aim of the State doctor. The support of the individual members of the public has to be continually won for the actual practical details of State medical practice. And it is the personal doctor who is continually persuading sceptical people (who have learnt to trust his judgment) to undergo inoculations, immunizations, operations, and all sorts of treatments whose value seems entirely obvious to a non-clinical Ministry official. And the reason for the clinician's power to help the State in this way is that his aim is not primarily to serve the State, but is to serve the State secondarily through giving the best possible service to the individual.

One of the best guides to the personal doctor is his willingness to take personal responsibility for cases. No Ministry official ever takes personal responsibility for individual cases, and this makes him an absolutely different being from the clinician. His week-end or his holiday do not mean an increase in the risk that this patient will commit suicide or that one will relapse into a new active phase of rheumatoid arthritis or anorexia nervosa. His work is of a different order and can scarcely be compared with that of the G.P.

In fact, the two have the greatest difficulty in understanding one another, the G.P. looking on the Ministry official's job as a sort of rest cure, and the official looking on general practice as if it were comparable to going to an interesting play or film. In truth the G.P. would be utterly bored by the official's job, and the administrative official would be overwhelmed and even frightened to find himself in general practice. Obviously the two jobs are two jobs. It would always be important, in discussions of the current problems, if each speaker would indicate whether he in his work does or does not take responsibility for individual cases.

All this leads up to my main point, which is, that if all doctors are forced to adopt the State service, then the personal clinical work will immediately be taken over by the unqualified practitioners, to the immense harm of the public. Osteopaths and all kinds of quacks will make a lot of hay in this their new sunshine, and the bad thing is that they will be actually more valuable to the individual members of the public than the doctors. This hay-making will only end when the public demand the inclusion of the quacks in the State medical service. (Clamour for the inclusion of osteopaths has already started.)

Some doctors have naively said that with total State medical services non-medical practice will be more successfully controlled than it is at present, but State medicine is the servant of Parliament, and I have no doubt that an election fought on this subject would return a majority against the exclusion of the unqualified practitioners. Unqualified practice is very widespread, and it will increase as medical practice becomes more scientific, psychological practice being entirely unable to cope with the enormous mass of hypochondria which doctors are becoming too well informed and too honest to treat by other than psychological means.

The upshot of all this is that there is as much need for personal medical practice as there is for State medical practice, and that the two can never become identical, because in certain circumstances their aims are opposed, however much in other circumstances they overlap. Also, the right of the individual to go to an unqualified practitioner should be stoutly upheld by the medical profession, at least until all hypochondria can in practice be treated along scientific lines, and we are at least a century away from such a novel state of affairs. Let us allow our hypochondriacal patients to escape from us to the local osteopath, and there to lose their symptoms which we could not shift (having no access to magic), and at the same time let us die rather than admit any unqualified practitioner into our beloved profession, which eschews magic and at least tries to be scientific. Our new-growing knowledge of the psychology of hypochondria is the only promise we have of a future in which we can offer the public cure of common symptoms without going off the track of scientifically constructed theory. Total State medicine will most endanger us by forcing the issue on this matter of common hypochondria before we are ready for it, and by tempting the public to exercise its new power over us by forcing into our ranks the unscientific symptom-removers, the unqualified practitioners.

I am sorry that this letter is so very long, but it is impossible to state these matters, which are very much more complex than I have represented them to be, intelligibly in a word.—I am, etc.,

London, W.1.

D. W. WINNICOTT.

Report of Representative Committee

SIR,—This report should receive our common appreciation and warmest support. I venture to suggest three points of importance in the "General Principles" (Supplement, Aug. 7, p. 19) calling for amendment.

1. Surely "the health of the people depends primarily" on their will as well as their opportunity to help themselves. There is far too much talk of what the community must do for the individual as compared with what the individual can and should do for himself. The words "and upon the will of the people to help themselves" should be added.

2. Is "the central administration . . . concerned only with civilian health services" to be a Ministry of Health stripped of its responsibility for local government and housing? If so, local authorities will look to other Departments for guidance, and health will again become the "Cinderella" of local government. Why not call this central administration the "Ministry of Health" and strengthen it as suggested in the report?

3. "Locally, new administrative bodies . . . should be representative, . . . in appropriate numbers, of the local medical profession." Are these bodies to supplant the county and county borough councils and the local sanitary authorities? If so, they must be elected by public vote and will not be representative of the local medical profession. If not, they will not have the power of the local authority, its officers, and

its purse; they will be yet another extra body to complicate and delay matters. Local government cannot be split between health matters and others. The expected reform of local government will, it is hoped, provide bodies, elected by the people and directly responsible to them, who will be more and more influenced by the other "local medical advisory committees," rightly proposed in this report.

The more medical men in local, as in national, government the better. But do not let us tinker with the democratic system, however faulty, of elective governments, local or national, giving the people the doctoring they want, in favour of a corporative exception, redolent of Mussolini.—I am,

Hatfield.

FRANCIS FREMANTLE

Oestrogens at the Menopause

SIR,—The author of the answer to the question under title in the *Journal* of Aug. 7 (p. 190) rightly warns against "prolonged and heavy dosage." In discussing the details of dosage, however, he advocates beginning with 0.5 mg. two or three times daily by mouth of a synthetic oestrogen such as stilboestrol or hexoestrol; increasing cautiously until a dose is found which will give relief; maintaining this dose for two or three weeks; and then reducing it gradually over 3 to 6 months. Thus the patient would receive more than 1 mg. every day for anything from 4 months to a year. In my experience such dosage is quite unnecessarily high, and, in my opinion, so prolonged and heavy dosage is most undesirable.

I have on numerous occasions obtained satisfactory subjective improvement, using the hot-flush counts as an indication and in some cases oestrogenic changes in the character of "menopausal" vaginal smear, on doses of 0.1 to 0.5 mg. natural oestrogens by mouth (and stilboestrol is two and half times as effective by this route as the natural oestrogen). Indeed, a fairly extensive experience of oestrogenic therapy spread over the past 10 years has led me to suspect that symptoms in women of menopausal age which do not respond to less than 1 mg.—other than such late sequelae as atrophic vaginitis—are not due to ovarian deficiency. Women vary considerably during the different phases of their life span in their sensitivity to oestrogens. For instance, during pregnancy and the puerperium they can tolerate quite fantastic doses. Abarbanel and Klein¹ gave as much as 500 mg. of stilboestrol daily for 4 days to mothers suckling infants. On the other hand, the menopausal woman is relatively sensitive to oestrogens.

Overdosage may be accompanied by such undesirable immediate effects as profuse uterine haemorrhage, swelling and tenderness of the breasts, headaches, minimal feelings of fullness, and peripheral vasodilatation. Furthermore, if synthetic oestrogens like stilboestrol are employed such toxic by-effects as anorexia, indigestion, nausea, and vomiting are not only more likely to be manifest if high doses (i.e., 1 mg. or more) are given but are much more prone to develop in the menopausal age than in younger women, or during pregnancy and the puerperium, when such symptoms never follow even very high doses. But these are only minor inconveniences which label the treatment at best inartistic. The are three other aspects of high dosage, however, which are more important.

It has been shown (Bishop and McKeown²) that high doses of oestrogen renders the organism immediately less sensitive to subsequent dosage, so that it will no longer respond to what was previously a minimal effective dose. Thus the process of "weaning" will be considerably prolonged. Secondly, it has been shown that continued high dosage may give rise to pathological changes in the endometrium characterized by cystic glandular hyperplasia with troublesome and persistent uterine haemorrhage. Nor is the prolonged inhibition of pituitary activity which results from continued high doses of oestrogen to be lightly discounted. Finally, the carcinogenic tendencies of oestrogens have been fully considered in the light of animal experiments, and though it seems clear that provided oestrogenic therapy is applied in interrupted courses it is quite harmless, the daily administration of doses of over 1 mg. for prolonged periods in cancer-susceptible strains (e.g., in women with a history of carcinoma of the breast) may not be without

¹ *New York St. J. Med.*, 1941, 382.
² *J. Endocrinol.*, 1940, 2, 339.

sk. I believe, therefore, that the promiscuous use of oestrogens in doses of 1 mg. or more is highly undesirable and may actually be dangerous.

The author of the answer to the question on oestrogens at the menopause states that oestrogenic therapy is indicated in only 20% of menopausal women. My experience, which coincides with that of Hawkins,* who reported on 1,000 menopausal women, is that about 75% of menopausal women require oestrogenic therapy, and that provided it is given in low dosage and with intervals of remission of treatment the results are most satisfactory and that undesirable by-effects seldom supervene and are of little account.—I am, etc.,

Endocrine Clinic, Guy's Hospital, S.E.1.

P. M. F. BISHOP.

Specific Gravity of Cerebrospinal Fluid

SIR.—In his article (Aug. 7, p. 165) Mr. W. Etherington-Wilson asserts that all previous observers have been wrong and that the average specific gravity is nearer 1.003 than 1.004. He bases this statement upon observations made with beads in 314 specimens of fluid at body temperature.

May I point out that density beads are made to work in a medium at 15° C., at which temperature distilled water is given an arbitrary figure of 1.000. At any other temperature the necessary correction must be made. For example, at body temperature (37° C.) the figure for water or standard of comparison is 0.996, which would bring the true specific gravity up to the accepted average figure of 1.007. If Mr. Etherington-Wilson will continue his investigations, using the direct method of comparing the weights of exactly equal volumes of cerebrospinal fluid and freshly redistilled water under the same conditions of temperature, etc., I think he will find it unnecessary to modify our textbooks on physiology.

The classical work on the subject by Levinson tabulates the figures arrived at by 13 different observers. These agree closely, and it can be taken that in health the specific gravity varies between 1.004 and 1.010. In uraemia and diabetes the figure may exceed 1.010, while in hydrocephalus it may be below 1.004. J. K. Hasler has pointed out that fluid obtained by cisternal puncture is slightly lighter, as it contains less protein.

Finally, I might point out that the figure of "nearer 1.003 than 1.004" could not be accurate, as in this case "lighter" would be either isobaric or slightly hyperbaric. In his event the technique which Mr. Etherington-Wilson himself uses would be impossible.—I am, etc.,

St. Albans.

C. LANGTON HEWER.

The Mastoid and D. and V.

SIR.—The literature of infantile otogenic intestinal troubles has received a contribution from Mr. P. W. Leathart (Aug. 7, p. 168). This literature has at times leaned towards mere paracentesis, at other times towards more major surgery. In one decade the label has been latent mastoiditis, in another cryptic; now it is plain unvarnished mastoiditis. While truth no doubt is absolute, Mr. Leathart essays proof, and herein there is doubt.

Nothing in the evidence forces me to any such conclusion as is distilled rather prematurely in the closing sentence of paragraph two. The argument as it relates to the infantile Eustachian tube may be worthy of attention, but it is distressing to find that the infant is to be condemned to a double mastoidectomy because a posterior triangle gland can be rolled under my fingers.

As a concession to tradition we are told that "it would appear relevant to state that the remarks made above are the result of work done chiefly at the Royal Liverpool Children's Hospital in co-operation with the physicians and surgeons during the last 20 years." I feel, however, that before other surgeons are encouraged to operate on 2,000 infantile mastoids we may be vouchsafed a further concession. It is this: we should have something more than the bald statement that "without surgical aid all [presumably 2,000 cases] would have died." It may be true, but the evidence on a question so very serious is of the scantiest.—I am, etc.,

Newcastle-upon-Tyne.

F. MCGUCKIN.

Peripheral Arterial Embolism

SIR.—The article by Major H. Agar (July 24, p. 101) on peripheral arterial embolism leads me to record the following case, underlining as it does Major Agar's statement that "many cases [of embolic occlusion] are missed."

A woman aged 54, who had suffered from auricular fibrillation for many years, was admitted to the Manchester Royal Infirmary at about 7 p.m. on Dec. 29, 1942, with a history that she had been seized with severe pain and paralysis of the right leg five hours before. She was examined by a newly qualified house officer, who had unfortunately not seen such a case before. He diagnosed femoral (venous) thrombosis, and admitted the patient to a medical ward. She was seen at about 12.30 a.m. that night by the resident medical officer, Dr. O. Janus, in the course of a routine round, who at once made the correct diagnosis of common femoral (arterial) embolism, and got in touch with me. I performed an embolectomy within the next hour, but although the profunda femoris artery could be cleared of clot, the superficial femoral was completely full and also in spasm. The tunica adventitia was stripped around the bifurcation of the common femoral and the incision then closed. Within the next few days the patient went into a state of anuria, reminiscent of that occurring in crush syndrome, but this settled down. Meanwhile the lower part of the leg had developed a moist gangrene, the line of demarcation being just below the knee-joint. On Jan. 28 amputation was performed through the junction of the middle and lower thirds of the thigh under spinal anaesthesia, but 24 hours later the patient suddenly collapsed and died. A post-mortem examination was not permitted.

The point which I wish to emphasize is that, although I agree with Major Agar that the diagnosis of peripheral arterial embolism is usually easy, it might be better to say that the diagnosis is usually easy for anyone who has seen a case before. I would suggest that it would be a good guiding rule if students were taught that whenever a sudden paralysis or a sudden vascular upset of a limb occurs the case should be regarded as one of arterial embolism until proved otherwise (e.g., by the presence of pulsation in the peripheral arteries, etc.). As things are at present, I have the feeling that the work of Griffiths and Jefferson performed in this hospital on peripheral embolism is being largely wasted, because the frequency of the condition (at least eight cases have been admitted to the Manchester Royal Infirmary in the last 18 months, most of them long after the time for embolectomy) as well as its extreme urgency is insufficiently realized.

Despite the failure of embolectomy after 11½ hours in this case I fully agree with Major Agar that operation within the first 12 hours at least is always worth while if there is any chance of the patient surviving it.—I am, etc.,

A. N. GUTHKELCH,
Resident Surgical Officer.

Manchester Royal Infirmary.

Rupture of Rectus Abdominis during Pregnancy

SIR.—On reading the interesting article by Mr. Rufus Thomas under this heading (July 31, p. 136) I was reminded of a similar case which occurred in this hospital last year.

The patient was a 4-para aged 34; she was admitted as an emergency on May 16, 1942, with a diagnosis of ruptured uterus. On admission she gave a history of having fallen flat on her abdomen ten days previously while moving some furniture. Ever since there had been pain and tenderness on the left side of the abdomen. She was a chronic bronchitic and very obese. She was not collapsed or shocked: temperature was 98°, pulse 92, and respiration 20.

The uterus was enlarged to the size of full-term pregnancy and the presentation was made out with difficulty to be a vertex. The foetal heart was audible and there was no vaginal bleeding. The uterus appeared very tender and swollen on the left side. The urine was clear and the blood pressure 122/78. A provisional diagnosis of concealed accidental haemorrhage was made and the membranes were punctured artificially. The liquor was clear. There was a latent interval of five days before pains started, and during this time the patient's general condition improved considerably and the swelling became, if anything, less painful. The patient's cough also improved.

She had a normal confinement on May 22 lasting 6 hours 10 minutes; there was a moderate post-partum haemorrhage, which responded to the usual treatment. The child was alive and weighed 6 lb. On examination after the third stage a large rounded mass was palpable extending above and to the left of the umbilicus. This was thought to be an ovarian cyst, and as there was no definite evidence of torsion it was decided to leave well alone. The first

two days of the puerperium were satisfactory, but on the third day there were acute abdominal pain and pyrexia, temperature 101°, pulse 116. A laparotomy was therefore performed, as it was thought that the cyst had twisted. The uterus and adnexa, however, were found to be perfectly normal. The large swelling was in the rectus sheath, and several huge clots and about 3/4 pint of old fluid blood were evacuated from the left rectus sheath. The wound was sutured and a large drainage tube left in the haematoma cavity. The patient made a good recovery and was discharged from hospital on June 20.

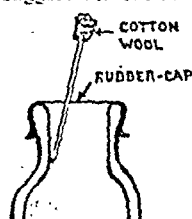
The great difficulty in this case was the gross obesity of the patient, which led to a false feeling of encapsulation of the haematoma, making it appear an intra-abdominal mass.—I am, etc.,

Newport, Mon.

NORA L. KEEVIL, M.D., M.R.C.O.G.

Sterile Solutions and Vaccines

SIR.—Perhaps this idea may help those practitioners who have been at pains to keep sterile any rubber-capped bottles of vaccines and other solutions for injection. The main difficulty appears to be the preventing of ingress of unsterilized air, and yet removing the negative pressure which must result from repeated withdrawals of measured portions of fluid. I suggest the following procedure:



1. Sterilize, by boiling, a small fine-bore hypodermic needle. Dry by running through spirit ether.

2. With sterile forceps pack the hollow of the head of the needle with sterile dry cotton-wool.

3. Pierce the rubber cap of the bottle at one side with the needle and leave *in situ*.

Air can now enter the sterile inside of the bottle, but organisms are filtered off by the tight plug of cotton-wool.

This procedure should be quite effective in keeping the contents of the bottle sterile and yet allowing air to enter. The safeguard is the same as used by Pasteur in his flask experiment and by bacteriologists in the use of culture-tubes. Withdrawals of fluid can be made as usual from the central portion of the cap.—I am, etc.,

Aston, Birmingham.

C. COLEY GRAYSON.

Fracture-dislocation of the Spine

SIR.—It was with very great interest that I read the report of the recent meeting of the British Orthopaedic Association and your summary of the papers given by Mr. R. C. Murray and Mr. Roland Barnes (July 24, p. 114). It is to be regretted that the report of these two papers could not have been given in greater detail.

More than five years ago I called attention to interlocking of the articular facets as a frequently occurring complication of fracture-dislocation of the spine and, with the encouragement of my then chief, Mr. C. Gordon Irwin, described three cases treated by open facetectomy (*Brit. J. Surg.*, Jan., 1938). Subsequently experience of some fifty cases of fracture-dislocation of the lumbo-dorsal spine, with and without cord or cauda equina lesions, more than thirty of which number I have personally operated upon, leads me to offer the following comments which, I trust, may be of interest.

1. Mr. Barnes states that locking of the intact articular facets occurs more commonly than is generally realized. I would go much further than that and state that fracture-dislocation with transposition of the articular processes is the commonest form in which the injury occurs; more than 50% of my cases have been of this type, either bilateral or unilateral. Consideration of the component parts of the intervertebral articulations will show that for intervertebral displacement to occur the articular processes must dislocate or must be broken off. Cases showing dislocation on one side and fracture of the processes on the other are not uncommon. Only two cases in my series showed fracture of the processes on both sides and direct forward displacement of the upper vertebra; such a condition, one assumes, would tend to produce a scissoring of the spinal contents, and the prospect of recovery would, in consequence, be nil—this was true of one case. The second case showed an incomplete cord lesion on admission; reduction was attempted as soon as possible, open operation being required to remove fragments of the processes which were preventing reduction. During the next three days the nervous symptoms progressed to

complete paraplegia below the level of the umbilicus. This state of affairs persisted for three weeks, after which time a gradual recovery began, and when I last saw this patient he had regained bladder control and was being taught to walk.

2. In view of the above successful case and of others which have shown varying degrees of recovery, Mr. Murray's limit of 24 hours for recovery from a complete paraplegia seems rather pessimistic. My impression is that signs of recovery should be present within three days of operation if full recovery is to be expected. Signs of recovery after three days give promise of a greater or less degree of ultimate recovery, depending upon the time lapse between operation and the first appearance of returning function. After three weeks any further recovery can be limited only to roots release from tension at operation. In this connexion I entirely agree with Mr. Murray that reduction should be secured in all cases, since the recovery of a few useful segments can be expected in almost all this may make the difference between a bedridden patient and one who at least can make some effort to help himself.

3. In my own series of cases dislocations located in the dorsal 12 region have included an almost equal number of paraplegic cases and cases in which nervous signs were either entirely absent or were limited to temporary root palsies. I have recently operated upon three cases of the latter type and all are now back at work. Two similar cases, operated upon during 1938 and 1939, are also back at work, one of them actually undertaking work of a heavier nature than that upon which he was employed before his accident.

4. Unskilled attempts at reduction, or hyperextension of the spine as a first-aid measure, are to be strongly deprecated. When the articular facets are transposed intact hyperextension of the spine produces further strain upon the already attenuated spinal contents and may cause irrecoverable damage. Reduction should be undertaken only by a surgeon in possession of adequate x-ray evidence of the spinal displacement. Patients should not be hyperextended as a first-aid measure but should be transported to hospital "as they are." If a "hyperextension stretcher" is used the patient should be carried in the prone position.

5. The actual operative procedure will depend upon the anatomical deformity revealed by x rays. Not all cases will require open operation. Subluxations, or unilateral dislocations such as described by Wilfrid Adams, if they occur below the ribs can sometimes be reduced by rotary manipulation; such manipulation should be carried out under local anaesthesia, since general anaesthesia removes the only means of checking the safety of any manipulative manoeuvre. It has occurred that a case of fracture-dislocation without nervous signs has been manipulated under general anaesthesia and the patient has awakened to the presence of a paraplegia, the dislocation being still present and requiring open operation for its correction (Rogers, *J. Bone Jt. Surg.*, 1938).

I agree with Mr. Barnes that excision of the whole of the superior articular process is to be avoided wherever possible. It is preferable, however, to resort to removal of the tips of the processes rather than to the use of levers. Removal of the tips of the processes does not materially weaken the spine—as my own cases have proved to my satisfaction—and additional internal fixation in these circumstances would appear to be unnecessary. Only one case in my series required laminectomy, and that only because the lamina had been fractured and displaced so that it interfered with reduction. For fixation after reduction, as a routine I now apply a full hyper-extension plaster jacket, this being more rapidly prepared than a plaster bed, and cut a trap-door in the plaster over the region of the wound. Non-paralytic cases retain the jacket until ready for walking (about three weeks); it is then changed and the new jacket is retained for four to six months. In paraplegic cases the jacket can be bivalved, if necessary, at any time. The nursing staff assure me that nursing attention is usually easier when the jacket is intact. In paraplegic cases the limbs are raised and slung up on Braun's splints to avoid gravitational oedema and to relieve some of the pressure upon the sacral area.

6. The best treatment for the paralysed bladder is a careful house-surgeon. All methods appear to have their disadvantages. I favour the use of the catheter and daily wash-out during the first week or two, in anticipation of the return of bladder control or of the establishment of reflex evacuation, after three weeks' tidal drainage and, later, suprapubic cystostomy for those cases which fail to regain either voluntary control or reflex emptying.

In my original publication I expressed the opinion that open operative reduction appeared to be a rational method of treatment and one likely to produce the maximum benefit at minimal risk. I also expressed the hope, since none of the original three cases was fully cured, that others might feel disposed to employ this method in similar cases. It is very encouraging to note from my own experience and now from that of others that fracture-dislocation of the spine is no longer a condition beyond the effective aid of surgery.—I am, etc.,

Durham.

A. H. G. MUNRO.

The Government's Milk Policy

SIR.—It is more than disappointing to find that in the White Paper on measures to improve the quality of the nation's milk supply the Government has only dabbled with the problem. While no one disagrees that "the basis of a sound policy . . . is a well-bred, healthy herd," it is a far cry from that to a milk supply safe to give our children. To admit, in effect, that in England and Wales only 6% of the milk is "not satisfactory" is more than a confession of weakness. We shall not be in a position to prevent milk-borne infection until all milk is pasteurized efficiently and all milk reaching and saving the plants is of the highest standard. The production of well-bred healthy herds is an ideal to be aimed at none the less if milk is to be pasteurized, but pasteurization is the only immediate means of securing a safe milk supply.

Once again it must be reiterated to the public, if not to the profession, that pasteurization has one practical effect and one only—namely, to render the milk germ-free. T.T. milk will not be free from abortus infection, streptococci, diphtheria, typhoid, dysentery bacilli, etc., and veterinary examination of the herds will not detect the milk with a throat infection contaminating the milk. If farmers have to be exhorted in the daily press to take such an elementary precaution against infection as to wash their hands before milking each cow, it is unlikely that they will be easily trained in the art of producing a germ-free milk. An American Army medical officer in this country was so disgusted with what he called our "street-can methods" of handling milk that he has issued an order forbidding any of his troops to drink British milk!

When doctors, especially those dealing with children, see every day some evidence of milk-borne disease, it is natural that they should demand from the Government not "measures to improve the quality of the milk" but measures to render milk safe to drink, and be critical of its half-hearted method of appeasement to the farmers—a policy in which one hoped it had learnt its lesson.—I am, etc.,

Cardiff.

A. G. WATKINS.

X Rays and the Colon

SIR.—Referring to the statement in the *Journal* (July 10, p. 51) that Sir Arthur Hurst "warned strongly against x-ray examination as a method of diagnosis" for diseases of the colon, and the subsequent valuable comments by Dr. E. Millington (July 24, p. 117), may I, as radiologist in charge of the x-ray department of St. Mark's Hospital for Bowel Disease, E.C.1 (a hospital known throughout the world for its contributions to this specialty), submit a few observations in the hope of retrieving Sir Arthur Hurst's lost faith in the opaque enema. As I have not carried out any radiological examinations for Sir Arthur I cannot be implicated personally.

At once let me say I have some sympathy with Sir Arthur Hurst, and I have no hesitation in observing that in this country there is probably more inferior work turned out in examinations by the opaque enema than in any other branch of radiology. We do not require to search far for the reasons, and two prominent causes for this failure to my mind are outstanding. These are lack of thorough preparation of the patient and incomplete thoroughness of the radiological technique. Mild aperients should be employed for premedication and on no account strong irritant drugs such as castor oil. The latter when used perhaps cause more cases of gas collection and spasm than is generally appreciated. The preliminary "wash-out" of the bowel should be done with plain warm water and preferably by the Studa chair method. On no account should irritant substances such as soap be included in the "wash-out." Since the soap-and-water enema was discontinued at St. Mark's Hospital some years ago cases of spasm of the bowel are rare. As to technique, space does not permit detailing some of the important features, but I would stress the importance of the oblique views and particularly the left oblique. Time and time again when nothing is found in the straight postero-anterior views an early carcinoma is demonstrated in one of the oblique views. Inflation of the bowel with gas after the enema in the majority of cases is of limited value. In early carcinoma it is, in fact, misleading, but in cases of multiple diverticulosis it does further balloon out the sacs of the diverticula and help to clinch the diagnosis.

During the past fourteen years, while in charge of the x-ray department at St. Mark's Hospital, operative findings on all cases that have been examined by an opaque enema are returned to the department. The records show that out of 2,200 opaque enema examinations only four cases of missed x-ray diagnosis are recorded. Of the four two were suspected and the enema repeated but the growth not demonstrated. The growth in the third was obscured by a greatly distended bowel; and in the case of the fourth, a double carcinoma on the posterior wall of the sigmoid flexure, the bowel assumed that elastic expansile feature, and kept the growths hidden behind the redundant loops of the pelvic colon even after the administration of the third opaque enema. All these cases were operated upon and the growths removed.

On the other side of the balance-sheet could be enumerated various cases of how an opaque enema established a diagnosis quite unsuspected clinically; confirmed a clinical suspicion, or corrected a clinical diagnosis from one of carcinoma to one of diverticulosis, or vice versa. In one case a slowly growing carcinoma was watched from its very earliest stages over a period of three years by a series of opaque enemata at a few monthly intervals. The growth was eventually removed, and seven years later the patient, a doctor running a large practice, is in perfect health. Apart from saving the patient's life the series of examinations was most instructive as to the radiological changes of a very early growth.

It might therefore be correct to say that the opaque enema is of the greatest value as a diagnostic agent if a positive finding is recorded. On the other hand, if the result is negative, on no account should it be accepted that early pathology has been finally disposed of, but the physician or surgeon must make his final decision as to diagnosis on his other clinical findings.

This subject is too vast to cover in the space at my disposal, but I have in the process of writing a book on this work in which I hope to introduce some new appliances and modern points in technique, which may help to reassure the few who may have become depressed about the shortcomings of the older technique.—I am, etc.,

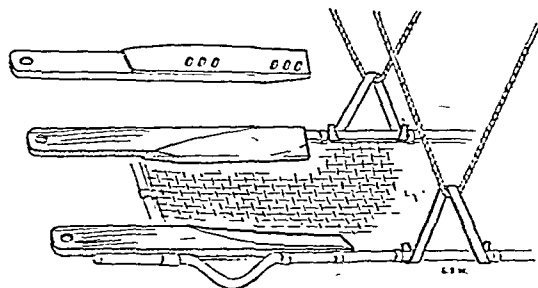
London, W.1.

NORMAN P. HENDERSON.

Resuscitation by Rocking

SIR.—The method of attaching the stretcher to the trestle or whatnot is the crux of the business from the practical point of view. (It is, e.g., easy enough to see what the Kilmarnock gadget looks like when finished, but how it is made I cannot make out at all! Another stretcher was illustrated a few weeks ago, and all but the attachment was plainly shown!)

A standard A.R.P. stretcher hung in a hook at the end of a rope, which in turn hangs from a hook in the ceiling, slides backwards and forwards in the hook, to the damage of the wire, etc. Also the whole affair tends to swing about. We have therefore hung a festoon of rope from the ceiling, from two hooks, which stops the swinging, and have got our blacksmith to form the hooks as shown in the accompanying sketch. I don't think anything could be simpler or more quickly brought



into action. Each limb of the hook comes against one of the clips which attach the meshwork to the side member of the stretcher. This stops the sliding. (Iron or mild steel 3/16 x 1 in.)

We have tried the "swing-boat" suspension also, and can confirm that it is absolutely useless if merely rocked to and fro. There is neither impulse to viscera nor effect of gravity.

Its efficiency may, however, be very great, but this can only be achieved by the forcefulness of the push-off from the middle position and the forcible arrest in its return transit; and the effect of gravity can only be obtained by holding the whole affair up for an appreciable time at the ends. Obviously, for a full-grown patient this means really hard work. The effects will be in proportion to the force used, and no more.

Now as to the attachment of the patient to the stretcher—Siebe-Gorman, in a catalogue I have, picture him on their rocking-stretcher held by a sort of yoke over the shoulders and two bands through between the legs high up. I do not know whether they have an alternative, but this must surely tend to crush the body together, whereas fastening by feet at one end and hands extended to the full beyond the head at the other (as recommended by Dr. Eve) will tend to open out the trunk. An ordinary A.R.P. stretcher is much too short to secure a full-sized person in this way, so here is a sketch of our expedient. The timbers are fitted with pegs, which project down through the meshwork, and so long as they are kept down they remain perfectly firm. If neither patient nor his wrappings suffice for this, a turn of twine tied through will suffice.—I am, etc.,

Doncaster.

W. REGINALD WILSON.

Medical Boarding for the Merchant Navy

SIR,—On taking up duty recently as ship surgeon in a large liner engaged in carrying troops I was greatly puzzled and surprised at the number of men wanting to "sign off" the ship's articles immediately before we were due to sail. Most trivial ailments were professed as the urgent necessity for being put ashore.

All seamen to be "signed on" as a ship's crew are passed through the Merchant Navy Reserve Pool. On being "signed off" on completion of the voyage they are again received into the pool and draw, I believe, a reasonably generous rate of pay until re-employed. Many men appear to remain in the pool drawing regular pay for long periods without work. Certain members of my crew attempted to get ashore with some trivial excuse after having signed the ship's articles, being conveyed some hundreds of miles by train, and being fed and accommodated and paid for a fortnight or so in harbour. On being "signed off" they again report to the pool, and then, I suppose, say they have recovered from their temporary disability for which they were "put ashore by the doctor," and again become eligible for the benefit of pool pay. Another ship may be available in the near future or there may be a long waiting period—on pay. The same scheme of "paying off" may work again.

These men may or may not be examined by the "Federation" doctor before being granted pool pay. I do not know. I believe only a very small percentage of the men are actually examined before being sent to join a ship, and those who are examined appear to undergo a most cursory examination by a single doctor. In order to put an end to this racket it is surely essential to have a proper and thorough standard examination of all seamen such as we have under the National Service scheme for all Service personnel and the Home Guard. Is not the Merchant Navy an integral part of the fighting Forces? Grade cards should be issued. Certain men should be definitely debarred from going to sea in justice to themselves, and others, because of some such infection as tuberculosis or certain skin diseases, on account of the risk and unpleasantness for their shipmates. Some men physically unfit for strenuous work as A.B.s might well be suitable for employment as stewards or in some other capacity. To expect efficiency from the "scratch" crews of physically miserable specimens such as are being recruited to the Merchant Service to-day is absurd.

I believe that the standard of Merchant Navy crews to-day, physically and otherwise, is very much below that of peacetime. Many of the best men are serving with the Royal Navy, but the fact of a magistrate recently remitting sentence on a convicted man on condition that he joined the Merchant Navy does not reflect very handsomely on the Service. This caused considerable resentment. I suggest that it is a most urgent matter to have all men who are in the reserve pool awaiting employment at sea properly examined by a medical board and not merely "passed," as may be occasionally required by a single "Federation" doctor. Medical boards are in being

all over the country, and it would be a very simple business to arrange for the examination of these seamen—and it should be a Government responsibility.

On my recent voyage one most impertinent youth produced a letter from a doctor recommending x-ray examination of chest every 3 months. Six months had elapsed and this produced on the day of sailing with a demand to be "signed off." He made other excuses and was a very definite malingering or "wangler." Another man with chronic bronchitis and emphysema spent part of the voyage in the ship's hospital. Such a man would never be passed by a National Service Board. Many men with disgracefully carious teeth wished to go ashore to have their teeth attended to. This treatment is very necessary, but there is no means of seeing that the treatment is carried out. There should be some regulation enforcing necessary treatment before a man is accepted into the pool. Some men complained of abdominal pain and demanded to be put ashore for x-ray examination. Most of these, I am convinced, were malingerers. A number suddenly requested "sign off" on account of deformities and disabilities, such as varicocele, varicose veins, and congenital deformities of feet, which had not really troubled them for years. A proper system of medical examination and a properly kept medical record card would control the endeavours of these men to shirk their duties.

Briefly, all men in the Merchant Navy Reserve Pool should be passed by a properly constituted medical board and compulsorily a medical record card, which should be kept to date by the ship surgeon or by the Federation doctor at the time the man passes through the pool. Any necessary treatment—such as dental extractions, fillings, or other operations—should be undertaken before a man is entitled to benefit from pool pay, or be instituted without delay on leaving a ship. Special arrangements might be made with certain hospitals, new treatment centres opened to avoid a seaman having to loaf about awaiting treatment at an overcrowded hospital with a long waiting list. With more physical fitness and discipline the status and morale of "His Majesty's Merchant Navy" would be more worthy of the name.—I am, etc.,

Huddersfield.

S. H. WADDY.

Nurses' Pay and Hours

SIR,—Two recent committees have managed to raise the economic status of the nurse from that of a lavatory attendant to nearly that of an L.P.T.B. railway porter. It would be an exaggeration to say that the labours of these committees have resulted in a "nurses' charter"; but they have at least proved one thing. This is, that nurses have little to hope from the seniors, their "employers," or the medical profession, who are much too worried about the future of their own sixpences and guineas to devote much time to the rights of their sister profession.

The truth is that nursing is the only indispensable profession in the modern world. The medical profession, in its present state, takes a far lower rank. It is undergoing its "twilight of the gods." In any case the nurse goes through a more exacting training than the medical students, and survives much more troublesome tests before she is qualified. She earns 90% of all medical knighthoods, baronetcies, and even peerages. She cannot reach a competence of £300 a year without displaying qualities of mind and soul that would disqualify Winston Churchill or Franklin Roosevelt. Yet she is treated at the best like an irresponsible schoolgirl and at the worst like a Czech in a German labour camp. She is not considered fit by the "bumbles" who control her destinies, to take any part in the social life of her time, and, God knows, she could tell us a thing or two. One consequence of this is that by the time she reaches the upper ranks of her profession she has the social outlook of a tame elephant.

Her time to act is in the early thirties, or even earlier than that. And she must act for herself. Dr. McKean and I at sincere well-wishers, but all we can supply is a little invective. A dozen young women of the nursing profession must get together and tell the whole body politic of these islands that they have had enough nonsense. They know how to deal with stupid, conceited, and refractory patients, and that is what we all are.—I am, etc.,

Bearsden, Dunbartonshire.

O. H. MAVOR.

The Spackman Case

SIR.—With reference to the recent case in the House of Lords of the G.M.C. v. Spackman, we would like to bring forward the following points for consideration.

1. As the rules of conduct of the G.M.C. appear, from the defence in the above case, to be most arbitrary and despotic—trial of the admission of fresh evidence, denial of the right of appeal—it is surely time for a reconstruction of these rules. Can machinery be evolved whereby evidence before the G.M.C. must given on oath?

2. From what source does the G.M.C. derive any income? What do or bodies have control of such moneys? In the above case: decision of the G.M.C. to take the inquiry to the House of Lords after receiving an adverse decision in a lower court savours almost inquisitorial ferocity, in addition to the fact that such assures must dig deeper into the financial resources of the Council the final decision be unfavourable.

The fact that the *Times* of Aug. 6 sacrificed a whole column its drastically reduced publication to the reporting of the decision of the House of Lords shows that public interest is aroused, and the reaction of the public to the conclusions, naturally arrived at by them, of the case must be that the Council have conducted themselves in an unfair and prejudiced manner. It is surely such behaviour in the international sphere at we are fighting to suppress, and it behoves us to press different methods in our own domestic back-garden before stand out for justice in the wider fields.—We are, etc.,

R. A. P. CORKERY. P. BOBBETT.
DOROTHY G. HERVEY. J. F. LINEEN.

Doctors for China

SIR.—In the spring of last year you inserted in the *Journal* letter from me asking for offers from doctors and nurses for service in a Red Cross hospital unit in China. Twenty-one were selected and sent out under Dr. W. S. Flowers and have established a base hospital at Changsha, Hunan. Sick and wounded, both civilian and military, are being treated and excellent work is being done.

An appeal has now been received by the War Organization of the British Red Cross and St. John for reinforcements. It is especially desirable that applicants should have a knowledge of the Chinese language or a background of Chinese experience. Further particulars may be obtained from Dr. H. Gordon Thompson at the headquarters of the War Organization of the British Red Cross and St. John, 14, Grosvenor Crescent, London, S.W.1.—I am, etc.,

London, S.W.1.

HORDER.

Advice on how local authorities can make fuller use of their powers under the Prevention and Treatment of Blindness (Scotland) Act is contained in a recent circular of the Department of Health. Local authorities should make wider use of special schools and classes for children whose eyesight is defective—arrangements being made with neighbouring authorities where necessary—and of residence in country homes for those whose eye troubles are the result of general debility. There should be closer contact with industrial medical services so that children leaving school are not given jobs that impose heavy demands on defective sight, and more facilities for expert consultation and for treatment of infections responsible for blindness. The circular is the outcome of analyses of the experience of the regional clinics for certification of the blind in Scotland, and particularly of a statistical analysis by Marshall and Seiler, based on the results of examining 3,219 certified blind persons in Glasgow and South-West Scotland. Cataract, myopia, optic nerve atrophy, ulcer of the cornea, glaucoma, and iridocyclitis were found to be responsible for about three-quarters of the cases of blindness. The circular points out that several of these conditions are amenable to treatment, while existing services of local authorities can play a part in preventing others. Early energetic treatment by modern methods, it continues, can prevent the onset of blindness in practically all cases. Even in degenerative diseases leading to blindness in later life many of the conditions can be alleviated by expert care; Drs. Marshall and Seiler concluded that there was still the possibility of restoring vision by operation in more than half of their cases of blindness due to senile cataract. They found, too, that patients with conditions associated with pain or sudden onset were more likely to seek advice than those with insidious onset arising later in life, and that the proximity of hospital facilities affected the numbers seeking treatment.

Obituary

Dr. LOUIS INGRAM DUNCAN, who died at Higher Brixham, South Devon, on July 12, was born in Aberdeen on August 24, 1898, son of the late George Duncan, and was educated at Inverurie Academy and Aberdeen University, where he graduated M.B., Ch.B. in 1921. Dr. Duncan formerly practised in partnership at Port Talbot, Glamorgan, and was teacher of ambulance and hygiene under the Glamorgan County Education Authority. After moving to South Devon he became one of the medical officers to the Brixham Hospital.

We regret to announce the death on July 17 after a long illness of Dr. CECIL WESTLAND PILCHER, consulting surgeon to the Boston Hospital and one of the oldest and most respected members of the local Division of the B.M.A. His father was a well-known general practitioner and surgeon at Boston. From Bath College he went to Keble College, Oxford, with a classical scholarship; he took his B.A. in 1893 and came to London to study medicine at St. Thomas's Hospital, qualifying M.R.C.S., L.R.C.P. in 1899. Dr. Pilcher was an honorary captain in the old Lincolnshire R.A.M.C.V., and during the last war served as civil medical officer in charge of troops, being awarded the M.B.E. for his services in 1914-19. For over 30 years he was divisional surgeon for the local Branch of the St. John Ambulance Brigade. He was an accomplished amateur artist, and several of his works were accepted by the Royal Academy and the Royal Society of Painters in Water-colours. He joined the B.M.A. in 1903, and in 1926-7 held office as chairman of the Holland Division, which he had represented at the Annual Meeting at Oxford in 1904. He was a faithful attendee at medical meetings, which he used to enliven by good-humoured caricature sketches of his neighbours. His son, Mr. R. E. M. Pilcher, F.R.C.S.D., is honorary surgeon to the Boston Hospital and Spalding Hospital.

Dr. JAMES M. FERGUSON, one of the staunchest supporters of the B.M.A., died on July 24 in the Victoria Hospital, Burnley, at the age of 86. Born in Bolton of Scottish parents, he began life in a humble job in the printing office of the *Warrington Guardian*. After three years as a compositor and occasional reporter he entered as a medical student at Owens College, Manchester, and qualified L.R.C.P.Ed. in 1882, afterwards taking the L.R.C.S.Ed. and the D.P.H. of Durham. As was possible in those days, he gained experience of practice in Burnley and elsewhere as an unqualified assistant. In 1885 he set up on his own account in Burnley, where he became medical inspector under the Factories and Workshops Act, and later medical officer for the local joint hospital board, and medical superintendent both of the district sanatorium and of the small-pox hospital. Dr. Ferguson served the borough as councillor and alderman and was appointed to the magistrate's bench in 1903, so that at the time of his death he was the senior J.P. for the borough. He was highly respected in the town and his kindly and jovial disposition made him popular everywhere. He joined the B.M.A. in 1886, represented the Burnley Division at four Annual Representative Meetings, and held office as its honorary secretary and later its chairman. He was president of the Lancashire and Cheshire Branch in 1911. Though it is some years since Dr. Ferguson took a very active part in the meetings of the Burnley Division, he yet kept in touch with local medical matters, and particularly with B.M.A. doings. Throughout his life he was a keen sportsman, and in the 'nineties played cricket regularly; in later years he devoted much of his leisure time to fishing.

Dr. W. WILTON JOHNS, who died in a nursing home in Edinburgh on July 26, had practised in the Morningside district for the last eighteen years. After qualifying L.R.C.P., L.R.C.S. from Edinburgh University in 1906 and taking the M.B., Ch.B. of that university the following year, he held a house appointment at the Dumfries and Galloway Royal Infirmary. He took his M.D. in 1910. For some years he was in practice at Nairn, where he was also honorary medical officer to the Nairn Town and County Hospital. In 1925 he went to Edinburgh to assist the late Dr. James Graham, and was practising in the Morningside district at the time of his death. Wilton Johns made friends easily, and his sympathetic manner with children accounted for much of his success as a surgeon for 10 years to Donaldson's Hospital. He served as captain, R.A.M.C., in the last war; and was also civil surgeon to the Edinburgh and Border Hospital, Dunkirk, from 1914-15. He is survived by an only son, who is in his fourth year of medicine at Edinburgh University.

Dr. JOHN GILMOUR, who died at Glasgow on July 27, joined his father in practice at Duntocher in 1893, having graduated M.B., C.M. with high commendation at Glasgow University in 1891. He moved to Dalmaur in 1901, and established a large practice in the Duntocher, Clydebank, and Dalmaur areas. In 1908 he took the F.R.C.S.Ed., and in 1911 the D.P.H. of Cambridge with distinction. He was elected a Fellow of the Royal Faculty of Physicians and Surgeons, Glasgow, in 1930. After many years of successful general practice he was appointed in 1921 to the staff of the then Scottish Board of Health when the Regional Medical Service was started. He was posted to the South-Western Area, with headquarters at Glasgow, and his good work and the high esteem in which he was held did much to establish the new service in the good graces of the profession. He retired from the service in 1936, but on the outbreak of war offered to forgo his leisure in order to enable younger colleagues to take up work directly concerned with the war. He superintended the Clyde Basin experiment designed to provide a consultant service for war workers, and was largely responsible for its success. He was without enemies, and his friendship was highly valued, as was his clinical acumen. Dr. Gilmour, who was awarded the O.B.E. in the New Year Honours List this year, served as a member of the Home Office Commission on the Workmen's Compensation Act and Miners' Nystagmus. He is survived by two daughters and a son, Dr. Alan Gilmour.

One of the longest-lived dispensary doctors in Ireland passed away recently in the person of Dr. JOHN POYNTZ RICE. Educated at Clongowes and Queen's College, Cork, he qualified in Edinburgh in 1883. He was appointed dispensary medical officer for Castleisland in 1889, and this position he held for 50 years, retiring in 1939 to a well-earned rest at his favourite hobbies, gardening and farming. He was an ardent supporter of the Royal Medical Benevolent Fund and had been a member of the B.M.A. for many years.

Dr. D. L. T. MACSHERRY, the only surviving son of Dr. and Mrs. Maurice Macsherry of Edgbaston, Birmingham, was killed by enemy action at sea in April, 1943, aged 26 years. He became a surgeon in the Merchant Navy after qualifying M.R.C.S., L.R.C.P.Lond. in 1942.

The following well-known medical men have died abroad: Dr. LESLIE LAWSON BIGELOW, clinical professor of surgery at the Ohio State University College of Medicine and president of the Ohio Medical Association, aged 62; Dr. ELMER BURKITT FREEMAN, clinical professor of gastro-enterology at the University of Maryland School of Medicine, aged 67; Dr. FRÉDÉRIC GUYOT, one of the founders of the Geneva Society of Oto-rhino-laryngology; Dr. NATHAN LÖWENTHEL, honorary professor of medicine at Lausanne University, aged 87; Prof. HEINRICH ZÖRNIG, formerly professor of pharmacology at the University of Basle and founder of the Basle Pharmaceutical Institute, aged 76; Dr. ANDRÉ TOURNADE, professor of physiology at the University of Algiers from 1920 to 1942, aged 62, whose chief work was connected with the physiology of the suprarenals.

Universities and Colleges

UNIVERSITY OF LONDON

The following candidates have been approved at the examinations indicated:

M.D.—Branch I (Medicine): A. J. W. Beard, J. V. Davies, P. Fränkel, Frances V. Gardner, Joyce A. Keeping, Frances J. Pounds, Branch II (Pathology): V. H. Bowers, S. D. Eick, J. L. Peniston, R. E. Rewell, Branch IV (Midwifery and Diseases of Women): J. C. Adams, Branch V (Hygiene): C. E. E. Harrington, D. P. Holmes, B. A. Thomas, Branch VI (Tropical Medicine): W. J. S. Wilson, ACADEMIC POSTGRADUATE DIPLOMA IN MEDICAL RADIOLOGY.—H. H. Hermann, D. D. A. Jayamanne, B. Sandler, L. M. Shorvon, Part I: M. Sheehan.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL

The following scholarships, exhibitions, and prizes have been awarded:

Goldsmith Entrance Scholarships: (1) D. R. Smith, Caius College, Cambridge. (2) Miss P. A. Howard, Newnham College, Cambridge. Goldsmith Entrance Exhibition: Miss M. B. Robinson, Lady Margaret Hall, Oxford. Atchison Scholarship: Miss Geraldine M. Howard, Magrath Scholarships: Medicine: A. N. Smith, Midwifery: Miss Geraldine M. Howard, Erichsen Prize: K. Chitty, Liston Gold Medal: P. H. Jones, Fellowes Gold Medal: J. S. Crowther, Fellowes Silver Medal: H. Kaufman, T. H. Powell, Wilfred Trotter Medal: T. H. Richards, G. R. Parry, Suckling Prize in Obstetrics and Gynaecology: L. M. Gerlis, F. T. Roberts Prize in Obstetrics and Gynaecology: H. E. Thomas.

Medical Notes in Parliament

House of Lords on Government's Milk Policy

In the House of Lords on July 27 Lord ADDISON called attention to certain aspects of food policy, with special reference to milk and milk products, and their cleanliness and safety. He welcomed the White Paper, and said it represented a great step forward. It meant that the State was going to see that this vital food not only became more popular but was also wholesome. Speaking as a member of the medical profession, he said that a great deal of nonsense had been talked about damaging milk by pasteurizing it. He was glad that arrangements were foreshadowed for sterilization by pasteurization as and when it was practicable to do so, could not be done all over the country at once, and he gathered that the Minister would begin with the larger centres of population. It would need courage and persistence, but he knew nothing so far as the improvement of diet and nutrition was concerned which had given him more encouragement for many years than this enterprise.

Lord HORDER said that many who had, on medical grounds, urged for some time that steps should be taken along the lines felt on the whole satisfied with the policy outlined in the White Paper. Time, however, was of the essence of the contract, and he was not prepared to agree with Lord Addison that the techniques necessary to implement the Government policy must necessarily take a very long time. The Ministry of Agriculture would be responsible for the production of the Minister of Food for the distribution of clean milk, as to ensure that the supply of clean milk to the citizen was guaranteed.

Anomaly of "Accredited" Milk

There was, however, one exception to this general sense of satisfaction which medical men and women felt about the safeguards outlined by the Government, and that was the sale of milk from an accredited herd. He believed that much of this milk was not obtained from tuberculin-tested cows, that were so, why was it not going to be an offence to sell this milk unpasteurized? He hoped that the Government would reconsider this important point. With regard to the Ministry of Agriculture taking over the supervision of the conditions of milk production, it was to be hoped that the local authorities would not be canny in the matter of vigilance for clean milk but would still hold a watching brief for the consumer. The supply of veterinary inspectors would for some time be very limited. The efficient working of the Government's policy would require frequent sampling of milk, especially milk supplied to hospitals, schools, and canteens. That sampling should still be undertaken by local authorities, and should cover bacteriological tests as well as mere tests as to keeping properties.

He denied the statement sometimes made that the medical profession were not unanimous on this matter. There was complete unanimity in the profession on this point as there was on any question in a free country like ours, where a few folk would always take a pleasure in showing their freedom by differing from the great majority. Some three months ago an influential deputation urged on the Minister of Food the need for pasteurization of bulk milk. That deputation included representatives of the three Royal Colleges, the B.M.A., the National Association for the Prevention of Tuberculosis, the Joint Tuberculosis Council, the British Paediatric Association, and the People's League of Health. There was no difference of opinion on the importance of feeding babies with milk, but when we asked what sort of milk we should pour into babies we were faced with the anomaly to which he had referred. There was a note of drama about tuberculosis which tended to lessen the significance of other diseases which were spread by germ-laden milk. He had in mind undulant fever, septic disease processes in considerable numbers, scarlet fever, diphtheria, and typhoid. It was difficult to assess the number of these septic cases which were attributable to milk. We knew a good deal more exactly how many cases of bovine tuberculosis occurred each year, but the morbidity—i.e., the prevalence—and the mortality of these cases taken together must far outweigh those due to tuberculosis.

Long-term and Short-term Policies

There were two ways, Lord Horder said, of making milk really safe for children and young adults. We could take steps to ensure that the cows that provided the milk were free from disease, and that the processes of collection and distribution were clean and not dirty. The other way was to pasteurize the milk and so sterilize it as to make it safe for human consumption. While he favoured both the long-term

and the short-term policies, the former was not enough. It could take several decades before anything like complete cleanliness was effected at the cow end. Among other things, there was the status of the veterinary profession and the paucity of numbers. We had the best stock in the world, but we had a long way to go in the care with which we looked after that stock. We must do more to encourage intelligent men and women to enter the ranks of veterinary service.

A third alternative by which milk could be made fit for human consumption was by boiling it. This alternative could not be considered for two reasons. First, boiling milk definitely lowered its nutritive value, whereas pasteurization did not. In the second place, if they warned mothers that they must not give milk to their babies unless it was boiled, they would be stigmatizing milk and sabotaging a basic food. They would prevent thousands of mothers from giving it at all, and would lower the popularity of milk in such a way as adversely to affect its production.

In these days, with steel in short supply, pasteurizing plants could not be multiplied indefinitely, but it was not impracticable or their number to be largely increased and for milk to be bulked to a greater extent even than at present. It might not be a bad thing to release a little steel to make the pasteurizing plants. There were people who said that this must wait until after the war. It could not wait, for the position worsened rather than improved. The Minister of Food recently admitted that a lot of T.T. milk found no market as such, and the White Paper gave no assurance that this position would improve in the near future. A large quantity of T.T. milk was mixed with dirty milk. It had been said that this system of making milk safe by pasteurization was likely to drive the small producer-retailer out of business. We should all regret that, but the cover offered to the small producer-retailer by the proposals of the White Paper should disabuse people's minds of the idea of hardship inflicted on him. If the technique needed to pasteurize all bulked milk eventually resulted in the shutting down of some of the dirtier milk-handling and distributing premises, so much the better for the community.

Extent of Pasteurization

Lord WOOLTON said that already in London 96% of milk was pasteurized, in Manchester 85%, and in Glasgow 70%. In the areas of over 10,000 population—the areas with which they were dealing—65% of the milk was already in pasteurized form. Their estimate was that within the next few months they would be able to increase the amount of pasteurized milk from 65% by another 15%, and that in a year from that time—18 months from now—they would be able to cover the whole of the country in which they had introduced rationalization schemes. The problem before the Government was to get sufficient new plant to deal with this increased quantity of milk. Broadly speaking, the rationalization schemes would deal with all the places where there was bulked milk. The mixing of T.T. milk with bulked milk was a common practice before the war. He believed that only 25% of the T.T. milk found its way as such to customers. He had taken the responsibility for seeing that that milk should be marketed. His intention was to try to direct it to these centres so that children should have it; to try to direct it to consumers, so far as transport difficulties would allow, so that they might purchase it as T.T. milk; and so to direct it that it should be sold at a price which people could afford.

He had been asked by Lord Horder about accredited herds, and whether it was not true that, even within the limitations the Ministry had made, there would not be a danger of tubercle. Certainly it was true. This was another example of the best being an enemy of the good. If they had waited until they had reached agreement on perfection before issuing the White Paper, they would have had to wait still longer. The Minister of Agriculture and he took what they regarded as a common-sense and practical step. They had the agreement of the National Farmers' Union, the "small retailers" subcommittee of that union, and they had all this medical and scientific opinion. It seemed to them that it was the wise and statesmanlike course to take this basis of agreement as far as they had got it, and to proceed to act, knowing full well the mechanical hindrances to getting any further amount of milk treated. He hoped, therefore, Lord Horder would not think they had been half-hearted about this. They had adopted a political compromise which took them a long way further on the road and at any rate gave them an opportunity of doing all that they could do with the material at their disposal.

Diseases "Normally Unaffected" by War Service

Mr. DRIEBERG on July 29 asked the Minister of Pensions to circulate the list of diseases held by the current consensus of medical opinion to be neither caused nor aggravated by military

service. Sir WALTER WOMERSLEY replied that it was impossible to extract from all the diseases known to medical science a complete list of those in the causation or worsening of which war service would be unlikely to play any part. There were, however, certain diseases or groups of diseases the onset or development of which would normally be unaffected by service. It should not be assumed, however, that every case in which the disability was due to one of these diseases was necessarily rejected. Examples of the more common of these were: malignant diseases with certain well-recognized exceptions; certain diseases of the glands—for example, lymphadenoma; certain diseases of the nervous system of developmental origin—for example, syringomyelia; certain diseases of the blood and blood-forming organs, such as leukaemia; progressive visual changes due to errors of refraction; and venereal diseases.

The White Paper on Health Services

On August 3 Capt. PETER MACDONALD asked the Minister of Health when he proposed to issue his White Paper containing his preliminary proposals for implementing the health scheme of the Beveridge report. Miss HORSBRUGH said that the Minister hoped it would be possible to publish a White Paper about the time when the House reassembled. This would then serve as a focus for full discussion by all concerned, including many interests besides the medical profession, and it had always been the Minister's clear intention to give ample opportunity for this.

Food Value of Oatmeal

On August 3 Mr. MATHERS asked the Secretary of State for Scotland whether he could give any information about the effect on the nutritional and health standards of persons who made oats and other characteristic Scottish products a prominent feature of their diet. Mr. JOHNSTON said that oatmeal was a highly nutritious grain, rich in some of the essential elements of an adequate diet—namely, vitamin B₁, carbohydrates, protein, and fat. Like any other item of diet, oatmeal was not generally consumed by itself as a complete food, but as a cereal it was shown by chemical analysis to be four times as rich in fat content as white wheat flour, while oatcakes were 10 times as rich in fat content as white bread.

Replying further to Mr. Mathers, Mr. Johnston said his statement was founded on an analysis by Dr. McCance, published by the Medical Research Council.

Accommodation and Nursing for Tuberculosis in Scotland

On August 3 Mr. JOHNSTON informed Mr. McNeil that on July 1 last 1,007 patients suffering from pulmonary tuberculosis had been waiting for hospital accommodation for 10 days or more. Between the beginning of April and the beginning of August 244 new beds had been occupied, and nursing staff had been obtained for 65 additional beds which had not been in use owing to lack of staff. A further 130 beds were ready for occupation as soon as nursing staff could be obtained, and a still further 330 new beds would be available immediately certain adaptations were completed, provided there was nursing and domestic staff. Proposals to cover the remainder of the waiting list by release of further emergency hospital service beds were being urgently examined.

The Medical Student

During the debate on education in the House of Lords on August 4 Lord MORAN said that for 25 years he was dean of a London school of medicine to which every year came 60 or 70 new students, who, for the next five, six, or seven years, applied the education they had already been given to the new task of becoming doctors. The results on the whole were disconcerting. Many of these boys lacked reasoning power. Many were without curiosity. A student without curiosity was not a student at all. He would not debate how far these defects were due to early specialization, and how far to the examination system. In the education of the medical student they kept adding to the curriculum; they never took away. They asked him to memorize a mass of facts instead of teaching him how to handle them. Before they sent him away they contrived so to educate him that he could not educate himself. He had no power of growth. Lord Moran said that he himself had come to inquire not how much a man knew when he qualified, but whether he wanted to learn and if he knew how to learn. The explanation of this curious ineffectiveness was that the teaching art was of extreme difficulty. Nothing would come of Parliament's efforts in education unless it could explain to the country that it must have the best for the teaching profession, and unless they had a method of finding out during the war the men needed for the profession. Relationship between teacher and pupil was so important. One could talk to a class, but could only teach boys and girls whom one knew. That was

The Bill received the Royal Assent on August 5.

Mr. BROWN said the nursing organizations were asked to nominate to the Rushcliffe Committee and had done so. It was not due to him that there were not more women on the committee. The committee had spent 15 months going through the categories of nurses, and it was necessary that the Ministry should act swiftly on this side of the committee's work, since the Athlone Committee's report had been necessarily laid aside when war broke out. He did not bind himself, to accept what the Rushcliffe Committee might recommend on other subjects. At the moment he did not see any justification for altering the major recommendations.

Women in War

During a debate in the House of Commons on August 3 on the position of women in national service Dr. EDITH SUMMER-SKILL said that in the Women's Auxiliary Services women were now replacing men, head for head. Those who had seen the women on the A.A. gun sites had been very-impressed by their work. Yet these picked personnel on gun sites were paid only two-thirds of the men's rate. The only women in the Services paid the same rate as men were doctors, although other women were doing work which was just as specialized. There were brilliant scientists in the Services who were being paid only two-thirds the rate. The doctors had a strong organization to protect them. It should not be necessary in this country for women to be strongly organized in the Services before they could get justice. The B.M.A. would not sanction the Government recruiting women doctors at a cheap rate. Therefore women doctors, who were organized, were treated fairly, while unorganized women who had no trade union were not. She also could not understand why women members were not allowed to practise first aid in the Home Guard, and why women doctors were not eligible for service in the Home Guard.

Nurses (Scotland) Bill

The Nurses (Scotland) Bill passed through the report stage in the House of Lords on July 15 after an amendment had been made, on the motion of Lord Alness, to enable persons to be placed on the roll of assistant nurses on producing evidence that they had been engaged in practice before the passing of the Act. The Bill was read a third time on July 20 without debate and was returned to the House of Commons. The House of Commons agreed to the Lords' amendment on July 21.

On July 27 the House of Commons agreed to the Lords' amendments. Mr. THOMAS JOHNSTON said that existing facilities for the training of nurses were, by common consent, insufficient. They were 700 trained nurses and 600 assistant nurses short of requirements. The principal amendment inserted by the House of Lords and which the Government accepted made some little contribution to training facilities. There were

Working Hours of Nurses.—Sir HENRY MORRIS-JONES inquired on July 20 whether the recommendations of the Rushcliffe of a 96-hour fortnight for the general body of nurses had been adopted by voluntary and municipal hospitals in this country as a statutory obligation, and whether these hours included time for meals. Mr. BROWN replied that the Nurses Salaries Commission recommended that a 96-hour fortnight should be brought into national operation as soon as circumstances permitted, and that it was to be determined by him, having regard to the availability of nurses and subject to the requirements of the service. He could not say whether the supply of nurses at the present time sufficed to enable the 96-hour fortnight to be worked at all hospitals. The Commission made no reference to time spent at meals, but the Interdepartmental Committee, under the chairmanship of Lord Athlone, to which the recommendations of the Rushcliffe Committee were referred, drew attention to the fact that the 96-hour fortnight was meant to be exclusive of time for meals.

Raw Milk Supplies.—Major YORK inquired on July 21 in areas scheduled under the new milk scheme it would be permissible for parents who prefer raw milk for their children to obtain delivery. Mr. MADANE replied that it was not possible for themselves to obtain delivery. Their existing retailer was able to supply them with raw milk, but not otherwise in scheduled areas.

White Paper on Population.—In the House of Lords on Earl De LA WARR asked the Government when they would issue the White Paper on population, which was promised in the Budget on June 8. Lord SNELL said that the preparation of this Paper was obviously an elaborate task, and the Minister of Health regretted that he could not at present give any indication when it was likely to be completed.

Supply of Nurses.—Mr. MALCOLM MCCORQUODALE, in August 5 to Sir Ralph Glyn, said that just over 400,000 persons registered under the Nurses and Midwives (Registration for men) Order, 1943. Of these approximately 270,000 were at the time of registration in some form of nursing or midwifery work. About 130,000 were not engaged in such work. It was expected that most of these, on account of age, family responsibilities, or for some other reason, would prove not to be available for the nursing or midwifery services. Any approach to return to the nursing or midwifery services. A serious problem of satisfying the demands for nurses and midwives included the recruitment of additional persons at present in such work, the redistribution where necessary of persons performing these services, and the return to the service of experienced persons not at present practising. Interviews with persons registered recently and of those who came to the attention of the recent publicity appeal began at the Department's response to the recent publicity appeal began at the Department's offices of the Department in June. During June and July, 2,000 nursing and midwifery vacancies had been filled.

Mass-Radiography Units.—Mass radiography sets already being delivered as quickly as is compatible with other work on material and the highly skilled labour required, but expected that delivery will be completed much before the next year. In the meantime Mr. Ernest Brown will be in question of ordering further sets. He has suggested to the authorities that arrangements should be made between the sharing the use of the units now in course of allocation and the apparatus is readily transportable.

The latest revision of the list of medical reference b to all medical units at home and abroad was started this year and was completed early in July. The Directorate of Army Medical Services, is advised in these matters by the Medical Department Consultants' Committee.

The first miniature radiography unit has not yet been delivered to Glasgow Corporation but is expected to arrive almost immediately.

Under the milk-in-schools scheme milk may be supplied by persons who have been approved by the medical officer on the ground of the source and quality of their supply, with the medical officer of health to determine what other evidence he should require for this approval.

The principal British representatives in Allied Military in Occupied Territory include Colonel Gordon Cheyne, Chief Health Officer.

No. 30

EPIDEMIOLOGICAL NOTES

INFECTIOUS DISEASES AND VITAL STATISTICS

For print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 31.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) the 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	47	4	13	1	3	69	5	28	2	2
Deaths	—	1	1	—	—	—	—	1	—	—
Diphtheria	609	40	127	66	40	650	33	161	65	13
Deaths	6	1	—	—	—	12	—	—	1	—
Dysentery	99	13	160	—	—	64	9	52	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	1	—	1	1	—	1	1	1	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	29	4	3	—	—	48	8	4
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	—	—	—	—	—	—	—	—	—	—
Deaths	61	11	12	36	7	42	11	10	119	4
Measles	2,262	143	35	20	3	6,476	740	144	53	76
Deaths	2	—	—	—	—	3	1	1	—	1
Ophthalmia neonatorum	78	7	22	—	—	81	4	34	1	1
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	10	2	1	—	1	6	2	6	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza*	432	24	12	—	3	418	24	4	—	4
Deaths (from influenza)	9	1	1	—	—	6	14	1	—	—
Pneumonia, primary	—	—	135	19	7	—	—	112	17	5
Deaths	23	—	—	—	—	—	—	—	—	—
Poliio-encephalitis, acute	1	1	—	—	—	4	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pellionymylosis, acute	11	1	—	4	—	9	—	2	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	3	16	—	—	—	—	—	17	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	163	10	13	—	—	160	12	19	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1,979	193	170	44	39	1,456	73	253	41	19
Deaths	1	—	1	—	—	—	—	1	—	—
Small-pox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	13	1	3	9	6	9	—	2	16	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	1,896	95	56	36	38	1,116	104	10	50	12
Deaths	10	—	4	—	1	4	2	2	3	1
Deaths (0-1 year)	350	34	68	25	29	264	37	59	29	25
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	4,100	591	544	143	101	3,764	505	514	157	117
Annual death rate (per 1,000 persons living)	—	—	—	—	—	—	—	—	—	—
Live births	6,559	759	940	322	264	6,450	705	849	471	294
Annual rate per 1,000 persons living	—	—	—	—	—	—	—	—	—	—
Stillbirths	255	26	35	—	—	234	34	26	—	—
Rate per 1,000 total births (including stillborn)	—	—	—	—	—	—	—	—	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Discussion of Table

In England and Wales notifications of measles were down by 224, and of whooping-cough by 185. There were also 120 fewer cases of scarlet fever (41 fewer in Middlesex): a feature of this disease during recent weeks has been the large fluctuations in alternate weeks with only very small differences in the intervening weeks. Diphtheria, notifications of which have been at a fairly constant level during the past two months, rose in incidence by 18 cases.

Within the counties there were large variations in the trend of whooping-cough. There were 60, 59, 39, and 31 fewer notifications respectively in Lancashire, Durham, Glamorganshire, and Devonshire; in Warwickshire there were 45 more cases and in Shropshire 37. Measles was down in Kent by 60 cases, in Surrey by 48, in Northamptonshire by 37, in Wiltshire by 37, and in Lincolnshire by 36: the only increase of any size was of 35 more cases in Norfolk.

Dysentery notifications were 6 fewer than in the preceding week. Small outbreaks occurred in Wiltshire 6 (Amesbury R.D. 4, Calne and Chippenham R.D. 2) and Shropshire, Oswestry R.D. 9. The infection persists in Bristol C.B., where there were 10 further cases during the week: 13 cases were reported in both London and Lancashire.

In Scotland a large rise—21 cases—in the incidence of dysentery was recorded for the third consecutive week, this being due to the increase in the County of Kincardine; where the cases went up from 15 to 60. In West Lothian County notifications dropped from 50 to 35. The incidence of dysentery remains high in the cities of Aberdeen 18 and Edinburgh 15. Only 13 cases of cerebrospinal fever were notified—about half the weekly average for the preceding two months.

In Northern Ireland the principal centre of diphtheria was in the County of Londonderry, where 15 of the total of 40 cases were recorded.

Infections due to Food

The monthly bulletin for August of the Emergency Public Health Laboratory Service describes the results of the investigations into outbreaks of food-poisoning. An outbreak of paratyphoid in Sussex was traced to infected milk. The agent was a school employee who was mainly responsible for the distribution of the milk to the children. A small outbreak of food-poisoning in Berkshire was attributed to brawn. The unhygienic method of preparing the food resulted in the introduction of *Staph. aureus* from pustular lesions on the hands and wrists of the employee engaged in the final stages of mixing the brawn. An outbreak of food-poisoning at Barnstable was also traced to infected brawn. The brawn was contaminated by a chronic nasal carrier of *Staph. aureus*, and the organisms proliferated rapidly, as the brawn was kept at room temperature overnight during the warm weather prevailing at the time. These investigations emphasize the importance of personal hygiene among the staffs preparing food and also the need for keeping prepared foods in a cool place.

The Week Ending August 7

The returns of infectious diseases in England and Wales during the week included: scarlet fever 1,520, whooping-cough 1,614, diphtheria 493, measles 1,903, acute pneumonia 484, cerebrospinal fever 34, dysentery 122, paratyphoid 5, typhoid 8.

Medical News

In the account published in the *Journal* of August 14 of the experiences of British surgeons on their visit to the U.S.S.R., we omitted to mention that Col. Elliott C. Cutler, M.C., Chief Consultant in Surgery, American Army Medical Corps, was one of the distinguished American surgeons who formed part of the joint Anglo-American Mission.

The latest step in the campaign for the prevention of blindness in India is a "floating eye hospital" which has been equipped in Bengal to travel the canals and waterways of the country.

The Homes of Recovery for War-blinded Civilians, which were established after the outbreak of war by the National Institute for the Blind to provide special training for air-raid casualties, have proved so helpful to persons losing their sight late in life that they are to be a permanent part of the Institute's work. In future they will be known as the Queen Elizabeth Homes of Recovery. One of them was presented to the Institute by the British War Relief Society of America.

The Ministry of Health announces (Circular 2843) that as from April 1 last the pay of members of the Civil Nursing Reserve is to be as follows: trained nurses in charge of a ward, £140, rising by £10 to £190; other trained nurses, £110, rising by £5 to £140; assistant nurses, £75, rising by £5 to £95; and nursing auxiliaries, £57 10s., rising by £2 10s. to £65. When the nurses are non-resident living-out allowances (in addition to meals on duty and laundry) of £70 for a trained nurse in charge of a ward, £65 to other trained nurses and assistant nurses, and £55 to auxiliaries should be paid. All members of the reserve who are employed in a tuberculosis institution or tuberculosis wards should receive an additional £10 a year and free travel twice a week to the nearest centre of population. The circular, which has been sent to local authorities, voluntary hospitals, and local emergency organizations, also sets out the conditions governing annual and sick leave.

The Minister of Health, addressing the annual conference in London of the National Association for the Prevention of Tuberculosis, said that in 1942, the third year of war, the number of deaths from tuberculosis fell to the record low level of 1938, the last year of peace. The total was less than half the number of deaths in 1918. But the tuberculosis death roll was an index of past rather than present conditions, and the circumstances of war must favour the spread of the disease. It was for this reason that the Government decided to intensify the attack on pulmonary tuberculosis immediately by "opening two new fronts"—mass miniature x-ray photography and special allowances while under treatment for people with dependants. It was estimated that when this scheme of allowances was in full swing the cost to the Exchequer would be about £3,000,000 a year. "In the past," the Minister said, "fear of having to resort to poor relief made many a sufferer go on working until hope of effective treatment faded or disappeared. The new scheme of allowances is not a system of doles or pension, but a weapon put into the hand of the doctor in his fight against tuberculosis, at a stage when he has every chance of beating his enemy."

The Home Service Ambulance Committee of the Order of St. John and British Red Cross Society suggests that, to conserve petrol and tyres, doctors who want patients brought more than forty miles to London should make use of the committee's ambulances which otherwise would return empty to London. Notice by letter two days before the date of the journey should be sent to the Joint Secretaries, Home Service Ambulance Committee, 12, Grosvenor Crescent, S.W.1.

Dr. J. Rawdon Soddy, Colonial Medical Service, is reported missing at sea.

The Services

Cols. (Temp.) A. Bremner, M.C., T.D., D. G. Cheyne, O.B.E., M.C., and E. E. S. Wheatley, D.F.C., R.A.M.C., have been appointed C.B.E. (Military Division) in recognition of gallant and distinguished services in Tunisia.

Lieut.-Col. B. P. Baliga and Major (Temp. Lieut.-Col.) A. Ullah, I.M.S., have been appointed O.B.E. (Military Division) and Capt. (Temp. Majors) J. Hay-Arthur and W. J. F. Young, I.M.S., and Jemadar S. Y. Bhagwat and Asst. Surg. 1st Class L. H. Carr, I.M.D., have been appointed M.B.E. (Military Division) in recognition of gallant and distinguished services in Persia-Iraq.

The following have been mentioned in recognition of gallant and distinguished services in Persia-Iraq: Major-Gen. (Acting) J. G. Gill, D.S.O., O.B.E., M.C., and Brig. (Temp.) C. D. K. Seaver, late R.A.M.C.; Cols. (Temp.) W. M. Cameron, O.B.E., J. J. Magner, M.C., T. H. Sarsfield, and C. Scales, M.C., R.A.M.C.; Lieut.-Col. L. B. Clarke and Majors (Temp. Lieut.-Cols.) W. A. D. Drummond, P. J. Richards, and T. Seager, R.A.M.C.; Capt. (Temp. Major) D. J. Wigginton and Capt. G. A. C. Miller and W. C. Wightman, R.A.M.C.; Col. (Temp.) K. S. Master, M.C., I.M.S.; Majors (Temp. Lieut.-Cols.) B. J. Griffiths and F. C. Jackson, I.M.S.; Majors R. L. Henderson, L. Oswald, and J. R. Vaid, I.M.S.; Capt. (Temp. Majors) R. M. McCullough, F. J. O'Dowd, and J. H. Walters, I.M.S.; Capt. B. Ahmed, S. P. Bhalla, A. Hag, N. A. Curashy, S. P. Mukherjee, and S. A. Sheikh, I.M.S.; Subadar-Major B. Ram, I.M.D.; Subadars K. R. Channa, G. C. Pahawal, and S. Ram, and Jemadars J. Subrahmanyam and M. S. Kataria, I.M.D.

CASUALTIES IN THE MEDICAL SERVICES

Wounded.—War Subs. Capt. D. M. Cathie, R.A.M.C.

Prisoners of War.—Major H. J. Anderson, R.A.M.C., Capt. W. R. Grant, R.A.M.C., War Subs. Capt. J. F. Pantridge, R.A.M.C., Major J. A. Reid, R.A.M.C., War Subs. Capt. A. Roy, R.A.M.C.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (9.15 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be sent to the Secretary.

TELEPHONE NO.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES.—EDITOR, *Atology Westcent*, London; SECRETARY, *Medisera Westcent*, London.

B.M.A. SCOTTISH OFFICE: 7, Drumshugh Gardens, Edinburgh.

ANY QUESTIONS?

Intermittent Claudication

Q.—I should be grateful for any information that you can give me that is likely to benefit the following case. A male patient of 70 years, who has cramp-like pains, more particularly in the leg, thigh and calf muscles, is prevented from walking more than a few hundred yards. As he is a farmer this is naturally a great handicap. On examination he is rather a thin subject with no undue amount of arteriosclerosis. His B.P. is normal for his age, and his urine is free from albumin or sugar. Rectal examination shows a slight prostatic hypertrophy but no other abnormality. I presume the condition is one of intermittent claudication, but am at a loss to attribute a cause.

A.—Yes, this is an example of intermittent claudication, and it is due to arteriosclerotic changes in the arteries to the lower limbs. With such aetiology this occasional accompaniment of age has to be regarded as beyond the power of a doctor to alter in any effective way. If so, the indication is to dwell on the favourable signs and absence of complications noted in your patient, and to prevent him from becoming too much preoccupied with his disability. He must accept it and make all possible arrangements to avoid unnecessary walking—a plan which will be easier when more petrol is available after the war. Warm clothing is needed, and scrupulous care and cleanliness of the skin, so as to avoid the least injury to the legs; that have a restricted blood supply and might not heal readily.

Pillows

Q.—Are pillows necessary or advisable for the nursing of infants and children with respiratory illnesses such as pneumonia and whooping-cough? Do healthy children up to the age of 5 need pillows?

A.—This question of pillows seems to be a matter of common sense. Some nursing books recommend that patients with lobar pneumonia be nursed sitting up and with bronchopneumonia lying down, but it has always seemed to me at any age the best position is the one in which it is found that breathing is most efficient and comfortable and in which sleep is most easily secured. The good nurse uses pillows by a process of trial and error to secure these aims. It is impossible to lay down rules for every type of child and illness. Custom plays a part which leads to the second question. Usually a baby has a small pillow and most young children prefer a low pillow. But it is probably immaterial whether a child has one, two, or no pillows so long as sleep is calm and peaceful. Adults vary with their likes and dislikes as regards pillows, and with children it is the same. But the danger of mastoid infection from feeding young children in the recumbent position, and of allowing them to remain lying too long in one position, should be remembered (see article by Mr. P. W. Leathart in the *Journal* of August 7, p. 168).

Aschheim-Zondek Test

Q.—What reliance can be placed on the Aschheim-Zondek test for pregnancy in the early stages—say after two weeks' amenorrhoea? Can a negative result at this stage be accepted as a definite proof of absence of pregnancy?

A.—The Aschheim-Zondek test is to be regarded as a test for the presence of live and active chorionic tissue in contact with the maternal circulation rather than for pregnancy. As such it is accurate in 95 to 97% of cases, and there are more false negative than false positive reactions. In pregnancy the test usually becomes positive within one week of a period being missed, but this is by no means constant, and a negative reaction after two weeks'

menorrhoea should not be accepted as definite proof of the absence of a live pregnancy. If clinical signs of pregnancy persist the test should be repeated after an interval of one week. All reactions, and particularly "doubtful" ones, require careful interpretation, bearing in mind the clinical features of each case.

Vitamin C Saturation Test

Q.—Will you kindly inform me of the exact amount of ascorbic acid required to saturate the blood in order to do the urine ascorbic acid saturation test. Does the amount required vary with different age levels?

A.—There is a "saturation test" in which ascorbic acid is estimated in the urine after the oral and parenteral administration of a test dose of ascorbic acid. Like glucose and some other compounds, ascorbic acid is a threshold substance, with a critical level of excretion at about 1.4 mg. per 100 c.c.m. of blood plasma.

The rationale of the saturation test is based on the hypothesis that after the administration of ascorbic acid the requirements of the tissues for the vitamin are satisfied before the concentration of ascorbic acid in the blood rises to the threshold value and is eliminated in the urine. For practical purposes the method of Larriss (*Lancet*, 1937, 2, 1429) may be used. At 9 a.m. the individual empties the bladder and the specimen is rejected. Another specimen is obtained at 12 noon and titrated with 2,6-dichlorophenolindophenol solution for ascorbic acid; any urine passed during the three hours is also collected and titrated. This procedure is repeated on a second and third day. After this, for one or two further days, or more if necessary, a test dose of 70 mg. of ascorbic acid per stone of body weight is given orally in 100 c.c.m. water at 10 a.m. and the urine collected on the same day between 2 and 5 p.m. This two or three hours' afternoon specimen reveals if there has been an increased excretion of ascorbic acid in response to the day's test dose. The test is repeated daily until a sharp rise in the urinary excretion of ascorbic acid is obtained: 5 to 50 mg. per stone of body weight shows a sharp rise in the urinary excretion of ascorbic acid on the first or second day of testing. With increasing deficiency there will be an increased number of days' delay before a response is obtained. The amount of the test dose depends on body weight rather than on age. It is 70 mg. per kilo of body weight. For further literature consult *Lancet*, 1940, 2, 259; 1942, 1, 265, 642, 644, 647; and *British Medical Journal*, 1940, 2, 217.

Injection of Fibrous Nodules

Q.—What is the technique of injection of novocain or similar drug for relief of severe pain from fibrositic nodules in region of shoulder girdle? Can permanent relief be attained by this method? The condition is now subacute and the pain comes on in attacks.

A.—Injection of fibrous nodules and indurated regions is regarded as extremely valuable in the treatment of fibrositis. The nodule is recognized by its tough consistency, and pain is felt on penetration. It is infiltrated with 5 to 15 c.c.m. of a 1/2% solution of procaine in saline, which should be delivered in the centre of the nodule. Infiltration abolishes the pain, and if this does not happen it is probable that the nodule has not been properly located. To obtain the maximum benefit, injection should be followed immediately by massage and stretching of the affected muscles. Successful injection is usually followed by permanent relief of pain, but there may be recurrence as a result of incomplete disintegration of the nodule or the formation of new nodules. The injection should then be repeated. In assessing the results of physical treatment it should be remembered that there is an increasing tendency to incriminate psychogenic factors in cases of fibrositis which do not respond readily to treatment.

Painful Legs in Elderly Diabetic

Q.—A woman aged 67, well in every way except that she has mild diabetes mellitus, controlled by 5 units of ordinary insulin a day—blood pressure 160/90—complains only of great pain in her legs on walking other than a little distance. X-ray examination shows the femoral and tibial arteries to be more or less continuously calcified, and the course of both arteries can be followed in the skiagrams down both legs by the calcification of the vessels. I have no doubt of the diagnosis but am at a loss for any treatment. I feel massage is contraindicated and have my doubts about using acetylcholine. Should be grateful for any help.

A.—As the diabetes is controlled by such a small daily dose of insulin, it is improbable that the arteriosclerosis is diabetic in origin. It is presumably a senile degenerative lesion. The pain in the legs on walking is due to insufficient blood supply to the muscles. The only hope of improvement lies in attempts directed to increase the blood supply through arteries which are not calcified. For this purpose the patient should sit in a hot bath for half an hour daily. Massage to the legs twice a week has proved helpful in some cases. It would also be worth while trying the effect of giving by mouth nicotinic acid 50 mg. t.d.s. Acetylcholine is

not likely to be helpful. If the patient is on a low-carbohydrate diet it would be well to increase the carbohydrate, and the insulin too if necessary, with the idea of preventing any diabetic arterio-sclerotic changes from occurring.

China Root

Q.—Dr. E. Ashworth Underwood, in his interesting article on the "Fabrica" of Vesalius, mentions the "China root" which Vesalius used in 1537 for treatment and made the subject of a "letter" in 1546. What was this root? "Chambers's Encyclopaedia" (about 1886) mentions the letter but does not explain its subject. The "Encyclopaedia Britannica," latest edition, has not even an article on Vesalius.

A.—China root—*Radix chinensis*—is supposed to be the root of *Smilax china* L., a native of Japan and Eastern Asia. *S. glabra* Roxb. and other varieties furnish similar roots. China root was used in the same way as sarsaparilla, which belongs to the same genus, *Smilax*. In the East it has a very ancient history. In Europe it was probably first mentioned by Valerius Cordus (1515-44), and its use as a remedy for syphilis was made known to the Portuguese by Chinese traders about 1535. The Emperor Charles V was reported to have been much relieved of his gout by its use, and this success prompted several works, the earliest of which is the *Epistola* of Vesalius. It continued to be used as a sudorific and alterative until the beginning of the eighteenth century, and even in the second half of the nineteenth century it was still to be found in some pharmacopoeias.

The Letter of Vesalius is important not because of the description of the therapeutic use of the root but on account of the valuable autobiographical notes which it contains.

Endocrine Factor in Migraine

Q.—I have under my care a very severe case of migraine in a male aged 30, which has failed to respond to the ordinary analgesics, ergometrine, fémérin (ergotamine tartrate), or the antitriptin S treatment. I would be grateful for any suggestions in the treatment of this case.

Q.—I should be grateful for information about the use of A.P.L. hormone in the treatment of obstinate migraine. The patient is a married woman aged 42, who has had the attacks for eight years at least. She has had a great deal of treatment from various consultants without avail. She has not had this hormone. She is temporarily relieved by fémérin. The attacks are frequent and incapacitating, and seem to have no relation to menstruation.

A.—In both these questions the use of gonadotrophic preparations is mentioned. The scanty available evidence indicates that migraine of endocrine origin is probably due to over-activity of the anterior pituitary. For instance, excess of gonadotrophin and deficiency of oestrogen have been found in the urine of women suffering from "menstrual migraine." Again, the timing of these attacks to the immediate premenstrual and menstrual phase of the cycle, when oestrogen secretion is low and gonadotrophic activity (especially of the follicle-stimulating type) is high, is suggestive. Furthermore, migraine sometimes appears for the first time at the menopause, when follicle-stimulating gonadotrophic activity is increased. Claims have been made for the relief of migraine by administration of either oestrogen or androgen, presumably by depressing pituitary gonadotrophic activity. Finally, administration of gonadotrophins has been found to aggravate the attacks and even to induce migraine in women showing a low oestrogen, high gonadotrophin urinary balance.

The possible aetiological factors, however, are many. Cases are reported as being associated with low B.M.R.s and signs of hypothyroidism. On the other hand the combination of Graves's disease and migraine in which both conditions were relieved by thyroidectomy is recorded. Dilatation of the cerebral or cranial vessels, which can be produced by histamine or counteracted by adrenaline or ergotamine tartrate, may be the cause in some cases. Some are allergic in nature and may be treated in accordance with the findings of skin tests. In other cases errors of refraction or nasal congestion may precipitate attacks.

Fuchsin Paint

Q.—What is the composition of Castellani's fuchsin paint? What is its main use apart from epidermophytosis?

A.—Castellani's fuchsin paint consists of: saturated alcohol solution of basic fuchsin, 10 c.c.m.; 5% aqueous carbolic solution, 100 c.c.m. Mix, filter, and add boric acid, 1 g. After two hours add 5 c.c.m. acetone, and shake. Two hours later add resorcin, 10 g. Mix, and dispense in dark glass-stoppered bottle. This paint is often useful in mycotic infections affecting skin folds, such as between the toes and between the fingers, and although it has been used mainly in epidermophytosis it has proved useful in the extensive ringworms of tropical origin and in yeast infections also. It may be of service in chronic pyogenic intertrigo.

INCOME TAX

Successive Appointments

S. O. held three successive appointments during 1941-2 and joined the R.A.M.C. in Dec., 1942. He married in 1941-2 and his wife also had earned income in that and the following years. Various sums of tax have been deducted by the different employing authorities. What should he do to "clear up the muddle"?

** The total tax payable for 1941-2 and 1942-3 is as follows:

1941-2.	Earnings of self	£326	
Deduct.	Earned income allowance	£33	
	Expenses	£1	
	Personal allowance	£140	
			£174
			£152
	Tax at 6s. 6d. in the £	£49 8 0	
Deduct.	Life assurance relief (£12 at 3s. 6d.)	£2 2 0	
			£47 6 0
(The wife's income is less than the allowances due to her, and no tax is payable thereon.)			
1942-3.	Civil earnings	£210	
	R.A.M.C. pay	£127	
			£337
Deduct.	Earned income allowance	£33	
	Expenses (uniform allowance)	£10	
	Personal allowance	£140	
			£183
			£154
	Tax at 6s. 6d. in the £	£50 1 0	
Deduct.	Life assurance relief (£12 at 3s. 6d.)	£2 2 0	
			£47 19 0

The wife's liability is £217, less £80 (special earned income allowance) and £22 (ordinary earned income allowance)—i.e., £115, of which (£165-£154=) £11 is chargeable at 6s. 6d. and the balance of £104 at 10s. in the £; her total liability is therefore £3 11s. 6d. plus £52=£53 11s. 6d.

As S. O. will make his future returns to the War Office, his best course will be to deal with the branch of the Inland Revenue Department which handles that side of income-tax work, and communications should be sent to the Chief Inspector of Taxes, the Hydro, Llandudno, North Wales. We suggest that S. O. send a statement of his liability on some such lines as are indicated above to that office, together with a statement setting out what deductions of tax have been made—so far as can be stated—and ask for the whole position to be cleared up and a statement supplied showing the adjustments which have been made to rectify the original charges.

Subscriptions to B.M.A. and Medical Defence Union

"ASSISTANT" inquires whether these are allowable.

** An assistant is in employment and is therefore assessable under Schedule E. The rule accordingly is that such subscriptions can be regarded as allowable expenses only when membership of the organizations, etc., to which they are paid is a condition in the terms of service of the appointment he holds.

LETTERS, NOTES, ETC.

Perforated Gastric Ulcer in Adolescent

Dr. M. AUDERIAH CONYNGHAM (Monkstown, Co. Dublin) writes: Dr. David Kyle, reporting a case of a perforated gastric ulcer in a boy of 19 (March 20, p. 370), expressed an interest in any similar records. While I was house-surgeon at the Staffordshire General Infirmary, Stafford, a collier aged 17 was admitted on Sept. 25, 1941, as an acute abdomen with a short history of abdominal pain, having previously enjoyed good health. In this case, with a pre-operative diagnosis of a perforated gastric ulcer and the kind permission and help of Mr. Roy Sworn, I performed the repair of a small acute perforated ulcer on the anterior aspect of the stomach, close to the pylorus. This was quite accessible and easily repaired. The boy made an uneventful recovery.

Continuing Research on Cancer

Surg. Lieut. EDWARD F. HUNT, R.N.V.R., writes: With reference to the editorial article on continuing research on cancer (Jan. 16, p. 79), reviewing the work of the British Empire Cancer Campaign, I was extremely interested in the experiments on the breast-feeding of cancerous strains of mice. However, one is left with the feeling that the research workers on this line of investigation have been persuaded that there must be a positive carcinogen present in the high-breast-cancer strain of mice. Personally I do not believe the experiment was carried far enough. In my opinion (as put forward in previous letters to the *Journal*) one of the main factors in the formation of cancerous growths is a negative or minus factor. In other words, in a great proportion of cancers the deciding factor is a deficiency of cancer-preventing substance. Now, if in these mouse experiments it had been possible for two further groups of mice to have been suckled alternately day by day, first by the high-breast-

cancer mother and then by the low-breast-cancer mother, it might have been found that all the babies lived to be low-breast-cancer mice. If this result occurred I feel that it might prove the milk of the low-breast-cancer mice contained an anti-cancer factor, and, vice versa, the high-breast-cancer mice were hereditarily deficient in this substance. If, on the other hand, a greater percentage of the babies produced cancer, then perhaps it could be maintained that a definite positive cancer-producing substance is present in high-breast-cancer mice. I believe this last to be quite unlikely. The Glasgow Cancer Research tends to show how vitamin deficiency can produce cancer. My own theory is based on the hyperplasia of the bone marrow in pernicious anaemia patients, which, as everyone now knows, is a deficiency disease.

Treatment of Chilblains

Dr. W. N. GRASS (West Bromwich) writes: I have found the following mixture a most satisfactory prophylactic in the treatment of chilblains: pot. bicarb. gr. 15, sod. sulphat. gr. 10, ext. colchici liq. m 5, aq. menth. pip. ad 1/2 oz. The mixture should be taken every 4 hours on the first appearance of the chilblains, or at the onset of frosty weather. It will be found that the lesions gradually subside and disappear in 5 to 9 days. The treatment can then be discontinued, but should be restarted on the first sign of any tingling or swelling which indicates the onset of another crop of chilblains. I cannot give any explanation of why this treatment should be so efficacious, but possibly there is a chemical similarity between ext. colchici liq. and nicotinic acid. The latter, I understand, facilitates the action of vitamins A and D.

A Shorter Perineorrhaphy Needle

Dr. M. H. ELLIOTT writes: Would it be correct to suggest that while the perineorrhaphy needle is not a popular instrument after our student days, it is not either a particularly efficient one; and that this may be due to the fact that the long and unwieldy handle is awkward? The suggestion is that a decrease in the length of the flat-bladed portion and also of the tubular portion by half of the handle would render it more easily used. While parturition is well tolerated, in some cases stitching is an extra burden, and it is true that the doctor is often called for this alone, with or without anaesthesia administration. The junction of the straight and curved portions should make for an efficient instrument.

Improvised Wheeled Stretchers

Major S. T. BEGGS, R.A.M.C. (ret.), writes: In reference to the notes on a wheeled stretcher in the *Journals* of May 1 (p. 542) and June 12 (p. 746), at the beginning of the war I improvised wheeled stretchers by using discarded pram wheels with the springs attached and fixing a boarded shelving by means of bolts and nuts to the ends of the springs. Straps are bolted to the boards to secure the regulation stretcher. The stretcher is released if and when required by undoing the straps. This contrivance will be found quite serviceable.

Sterility and Contraception

Mrs. MARIE C. STOPES, D.Sc., writes: In your issue of June 19 Mr. V. B. Green-Armytage says it is "remarkable that the president of the Family Planning Association should advocate the study of sterility in clinics hitherto used for birth control." The only remarkable thing in that is that they have taken so many years to imitate what I originated when I founded the first birth control clinic. I announced this in the great Queen's Hall meeting in 1921, and it has been the consistent policy of the mothers' clinics ever since that the true control of conception is that which prevents undesirable births, spaces (so that the mother can breast-feed) desirable births, and induces desired births where sterility has previously been undesired. From 1921 assistance in undesired sterility has been a feature in all my mothers' clinics.

Treatment of Whooping-cough

Dr. G. ARBOUR STEPHENS (Swansea) writes: In connexion with Dr. Richard Baker's article on whooping-cough (May 8, p. 562), I enclose a copy of an article I wrote about 40 years ago on the same subject, and as the treatment therein recommended was attended by very good results some readers may care to give it a trial. In nearly all cases one finds that the auditory meatus is hypersensitive owing to some irritation of the auditory branch of the vagus nerve. By applying a 5 to 10% solution of cocaine in glycerin and water once or twice a day to the drums and meati one is able to reduce the sensitiveness of that branch and at the same time reduce the effect of any irritation on the ends of that branch. This treatment is sometimes a relief in asthma, a disease wherein the hypersensitiveness of the drums and meati is particularly marked.

A Correction

We are asked to state that "Anaesthesin" is the trade mark of Bayer Products Limited for their brand of benzocaine. It was wrongly described as "pulv. anaesthesia (May & Baker)" in our issue of July 31 (p. 148), in the letter signed "Medical."

SURGICAL TREATMENT OF BRONCHIAL CARCINOMA

BY

R. C. BROCK, M.S., F.R.C.S.

*Surgeon to Guy's Hospital; Assistant Surgeon to the Brompton Hospital**

Less than a generation ago primary cancer of the lung was thought to be a rare curiosity; to-day it is recognized as a common condition, and ranks next to cancer of the colon in frequency in men. I see an average of some 75 new cases each year. In spite of this high incidence the diagnosis is often overlooked for many months—frequently until death is imminent. The problem of diagnosis is a large one, and cannot be dealt with fully here, but certain aspects that impress one as important demand comment.

First and foremost we must, as a profession, become more "carcinoma-minded" in regard to the lungs. We are carcinoma-minded in regard to the breast, and so is the general public. We are less so in the case of the abdominal viscera, but far more so than in the case of the lungs. Malignant disease of an abdominal organ should be thought of whenever there is any disturbance of function or even awareness of the presence of any particular viscous. This, and no more, should give rise to suspicion, and calls for investigations that will lead to early identification of malignant disease or to its reasonable exclusion. The same is true of the lungs. The first signs or symptoms of bronchial carcinoma consist of *any change from normality*, and the commonest of these is cough. This is usually dry and unproductive, and is often dismissed as "smoker's cough," "bronchial catarrh," or some such vague condition. When an alarming symptom such as haemoptysis compels attention the story may be obtained of this premonitory cough extending back over many months but treated symptomatically or not at all.

By far the most important group of symptoms arises from the infection that sooner or later follows upon bronchial obstruction; this may affect the whole lung, a lobe, or only a segment of a lobe. It often begins as an apparently straightforward attack of pneumonia or "influenza," but significantly resolves incompletely or not at all. "Delayed resolution," "unresolved pneumonia," recurrent or smouldering sepsis in part of a lung, particularly in a patient of middle age, should always give rise to a strong suspicion of malignant disease. The attack of pneumonia that ushers in the illness of a bronchial carcinoma may be followed by an empyema which is drained in the ordinary way. Since the empyema is due to infection in the obstructed bronchial tree, which is now able to drain only peripherally, healing does not occur, and a chronic empyema follows; further operations may be performed in an attempt to secure healing. I find that every year I see some half-dozen cases of empyema of this type in which the real diagnosis has been quite unsuspected.

General deterioration of health, loss of weight, and loss of strength should not be regarded as signs of carcinoma of the lung if the patient is to be successfully treated. They are

usually the signs of approaching death, and so far as operability is concerned their presence almost always means that the case is unsuitable. If at the first glance the patient is seen to be ill, wasted, toxic, or distressed, then it is my experience that little can be done. Surprise is often expressed that a diagnosis of carcinoma of the lung has been made when the patient looks so well; only too often the fell possibility has been overlooked because of this apparent well-being. If we are to diagnose this grave and fatal condition in a reasonably curable phase it *must* be remembered that the slightest departure from normality in the lungs and bronchi is suspicious and needs pursuing. It is true that the operability of carcinoma of the lung is low—rather less than 10%—and a case missed until the condition is too far advanced to treat may be of little moment in a series of figures. That one missed case may, however, cover a considerable personal or family tragedy which, with good fortune and medical alertness, might have been avoided.

Once the presence of a growth of the lung is suspected careful clinical examination must follow, but reliance upon this alone is apt to lead astray. Physical signs may be absent or equivocal, and our first dependence must be on good radiographs of the chest, lateral as well as postero-anterior. Any suspicious shadow revealed will demand further investigation by bronchoscopy, especially when the diagnosis of "unresolved pneumonia" has been suggested. Bronchoscopy should precede a bronchogram, which is then often found to be unnecessary if the growth can actually be seen and a piece removed for biopsy.

Treatment

In the present state of our knowledge the only way to achieve cure of a bronchial carcinoma is by operation. Deep x rays are of value, and may produce striking temporary recession of the growth and relief of distressing symptoms. On the whole the results are disappointing and life is but rarely prolonged, which is not surprising in view of the advanced state of the disease and the associated sepsis that is so often present when the patient is sent for treatment: in many cases death is actually hastened. Local treatment by radium or radon is also disappointing and certainly never curative. It may cause striking improvement by recanalizing the obstructed bronchus and allowing infected material to drain (Brock and Cann, 1938), but just as often it is followed by a rapidly progressive increase in the infection, leading to fatal pneumonia or massive haemoptysis.

Surgery alone holds out the hope of permanent cure to the sufferer from bronchial carcinoma, and the correct operation is removal of the whole lung by dissection of the main vessels and bronchus and of the adjacent mediastinal lymphatic glands. This procedure is in accordance with the sound surgical principles followed in the treatment of malignant disease of other organs, such as the breast and colon. Treatment by lobectomy is

* Based on a paper read before the Medical Society of London on March 15, 1943.

but rarely possible technically owing to the nearness of most growths to the hilum, and is undesirable on general grounds as the removal is necessarily incomplete. In practice the recurrence rate after lobectomy is unduly high—much higher than after pneumonectomy. It is an operation that may be indicated at times in an elderly patient with a peripherally situated growth for whom pneumonectomy would seem to be too great a risk.

Lest it be thought that dissection pneumonectomy is a drastic operation to propose it should be remembered that bronchial carcinoma itself is no gentle process, but is a severe and drastic disease. The operation is actually very well borne by the patient and is fully justified by the results. It was first performed successfully by Graham in 1933, the patient being a physician who was still alive and engaged in active practice up to one year ago and, so far as I know, still is.

Although many reports of series of cases, both large and small, have been published from America, no large series has to the best of my knowledge yet been published from this country. A few cases have been recorded in English journals (e.g., Allison and Stanbury, 1938), but it is high time that a more comprehensive report of experiences with the operation appeared for critical assessment. One of the objects of this paper is to present such a series.

One finds that those seeking information about pneumonectomy for bronchial carcinoma usually want to know four things: (1) How often can the operation be performed? (2) What is the mortality? (3) How long may the patient be expected to survive? (4) How much can he do afterwards? I propose to present my own series of cases and experiences so as to answer these four questions.

1. Operability

The operability appears to vary with different surgeons, but this is probably due largely to the type of patient being seen. For instance, the operability rate is rather higher in patients of better class than in the middle-aged or elderly poor. Moreover, a surgeon who receives his cases principally from a physician will have a higher operability rate than one who sees a larger number of cases first-hand, for the preliminary examination by the physician will lead to many being rejected at once. The operability rate of the surgeon who sees all types of patients will be much lower, much gloomier, but will be more accurate for the disease as a whole.

In 1938 I published an analysis of 106 consecutive cases seen over a period of 15 months, and in only 13 of these was exploratory thoracotomy considered worth doing, the remainder being unsuitable on account of age, poor general condition, or the extent of the growth. Of these 13, four refused operation, and of the remaining 9 who consented five were inoperable; in only four could the growth be removed.

I have kept records of another series of consecutive cases seen during the last 2½ years (since Jan., 1941), and the figures are as follows:

Total number of cases seen	187
Thoracotomy advised	37
" refused	4
" accepted	33 (18%)
Operable by pneumonectomy 14	
" lobectomy 1	15 (8%)
Died from operation	2
Inoperable at thoracotomy	18
Total inoperable	172 (92%)

be seen that the incidence of operable cases is but higher than in the earlier series, and is still only 8%. figures may be compared with those published by

Overholt (1940) of Boston, whose findings were as follows:

Total cases	104
Thoracotomy advised	52 (50%)
Pneumonectomy 17	
Lobectomy 4	21 (20%)
Died	7
Total inoperable	83 (80%)

This series represents Overholt's experience over a period of six years, and at first sight it would seem that he has shown the condition to be much more favourable than appears from my own series. I think the explanation lies in the fact that many of his cases were selected before being referred for consideration of operation. This is supported by the fact that

over a period of nine years I have performed exploratory thoracotomy on 65 cases, of which 29, or rather less than half, were found to be operable. This agrees closely with Overholt's findings at operation, and suggests that the apparent discrepancy lies in the grand total of all cases seen by him being relatively rather small. Whereas he has seen 104 cases over a period of six years, I estimate that I have seen a total of some 450 cases over a period of nine years.

The conclusion, therefore, is that, taking cases of bronchial carcinoma as a whole, rather less than 20% are considered to be favourable enough to justify exploratory thoracotomy, and in rather less than half of these will the growth be found operable. The actual operability rate is at present approximately 8%. It is hoped that this figure will be improved upon with earlier diagnosis, but the condition even then would still remain one of the utmost gravity.

2. Mortality

Since the number of cases found operable in this series is relatively small it is clear that no hard-and-fast conclusions can be drawn; it is only possible to present the figures as they now stand and to draw what conclusions one can. The small number of cases is also rather disproportionately and adversely affected by the higher mortality that necessarily occurred in the early days, when the operation was less well understood. Thus I was unfortunate in losing, for one reason or another, my first four pneumonectomies—a bad start which has needed much making up. The present position is:

Total cases found operable	29 (3 lobectomy)
Died from operation	8
Died from recurrence	7
Alive and well	14

The operative mortality of 29% given by these figures is undoubtedly exaggerated. As already mentioned, four of the deaths occurred in the first four patients submitted to pneumonectomy, at least two of which would have been avoided to-day. Again, of the 8 deaths four were in patients over 60. I have had only one patient over 60 survive; he was a man of 63 who underwent lobectomy and not pneumonectomy, and is still alive and working 2½ years after. Out of 70 successful cases collected from the literature by Overholt (1940) only 6 were in patients over 60 years of age. It would thus appear that the operation carries a much higher mortality in these older patients.

The four deaths from operation since the first four consecutive deaths occurred in patients aged 64, 65, 64, and 46; the last of these had a large growth and was a poor risk: he died three weeks after operation from an abscess in the remaining lung. With the exception of this man all the patients under 60 since the first four fatal cases have survived operation. The mortality should also be considered in connexion with a series of 14 cases in which I have performed pneumonectomy 10 times and lobectomy 4 times for the condition of so-called bronchial adenoma, with only two deaths. Although the tumour in these cases was not frankly malignant these patients are usually just as bad operative risks as those with frank carcinoma.

One is therefore justified in postulating that pneumonectomy performed properly for carcinoma in a patient under the age of 60 should not carry a high operative risk—certainly not much more than 10%.

3. Recurrence Rate

It is next necessary to consider the prospect of freedom from recurrence that awaits those patients who survive the operation for removal of their growth. Here again the smallness of the numbers introduces an element of error, which is also aggravated by the relatively short time that has elapsed since operation in many of the survivors. In any case, the problem is a complex one and dependent in great part on the type of growth with which one is dealing. For instance, a young patient with an anaplastic carcinoma has a poor expectation of life, however early the growth is removed. A patient in the fifties with a small well-differentiated squamous-celled growth can reasonably expect long survival or even cure. Graham's first successful case, it should be remembered, has certainly enjoyed at least nine years of freedom from recurrence, and this patient is probably still alive, more than ten

years after. There are as yet only a few records in the literature of cases followed up for as long as five years, but enough exist to show that for shorter periods the prognosis compares favourably with that of the surgery of cancer of most other organs. It should be remembered that, although occasional untreated patients may live for as long as one or two years, the average expectation of life is generally accepted as being about six months.

The results in my own 21 survivors of operation are as follows:

Patients still alive and well after operation (14):

After 4½ years	1
" 3½	2
" 2½	3
" 1½	2
" 1 year or less	5

Deaths from recurrence (7):

Lived 2½ years	1
" 1½	1
" 9 months	2
" 2	2

The two patients who died from recurrence two months after operation had soft, rapidly growing, poorly differentiated tumours. There is little doubt that if this type can definitely be recognized without operation it should be submitted to deep x-ray therapy in preference to pneumonectomy.

4. How Much can the Patient do After Successful Pneumonectomy?

Providing the patient has survived operation and is free from recurrence, what disability is he to expect from his pneumonectomy? The answer is that disability is negligible or absent in almost all cases. A small proportion may be left with a discharging sinus, but with modern methods this should not happen often. Of my own 21 patients who survived operation sound healing occurred in all but one, which is a recent case still undergoing treatment. Only one patient needed a thoracoplasty; the rest healed by primary intention or after a short period of drainage, and with *no deformity*. Every one of the survivors has been able to return to his former occupation or to one of a similar type. These occupations include hard manual work for long hours. For instance, one patient is able to work a 14-hour shift and does heavy digging in his garden and on his allotment; another is a motor mechanic; a third a butcher working a full day and lifting heavy loads; yet another is a London taxi-driver. It is impossible, when watching these patients working or walking about, to detect any disability or abnormality. Although a few may complain of some dyspnoea on hurrying or climbing stairs for the first few months after operation, this soon passes off, and all ordinary things can be done with no sign of distress at all. One patient recently drove himself 550 miles in two days without fatigue.

Even in those patients who succumb to recurrence the operation is usually well worth while, since by the removal of the obstructed and infected lobe or lung they lose their toxæmia, fever, and sputum, and are able to carry on normally almost until the end.

Conclusion

Although bronchial carcinoma remains a terrible and fatal disease in by far the greater proportion of cases, the outlook has been improved in that, whereas a few years ago the diagnosis was synonymous with a death warrant, to-day rather less than one patient in ten has a good chance of survival if submitted to early radical operation. Of those who survive operation a number will be cured, a number will have their life prolonged, and all can expect to continue to earn their living in comfort and without disability. Surgery can be said to have justified itself in the treatment of bronchial carcinoma.

It is therefore imperative that as a profession we should be on the alert to diagnose these cases early, so that the small proportion of favourable cases should not be robbed of the chance of cure or relief that is open to them.

REFERENCES

- Allison, P. C., and Stanbury, W. S. (1938). *Lancet*, 2, 1165.
 Brock, R. C. (1938). *Ibid.*, 2, 1041, 1103.
 — and Carr, R. J. (1938). *Guy's Hosp. Rep.*, 88, 371.
 Overholt, R. H. (1940). *Surg. Gynec. Obstet.*, 70, 479.

EXPLOSIVE EPIDEMIC OF SONNE DYSENTERY

BY

C. A. GREEN, M.D., Ph.D., D.P.H.

Surgeon Commander, R.N.V.R.; Royal Naval Medical School
AND

M. C. MACLEOD, M.D., D.P.H.

Recent investigations of outbreaks due to *B. dysenteriae* Sonne have stressed the importance of carriers and ambulant cases in the spread of disease (E.P.H.L.S., May, 1942; Hobbs and Allison, 1942). In rare instances milk has been shown to be a direct vehicle of infection, as reported by Scott (1938) and Faulds and Gavin (1942), while more frequently milk or milk dishes have been suspected, but without final proof being obtained (Graham, 1942; E.P.H.L.S., May, 1942). A search of the literature has not revealed any instance of an epidemic in which the possibility of water-borne infection was subsequently supported by laboratory evidence. For this reason the circumstances attending the onset of an outbreak in a Somerset town are recorded.

While diarrhoea of a mild and indeterminate nature has been observed in this district for some years it was not until Sept. 1941, that *B. dysenteriae* Flexner was isolated from a number of the affected individuals. This small outbreak quickly subsided and few secondary cases developed. Since that time the community has been relatively free from dysentery until the serious outbreak in July, 1942.

Onset of the Epidemic

The earliest noted case was that of a young boy whose initial symptoms of nausea and vomiting were diagnosed as acute appendicitis. Operation was followed by diarrhoea. This led to the unmasking of ten cases in children who were all day scholars or boarders at a small private school. Within a week many cases were seen, and it was evident that residents in all parts of the town were simultaneously affected. *B. dysenteriae* Sonne was isolated on desoxycholate-citrate agar (Hynes, 1942) from the stools of the first six cases examined. The epidemic involved both sexes, at all ages from 2 to 80 years.

The total number was uncertain, as the only cases for which medical aid was invoked were the children and older people. It was estimated that from July 14 to July 20, the first week of the epidemic, there were no fewer than 200 cases. Within the first month the total of cases was close on 400 out of a population of 10,000.

Clinical Notes

In the individual case the onset was heralded by sudden prostration, with headache, slight rigor, rise of temperature to 101° F., sickness and vomiting, colic, and diarrhoea. Stools were usually profuse and watery, offensive, with blood and mucus intermingled. Fever tended to subside within three to five days, but in some cases the acute phase lasted a week. Relapses were common, especially in children who clamoured successfully for more solid food soon after the acute phase was over. Post-dysenteric colitis was noted in several subjects. The administration of salines with a light fluid diet, continued for several days after the cessation of diarrhoea, was the general line of treatment. Astringent sedatives for the arrest of persistent diarrhoea and colic were required in many cases.

Distribution of Cases

Cases were distributed at random all over the town. Owing to the fact that a relatively small proportion sought medical advice it was impossible to state categorically whether any area was affected more than others. The larger proportion of notified cases resided in the upper part of the town, due probably to the fact that it was occupied by the wealthier section of the community, who were more likely to seek medical advice.

In addition to the main town, a small village derived its water supply from the same source, although the water was stored after chloramination in a reservoir used solely by the village. The volume of the water in the reservoir was such

hat the period of contact with the chloramine used for purification was over four days. Not one case of dysentery occurred in this village during the time of the epidemic in the town.

Milk and Water Supply

The first 30 cases notified, including those in the original chol epidemic, were supplied with milk from one particular dairy, but repeated examinations of the milk for *B. dysenteriae* Sonne were negative. Furthermore, the milk in question was obtained from a farm which sent the remainder of its supply to another retailer, who delivered in bulk and had few dysentery cases among his large clientele.

The water supply for the entire town was derived from two deep wells. Water was pumped in a 12-in. main from the distant well, two miles from the town, to the near well, which was situated one mile from the town. The entire output of the two wells was then pumped in a 14-in. main to two tanks, high and low level, from which the distributing mains passed to the town. From source to consumers the water was contained in a closed system save for the ventilating system of over-cowls in the collecting-tanks.

Treatment of the Water

First chlorination and later chloramination had been practised for several years on account of the increasing risk of pollution following upon the erection of dwelling-houses with cess-pits in the area draining to the site of the wells. Although conditions were not serious at the time when chlorination was initiated, the water company concerned had wisely considered it advisable to institute preventive measures, the control of which being outside their jurisdiction. In each well chloramination was effected by means of a pulsometer, the principle being that the chloramines were preformed in a small volume of water which was mixed with the main volume as it entered the rising main of the well. The ratio of chlorine to ammonia was two parts to one part, while the minimum duration of contact before delivery to the consumer was variable, depending on the locality of the consumer's residence. It was unlikely that the contact period was ever less than three hours, but equally certain that large volumes of water were used just after that period. This was due to the increased demand for water at peak periods of the day, resulting from a great increase in the wartime population. This increase was particularly felt in the lower portion of the town receiving its supply from the low-level tank. The above treatment was controlled by periodic estimations of the residual chlorine in a sample from the main pipe a few yards beyond the rising main of the wells. The amounts of chlorine and ammonia were adjusted to give 0.15 p.p.m. residual chlorine as tested by the orthotoluidine method. Repeated tests in houses supplied by high-level and low-level tanks showed little fall in this value, 0.12 p.p.m. being the lowest figure obtained.

Bacteriological Examination of Water

On July 24 a routine examination of the water from a tap at the laboratory which was supplied by the high-level tank gave the following result:

Growth at 22° C. . .	190 organisms per c.cm. . .	Residual chlorine 0.15 p.p.m.
37° C. . .	6	
Lactose fermenters . .	0	"
<i>B. coli</i> . . .	0	"
<i>Streptococci</i> . . .	0	"

At the same time six 100-c.cm. samples of water from the same source were each added, within 5 minutes of collection, to 10 c.cm. double-strength beef-digest broth. After 24 hours' incubation at 37° C. five bottles remained sterile and one bottle showed a turbid growth. Subcultures on MacConkey plates gave lactose-fermenting coliform colonies together with two ile colonies, both of which were examined fully. Both colonies gave identical results, the organism being a non-motile gram-negative bacillus with the following biochemical reactions (— indicates no acid or gas produced; +, acid but no gas produced).

Glucose	Lactose	Dulcitol	Saccharose	Mannite	Maltose
+	+	+	+	+	+
(late)					
Xylose	Arabinose	Inositol	Indole		
—	—	—	—		

Both strains were agglutinated to end-titre by Oxford Standards Laboratory sera, stated to be specific for *B. dysenteriae* Sonne, and rabbit antisera prepared against both strains agglutinated *B. dysenteriae* Sonne to titre.

On July 29 six 100-c.cm. samples of water were again tested as above, and all remained sterile.

An opportunity of testing the untreated water in the more remote well on Aug. 24 resulted as follows:

Growth at 22° C. . .	0 organisms per c.cm.
37° C. . .	5
Lactose fermenters . .	25
<i>B. coli</i> . . .	2
<i>Streptococci</i> . . .	0

The *B. coli* belonged to the atypical *coli-aerogenes* group.

On Aug. 27 the untreated water in the near well was also examined, with results as follows:

Growth at 22° C. . .	0 organisms per c.cm.
37° C. . .	15
Lactose fermenters . .	25
<i>B. coli</i> . . .	2
<i>Streptococci</i> . . .	0

The *B. coli* belonged to the atypical *coli-aerogenes* group. No dysentery organisms were isolated from either of the untreated waters, using a variety of media including desoxycholate agar.

The senior technician who took the sample of water from which the two colonies of *B. dysenteriae* Sonne were isolated was in good health, was not himself a carrier, and gave no history of past infection. Furthermore, he was employed daily in handling media used in the preparation of T.A.B.T. vaccine, and on no occasion has *B. dysenteriae* Sonne been found in media handled by him. The specimen of water was taken and the identification of the organism carried out in a laboratory to which *B. dysenteriae* Sonne had never been introduced, and all stages of identification were conducted by one of us (C. A. G.) personally.

Waterworks Employees

Eight employees of the water company had direct access to the water before distribution. All were examined, with negative results as regards present or recent intestinal illness. Their sera showed a complete absence of agglutinins for *B. dysenteriae* Sonne, although H agglutinins for *B. typhosus* to a titre of 1:250 persisted in four men inoculated at least 25 years previously.

Agglutinins for *B. dysenteriae* Sonne

Sera from seven cases were examined for agglutinins against *B. dysenteriae* Sonne. The accompanying table indicates that

Table showing the Agglutinin Titre of Sera from 7 Typical Cases. *B. dysenteriae* Sonne (Oxford Standards Laboratory Suspension)

Case	Age in Years	Duration of Acute Illness in Days	Days from Start of Illness to Time of taking Blood Specimen	Serum Dilution				
				1:10	1:25	1:50	1:125	1:250
1	35	3	13	+++	++	—	—	—
2	30	2	16	+++	+++	+++	++	—
3	40	5	14	+++	+++	+++	+++	+++
4	31	6	14	+++	+++	+++	+++	+++
5	10	4	10	+++	+++	+++	+++	+++
6	6	4	10	+++	+++	+++	+++	+++
7	34	4	1	+++	+++	+++	+++	+++

* Sera from eight healthy individuals in same locality were all negative at a dilution of 1:10.

agglutinins afforded a useful confirmation of the diagnosis in the few cases examined, only one failing to respond. Relatively high titres were recorded for the two children in the group. In one case the criterion of a rising titre was obtained. As controls, sera from eight healthy volunteers from the same locality and without history of recent diarrhoea were examined. No agglutination was detected in any serum even in a dilution of 1:10.

Action Taken to Prevent Further Infection

The isolation of *B. dysenteriae* Sonne from chloraminated water led to immediate experimental work, still incomplete, which suggested the strong possibility that the dosage of chloramine in use was too small for the shortest possible contact period. Accordingly the amount was raised so as to give a

residual chlorine reading of 0.4 p.p.m. At the same time the ratio of chlorine to ammonia was increased from two to four parts of chlorine to one of ammonia with the object of accelerating the process of sterilization. After this step had been taken a few cases of dysentery continued to occur, but seldom was it impossible to find a history of contact with a previous case.

Discussion

The character of the epidemic suggested some general source of infection such as a common food or water. The fortunate circumstances under which *B. dysenteriae* Sonne was isolated from a sample of water precluded the possibility of a sampling error having been made. The disturbing feature was the fact that the sample of water satisfied the usual standards for purity, and that 0.15 p.p.m. residual chlorine was still present. This appeared to be a direct contradiction until it was found experimentally that *B. dysenteriae* Sonne could survive after treatment with this strength of chloramine for periods longer than those applicable to many of the consumers. The position was rendered more dangerous by virtue of the fact that the chlorine-ammonia ratio of 2:1 was such as to delay considerably the sterilization process, as shown by Elliott (1933). Notwithstanding the satisfactory results of the single tests performed on the raw well-waters and that subsequent tests of the treated water were invariably negative, the fact remained that cess-pits were in existence in the drainage area and the water therefore remained suspect.

The apparent connexion observed at the onset of the epidemic between one particular milk supply and a group of cases was interesting in the light of the finding of *B. dysenteriae* Sonne in the water supply. The dairyman concerned was in the habit of rinsing his bottles with cold tap-water after they had been sterilized by steam, and probably introduced the infection to his supply in that manner.

Flies were considered as possible vectors which may have produced an explosive epidemic, particularly as the town sewage is discharged untreated into the sea at no great distance from the town. At the time of the present epidemic, however, there were remarkably few flies in evidence—a fact commented upon by many observers. When the epidemic had practically subsided the usual summer increase in the fly population developed without stimulating further infection. This fact appeared to minimize the importance of flies in this particular epidemic, for with the persistence of the carrier state (E.P.H.L.S., Nov., 1942; Hobbs and Allison, 1942) ample opportunity must have occurred for the transference of infection from faeces to town during the period of heavy fly infestation.

Summary

An outbreak of Sonne dysentery involving approximately 400 cases is described.

Milk was excluded as a general source of infection, although probably indirectly responsible for one small group of cases.

B. dysenteriae Sonne was isolated from one sample of tap-water which passed the usual bacteriological tests satisfactorily and which contained 0.15 p.p.m. residual chlorine.

The evidence for incriminating the water supply as the source of infection is discussed.

We wish to acknowledge with thanks the willing co-operation of the director and staff of the water company, the milk retailers, and the blood donors during the investigation.

REFERENCES

- Elliott, S. (1933). *J. R.A.M.C.* 61, 161.
E.P.H.L.S. *Monthly Bulletin*, May, 1942.
Ibid., Nov. 1942.
Faulds, J. S., and Gavin, F. W. (1942). *E.P.H.L.S. Monthly Bulletin*, Sept.
Grady, R. R. (1942). *Lancet*, 2, 553.
Hobbs, E. C., and Allison, V. D. (1942). *E.P.H.L.S. Monthly Bulletin*, July.
Hynes, M. (1942). *J. Path. Bact.* 54, 193.
Scott, W. M. (1938). *Lancet*, 2, 796.

According to a law introduced in April, 1942, everyone in Norway who has reached the age of 15 years must have his lungs examined by screen photography when the authorities demand it. Persons exempt from this obligation are those who have been x-rayed at school or who are notified cases of pulmonary tuberculosis and have been x-rayed within twelve months of the time they reach the age of 15. When the examination has been completed, information to this effect is stamped on the person's identity card (*Tidsskrift for Norges Lægeforebund*, July 1, 1942, No. 13).

INFECTIVE HEPATITIS TREATED WITH GLUCOSE, INSULIN, AND ASCORBIC ACID

BY

D. R. MACDONALD, M.B., Ch.B.

Sudan Medical Service; Senior Medical Inspector, Omdurman Civil Hospital

Infective hepatitis (syn., infective jaundice, epidemic catarrhal jaundice) is an endemic disease in Omdurman. During 1942 50 cases were admitted to Omdurman Civil Hospital, a native hospital of 215 beds. Of these cases 42 fell in the age group 10 to 33 years. The duration of the disease was 2 to 7 weeks (average 23 days). From time to time minor epidemics of the disease have occurred, and these have often included one or two severe cases resembling acute liver atrophy which have ended in death from profuse bowel haemorrhage. Various forms of treatment have been tried, including massive doses of glucose, intravenous drip infusions of glucose and alkali, intravenous sodium thiosulphate, and repeated medical drainage of the gall-bladder. None of these measures has appeared to have had the slightest effect upon the course of the disease. Recently El Kaimakam H. J. Bell (then vénérologist to the Sudan Defence Force) read a paper to the Sudan Branch of the British Medical Association on "Arsenical Toxaemia." In his paper Major Bell described some very striking results which he had obtained by the use of glucose, insulin, and ascorbic acid in the treatment of late toxic conditions resulting from the treatment of syphilis by neoarsphenamine. These cases included arsenical jaundice. Major Bell's paper suggested a possible new line of treatment for infective hepatitis, particularly as there is a good deal of evidence to suggest that arsenical jaundice may be due to the synergic action of neoarsphenamine and the causal agent of infective hepatitis, probably a virus. Accordingly five consecutive cases of infective hepatitis admitted to Omdurman Civil Hospital were treated on these lines, and a summary of the case records is given below.

Case I

A Sudanese male aged 26 was admitted on Feb. 16, 1943, with a complaint of jaundice for 4 days, accompanied by nausea, flatulent dyspepsia, and constipation. There was no history of syphilis or of treatment by arsenicals.

Condition on Admission.—Afebrile; moderately severe jaundice; tongue coated; liver dullness normal; spleen not palpable. Urine: bilirubin and bile salts present; no albumin. Stools clay-coloured. Blood: no malarial parasites. White cell count, 8,200 per c.mm.—polymorphs 53%, lymphocytes 44%, large mononuclears 1%, eosinophils 2%. Capillary resistance test normal.

Progress and Treatment.—Feb. 17: Condition unchanged. Treatment started: glucose by mouth, 5 oz. daily; insulin, 10 units twice daily; tab. ascorbic acid (25 mg.), three tablets thrice daily. Temperature rose to 99.2° in the evening. Feb. 18: Afebrile; trace of jaundice. Feb. 20: Afebrile; no jaundice; no symptoms.

Case II

Sudanese male aged 38, admitted Feb. 7, 1943. Severe lumbar pain for 5 days and jaundice for 3 days with flatulent dyspepsia, nausea, and constipation. He had no history of syphilis or of treatment by arsenicals.

Condition on Admission.—Afebrile; very deeply jaundiced; tongue coated; liver dullness slightly diminished; spleen not palpable. Bilirubin and bile salts present in urine, with a trace of albumin. Stools clay-coloured. No malarial parasites in blood. White cell count, 9,800 per c.mm.—polymorphs 51%, lymphocytes 45%, eosinophils 4%. Large mononuclears were absent. Capillary resistance test normal.

Progress and Treatment.—Afebrile throughout. Condition remained unchanged until treatment started. Feb. 16: Treatment with glucose by mouth, 5 oz. daily; insulin, 10 units twice daily; tab. ascorbic acid (25 mg.), three tablets thrice daily. Feb. 18: Jaundice greatly decreased. Feb. 20: A faint icteric tinge only could be detected on the conjunctivae. Feb. 22: Jaundice gone; no symptoms.

Case III

Sudanese female aged 22, admitted Feb. 14, 1943, complaining of jaundice, dyspepsia and continuous nausea for 7 days, and constipation. There was no history of syphilis or of treatment by arsenicals.

Condition on Admission.—Afebrile; moderately severe jaundice; tongue coated; liver dullness normal; spleen not palpable. Bilirubin and bile salts present in urine, and a trace of albumin. Stools clay-coloured. No malarial parasites in blood. White cell count, 8,500 per c.mm.—polymorphs 55%, lymphocytes 40%, large mononuclears 3%, eosinophils 2%. Capillary resistance test normal.

Progress and Treatment.—Temperature rose to 99.2° on evening of Feb. 15 and to 99.8° on evening of the 16th; otherwise afebrile. Feb. 16: condition unchanged. Treatment started: glucose, 5 oz. by mouth daily; insulin, 10 units twice daily; tab. ascorbic acid (25 mg.), three tablets thrice daily. Feb. 17: Trace of jaundice. Feb. 19: Jaundice nil; no symptoms.

Case IV

Sudanese male aged 9 years, admitted Feb. 15, 1943, having had jaundice for 7 days, with constipation. There was no history of treatment by arsenicals.

Condition on Admission.—Afebrile; moderately severe jaundice; no signs of congenital syphilis; tongue coated; liver dullness normal; spleen not palpable. Bilirubin and bile salts present in urine; no albumin. Stools clay-coloured. No malarial parasites present in blood. White cell count, 5,700 per c.mm.—polymorphs 39%, lymphocytes 56%, large mononuclears 3%, eosinophils 2%. Capillary resistance test normal.

Progress and Treatment.—Afebrile throughout. Feb. 16: Condition unchanged. Treatment started: glucose by mouth, 2 oz. daily; insulin, 5 units twice daily; tab. ascorbic acid (25 mg.), one tablet thrice daily. Feb. 18: Faint icteric tinge only to be seen on the conjunctivae. Feb. 19: No jaundice; no symptoms.

Case V

Sudanese female aged 70, admitted Feb. 17, 1943, complaining of jaundice for 30 days accompanied by flatulence and nausea. There was no history of syphilis or of treatment by arsenicals.

Condition on Admission.—Afebrile; emaciated; intense jaundice; liver dullness normal; gall-bladder and spleen not palpable; nothing abnormal discovered clinically elsewhere. Bilirubin and bile salts present in urine; no albumin. Stools clay-coloured. No malarial parasites in blood. White cell count, 4,800 per c.mm.—polymorphs 61%, lymphocytes 34%, large mononuclears 4%, eosinophils 1%. Capillary resistance test normal.

Progress and Treatment.—Afebrile throughout. Feb. 18: Treatment started: glucose, 5 oz. by mouth daily; insulin, 10 units twice daily; tab. ascorbic acid (25 mg.), three tablets thrice daily. Feb. 21: Condition unchanged.

Note.—In view of the patient's age, the intense degree of jaundice without haemorrhages and without diminution of liver dullness, and the emaciation, this may well be a case of carcinoma of the head of the pancreas.

Summary

The treatment is described of five cases of infective hepatitis, taken at random, by glucose, insulin, and ascorbic acid. In Cases I, III, and IV there was complete remission of all symptoms and signs in 3 to 4 days. In Case II, a severe one, there was marked improvement in 4 days. In Case I the disease lasted only 9 days (the lowest time recorded in Omdurman Civil Hospital); in Case III it lasted 14 days, in Case IV it lasted 12 days. All these times are well below the average of 23 days. In Case V, in which, however, for the reasons stated above, there was cause to doubt the accuracy of the diagnosis, there was no change.

Although it is appreciated that it would be rash to base conclusions on the results of a series of only five cases, nevertheless, in view of the importance of this disease and in view of the striking results obtained in three of the cases, it has been considered desirable to place these notes on record without delay.

I wish to acknowledge my indebtedness to the Director, Sudan Medical Service, for permission to publish these case records; to Major H. J. Bell for his valuable paper on arsenical toxæmia; and to Dr. Mahmoud Hussein for his assistance in compiling the records.

LIVER DEFICIENCY ANAEMIA IN A CASE OF ACUTE INFECTIVE HEPATITIS

BY
J. NORMAN HILL, M.B., Ch.B., D.P.H.
AND
WALTER HAUSMANN, M.D. Vienna

The following is an account of a case of liver deficiency anaemia which occurred acutely during the course of an infective jaundice. There was slight anisocytosis and practically no poikilocytosis, and the anaemia responded with a clear-cut reticulocytosis to injections of liver, the only haematinic employed. There was no associated achlorhydria or even hypochlorhydria, nor were there any nervous symptoms. The condition would appear to have been due solely to the effects of liver damage, as there had been no evidence of gastric disturbance since admission and the anaemia developed while the patient was in hospital.

Case History

The patient is a gamekeeper on a moorland estate in Yorkshire, and was known to one of us (J. N. H.) before he developed jaundice. He was a robust man of 52 years who had never had any previous illnesses, who did not smoke, and who was practically teetotal. His son, aged 18, had had jaundice for two weeks—four weeks before the patient contracted it—and the patient himself had had it for five weeks before he was sent to the County Hospital, Otley. He had continued to work almost up to the day of admission, Oct. 2, 1942. The incubation period of four weeks is mentioned by Dr. W. N. Pickles (1942) in his Milroy lectures. He also remarks that the disease frequently visits Wensleydale, and we have noticed quite a crop of cases in Wharfedale during the past two years.

By the time the patient was admitted he had lost a considerable amount of weight, largely owing to anorexia, which had caused him to take practically nothing to eat during the two previous weeks. He was profoundly jaundiced, and suffered from intense itching of the skin due to this. His stools were clay-coloured, and his urine was loaded with bile pigments and contained a small quantity of urobilinogen. His liver was grossly enlarged, extending down to the umbilicus, and its surface smooth; his spleen protruded four very hard. Examination revealed no other noteworthy physical findings, and the nervous system was normal.

A blood count on admission gave the following results: R.B.C., 4,800,000; Hb, 98% Sahli (throughout); C.I., 1; W.B.C., 3,300—polymorphs 58%, lymphocytes 33%, monocytes 5%, eosinophils 2%, ribbon forms 2%. The polymorphs showed toxic granulations. The van den Bergh test gave a direct positive result. The Wassermann test was negative.

The patient was put on a carbohydrate diet with copious glucose drinks, and vitamins in the form of Abbott's pentacaps 2 t.d.s. for the first three weeks. By that time his appetite had completely returned, and he then took a normal diet with added carbohydrate drinks. The leucopenia was checked again on Oct. 29 and Nov. 4 and 12, and showed totals and differentials very similar to the original count except that the percentage of ribbon forms rose to 12.

Towards the latter end of this period we had noted with concern that, although the patient was improving generally and eating well, a greenish-grey pallor was showing through the jaundice, so on Nov. 20 we did another complete blood count, and were astonished to find: R.B.C., 2,300,000; Hb, 63%; and C.I., 1.37. The film revealed slight anisocytosis, with macrocytosis, hyperchromia, polychromasia, and a few nucleated red cells. The white cell count—3,200—and the differential count showed no significant change from those noted above. The reticulocytes appeared to be approximately normal, although an actual count was not made on this specimen.

A sternal puncture was done immediately, and after examination the smears were sent to Edinburgh.

Dr. L. J. Davis reported on them as follows: "The film is a 'thin' one in which marrow cells are scanty. Marrow cells of all types are present. Erythropoiesis is normoblastic; although a number of basophil erythroblasts are present, megaloblasts typical of pernicious anaemia in the relapse stage are not seen. No gross abnormality is noted in the white cell series; there is perhaps an increase, however, in the proportion of promyelocytes."

Unfortunately, owing to a technical difficulty, we could not at this time carry out a fractional test meal examination, but on Nov. 25 we were able to do so. It showed a mild hyperchlorhydria, delayed emptying, and bile in the first three and last three specimens. Mucus was present only in the fasting juice.

Liver injections were started on Nov. 20—initial dose 8 c.cm. neohepatex Evans, 2 c.cm. daily for seven days, then 2 c.cm. every other day for two weeks. This was not sufficient, and so 2 c.cm. daily was given from Dec. 10 until Jan. 6, 1943, when it was stopped to see if a relapse would occur. We should like to emphasize that liver was the only haematinic given.

A second sternal puncture done on Nov. 26 showed an essentially similar picture. There were then 6.7% reticulocytes, and the haemoglobin was 73%. Further reticulocyte counts showed: Nov. 28, 3.5%; Nov. 30, 3.6%; and Dec. 2, 2.8%. By Dec. 4 the haemoglobin was 85%, R.B.C. 3,700,000, and C.I. 1.15; and on Jan. 5, 1943, at the end of liver therapy, Hb 92%, R.B.C. 3,900,000, and C.I. 1.25, and the white cells had risen to 7,400. A further count, on Jan. 19, gave Hb 95%, R.B.C. 4,400,000, C.I. 1.1, and W.B.C. 10,700. Reticulocyte counts done during this period were normal.

Meanwhile the patient's clinical condition was steadily improving. The jaundice was slowly disappearing, his appetite was excellent, his liver and spleen were both receding, and he was beginning to gain weight. His condition on Jan. 26 was very good; he had gained 16½ lb. in the last four weeks, and weighed 11 st. 13 lb. He could undertake without fatigue a stiff uphill walk of an hour's duration to his home on the moor-tops. His liver was still palpable and his spleen only just palpable. The faintest trace of jaundice could be seen in his skin and sclerotics. The van den Bergh reaction continued to be positive direct until Feb. 26, but on April 14 and May 14 the results were negative. A blood count on June 9 showed Hb 95%, R.B.C. 4,750,000, and C.I. 1. No trace of jaundice was then to be seen. The liver and spleen were just palpable. The patient's general condition was excellent.

Comment

We feel that the response to liver therapy certainly suggests that the anaemia was due to lack of liver principle; on the other hand, it is conceivable that the improvement in the blood picture might have occurred spontaneously after the patient's recovery from his infective condition. The reticulocyte response would, however, support our own view.

Regarding spontaneous recovery, it is interesting to note that in the only case of macrocytic anaemia associated with acute catarrhal jaundice about which we have been able to read so far (Wintrobe and Shumacker, 1933), spontaneous recovery did occur. In their case, however, the origin of the jaundice was not so clear, there was no splenomegaly, and there was a histamine-fast achlorhydria to begin with. The anaemia cleared in 24 days, whereas in the present case, even assisted by liver extract, recovery to the level of 4,400,000 took 52 days. These authors encountered macrocytosis in 11 out of 43 cases of hepatic disorder, and of these eleven the case quoted above was the only one suffering from acute catarrhal jaundice. They performed necropsies upon 8 cases, and note that the pathologist described the extent of the liver destruction as extreme in the very same four cases in which hydrochloric acid was found in the gastric contents, but that no such comment was made in the other four cases, in which achlorhydria was present.

We are aware that this case is unsupported by mean corpuscular volume figures and that other investigations might with advantage have been carried out, but we feel that the case has sufficient importance to warrant publication if only so that others may be aware of the possibility of a grave anaemia complicating acute infective hepatitis and be prepared, for it to be of liver-deficiency type.

We have during the conduct of the case enjoyed the most helpful and encouraging correspondence with Prof. L. S. P. Davidson and Dr. L. J. Davis of Edinburgh. I have to thank them, too, for permission to quote the above report from one of their letters.

REFERENCES

- Pickles, W. N. (1942). *Univ. Leeds med. Mag.*, 12, 70.
Wintrobe, M. M., and Shumacker, H. S. (1933). *Johns Hopk. Hosp. Bull.*, 52, 357.

AETIOLOGY OF THE FIBROSITIC NODULE: A CLINICAL CONTRIBUTION

BY

W. S. C. COPEMAN, M.D., F.R.C.P.

Lieut.-Col., R.A.M.C.; Officer in Charge of a Medical Division

The term "nodule" is employed in the title of this paper (which expresses my own views alone) as it is one that has been familiarized by custom. It has seemed, however, that the existence of a nodule definite enough to be palpated in the muscles of a sufferer with fibrositis must in most cases be a sign of chronicity of the complaint, and that the "myalgic spot" is probably an earlier stage of what later becomes a nodule if left untreated. The discrepancy in the frequency with which nodules are found in this disease in England and in America can be explained by this hypothesis.

The myalgic spot is an area of hyperaesthesia in the substance of a muscle or its tendinous sheath which gives rise to pain either in the same locality or referred to a distance, when stimulated. We owe mostly to Kellgren the description of this referred pain and its distribution. These spots are generally multiple, and occur in the powerful muscles of the back and of the gluteal region, often towards the edge of the muscle where it blends with the more fibrous portion. They may also occur, but less often, in the peripheral muscles, and in the anterior muscles of the trunk.

The aetiology and pathology of the myalgic spot or nodule are unknown, although trauma is believed by most observers to play a part in its development. It is thought that the observations recorded below throw some light on the aetiology in a proportion of cases.

Observations of Acute Myalgia

An epidemic of influenza was recently studied in which severe pain in the lower back was an early and prominent symptom in nearly every case. Some patients also complained later of pains in the thighs, calves, and arms. The cases comprising this epidemic were all of the "febrile" type described by Horder and Gow (Price's *Medicine*, 1941) as being of abrupt onset, with pyrexia and associated malaise and headache in addition to the pains described above. The pyrexia was high for three to five days, and was accompanied by a moderate degree of catarrh, chiefly affecting the eyes. Defervescence was by rapid lysis, and a leucopenia was present in most cases. None of the 40 patients examined had any previous history of rheumatism.

It was noted in the course of this epidemic that, although the acute lumbar pain was diffuse, severe, and resulted in spasm in some cases, by careful examination it could be found that it radiated from localized hypersensitive areas in the adjacent muscles, and that the position of these areas approximated to those usual in cases of ordinary lumbago. The same observation was made in cases in which the pain was in the limbs. In one instance severe "crampy" pain in the upper portion of the rectus abdominis muscle was also present—the clinical picture being comparable to that of epidemic myalgia (Bornholm disease). This pain was entirely relieved by an injection of procaine at the focal point.

The subjective pain disappeared after two or three days, but these myalgic spots were found by palpation to be still present, although the patient was not aware of them. When found and pressed on, he felt a sudden sharp pain which made him wince momentarily and which was—in about half the cases examined—referred in addition to the whole area previously affected. The number of such spots which could be discovered in any patient tended progressively to decrease as time went on.

The same group of patients were again examined two months after their influenza, when it was found that only in rather less than half of them could these spots still be found. In these cases, as before, the patient was himself unaware of their presence until examination. Three cases deserve special mention.

Reports of Three Cases

Case 1.—A civilian aged 40 had a sudden onset of headache, with pain behind the eyes, sweating, and malaise. Pain in the back had occurred several hours previously, and this got progressively worse. For this reason the patient preferred walking about to lying in bed, although his temperature was 102.6°. On examination he looked ill and was sweating profusely. The eyes were congested and the tongue furred. Pain in the back was evidently severe, and the muscles appeared to be in spasm. Urine and stools were normal, and no malarial parasites were present in the blood. The white cell count was 5,000. Next day he was much better. There was still pain behind the eyes and in the back. The temperature was normal. Myalgic spots were found in the lumbar region. The patient made an uninterrupted recovery until three weeks later, when he developed mumps. The pain then returned to the lumbar region as at first, although not so severely, for two days, during which the temperature was raised above 100° F.

Case 2.—A civilian aged 27 complained of sudden onset of severe pains in head, back, and legs, with a feeling of pyrexia, the previous afternoon. Temperature was 101.6° and pulse 90 when seen, and he was sweating profusely. No shivering; bowels rather loose on previous day but now constipated. Patient looked ill; tongue lightly furred. On examination nothing abnormal was found in the abdomen, and there were no malarial parasites in the blood. W.B.C. 3,400. The pains had prevented much sleep previously, but sedatives gave some relief. One week later pain and other symptoms had entirely gone, and the patient had resumed work. Pain could, however, be provoked momentarily by pressure on the myalgic spots which still persisted in the lumbar region and along the border of the ilium on both sides. Two weeks later the condition was unchanged, excepting that fewer of these spots could be found. Those present were carefully marked. Five c.cm. of blood, taken in the first 12 hours from a patient who had just developed sandfly fever, was then injected intramuscularly—by permission—and on the next day a pyrexial attack with a maximum temperature of 101° developed, and lasted 36 hours. The patient complained of lumbago from the onset of this pyrexia, and on examination it was found that this pain was originating from the spots which had been marked. It was easily abolished by injecting 1% novocain into them. One month later this patient was still found to have three myalgic spots in the lumbar region of which he was completely unaware.

Case 3.—A gunner aged 22 experienced a sudden onset of severe occipital headache with pains in back and legs. Temperature 101°. On examination he looked, and felt, very ill. There was marked congestion of the conjunctivae, and the bowels had been rather loose for two days. Tongue moist, with light-brown fur; abdomen normal; stools and urine normal; W.B.C. 4,200. Pains disappeared on third day; temperature normal and all symptoms gone on fifth day. Two weeks later the patient stated, when seen, that he was perfectly fit, but well-defined myalgic spots were found in the lumbar region. On pressure these referred a pain down the legs entirely comparable to that which had occurred during onset of fever. This patient was seen again a month later for another reason, and volunteered the information that similar pains had returned, although in a less degree, for a short period a few days previously while a cold in the head was developing.

From these observations it seems that infection with the organisms of influenza will produce acute muscular pain which can be shown to be referred from myalgic spots that develop in the region of the affected muscles. The spots appear to resemble those found in cases of ordinary lumbago. A large proportion of the spots which were seen to develop in the present series of cases disappeared a few days after the termination of the influenza, but some of them survived.

It does not seem that these myalgic spots are a specific reaction to the virus of influenza as such, however, in view of the fact that the pain returned temporarily in the same areas during an attack of mumps which one of the patients (Case 1) developed spontaneously during convalescence. This view was confirmed experimentally by inducing an attack of sandfly fever artificially in a patient convalescent from influenza (Case 2), with the same result. It also seems possible (Case 3) that periodical attacks of the common cold or other mild virus infection may prove to be a factor in keeping myalgic spots which have arisen in this way active, although confirmatory evidence is lacking. If this were found to be so it suggests an analogy with the "maintenance dose" in other fields.

Observations on Myalgia following Exanthemata

It is well known that acute muscular pains may arise in the course of, or after, many of the acute infectious diseases other than influenza—chiefly, it would seem, those of virus

origin. A considerable number of patients complaining of it that had arisen in this way have been examined during past year. These pains have also in the majority of cases been found to have their origin in well-defined hypersensitive myalgic spots from which the patient's myalgia or "neuritis" (muscular tenderness) was referred. The diseases which commonly give rise to this syndrome appear to be sandfly glandular, undulant, and scarlet fevers, measles, and rubella. Myalgic spots arising during the course of one of these diseases have been found to be still present two months later, this being the longest period during which a "follow-up" proved possible in this series.

The description already given of the myalgic spots arising during the epidemic of influenza applies equally to those arising in this series, and justifies the belief that they appear during the course of almost any acute infectious fever and that a certain proportion will persist unknown to patient until such time as they may subsequently be reactivated.

It seems probable that factors such as chill, damp, trauma and mild focal infection, which have sometimes been held to be causative, are in fact of secondary importance, and provoke an attack of fibrositis or myalgia only in the presence of latent myalgic spots formed previously in this way. A method by which they actually provoke an attack may possibly be by inducing a local oedema in the sensitive area, when the victim becomes aware of the myalgic spot and of pain referred from it. If this is so it accounts for the nodal feeling which is not infrequently remarked at these points, the fact that this can sometimes be rubbed away by a skilled masseur.

Summary

The role of "myalgic spots" or "rheumatic nodules" in fibrositis is discussed.

In a recent epidemic of influenza in which lumbar and other was a prominent feature it was observed that this pain was referred from small hypersensitive areas in the muscles. These were indistinguishable from "rheumatic" myalgic spots. On re-examination of the patients after one and two months these were still found to be present, although in diminishing number. The patient was, however, invariably unaware of this fact; pressure from the examining finger disclosed them. None of the patients had any previous rheumatic history.

Myalgic spots which had arisen during influenza were reactivated in one patient by an attack of mumps which arose spontaneously during convalescence. In another case this occurred as the result of the artificial induction of an attack of sandfly fever by the injection of infected blood. It appears, then, that myalgic spots arise *de novo* in the course of acute influenza, and that these persist in a proportion of cases. They can, however, be reactivated by infections of other types. In one case there was evidence suggesting that the common cold provided the means for maintaining activity of the myalgic spots.

Rheumatic pains are a characteristic sequel of many of the exanthemata, mostly those of virus origin. Observation has shown that these pains, which tend to arise in a less acute manner also generally of the focal type.

The final suggestion is therefore that the myalgic spots which is now widely agreed form the basis of many of the rheumatic syndromes of later life are sometimes a legacy from acute infection in earlier years. It is important to remember that the victim is often unaware of their presence until they become activated by factors such as chill, trauma, or focal sepsis. These factors should consequently be regarded as secondary and no longer causative in such cases.

My thanks are due to the D.M.S., Paiforce, and to Major R. E. Barnsley, M.C., D.D.M.S., Southern Command, for permission to publish this paper, and to Dr. H. Jamieson, chief medical officer of the Anglo-Iranian Oil Company, for his help.

Thirteen out of 20 patients with eclampsia were found by Rosenbaum and G. L. Maltby (*Arch. Neurol. Psychiat.*, Chicago, 1943, 49, 204) to have electro-encephalograms indicative of cerebral dysrhythmia. They compare this with the finding of similar changes in only 2 out of 20 patients with pre-eclampsia. Twelve of the eclamptic patients had a family and personal history of convulsions. The authors therefore suggest that in eclampsia there may be a primary cerebral dysrhythmia, and that the associated toxæmia may be the "trigger mechanism" which sets off convulsions.

VITAMINS AND PHYSIOLOGICAL FUNCTION

BY

G. NEIL JENKINS, Ph.D.

St. Bartholomew's Hospital Medical College

AND

JOHN YUDKIN, Ph.D., M.D., F.I.C.

Dunn Nutritional Laboratory, University of Cambridge and
Medical Research Council

A report has recently appeared from Manchester University of some observations in which a short period of supplementary feeding with vitamins produced significant changes in physiological function (Harper, Mackay, Raper, and Camm, 1943). The supplement, consisting of 6,000 I.U. vitamin A, 1,000 I.U. vitamin D, and 50 mg. vitamin C daily, was given to 35 cadets aged 18 to 19 for a period of 10 weeks, while 34 cadets received control pellets and capsules. At the end of 10 weeks the groups were changed over, so that the control group now received the vitamins for 11 weeks. The cadets had recently joined the Forces; during their training they were receiving, at the University refectory, a diet similar to that of the undergraduates. It was found that the group receiving the vitamins were superior in several respects to the control group: the vital capacity, breath-holding time, endurance (R.A.F. 40-mm. mercury test), and, surprisingly, the resting pulse rate, were all considerably increased in the vitamin-fed group. In addition there was a significant difference in the number of days during which the cadets complained of minor respiratory or gastro-intestinal disorders, those receiving the pellets having on the average 9.7 days of complaints per man, compared with 14.9 days per man in the control group. On the other hand, no difference was found in height, weight, chest girth, or pelvic measurement, nor in the standing pulse rate, the pulse rate during the R.A.F. endurance test, the post-exercise pulse rate, or the post-exercise vital capacity.

As it happened that elementary-school children were available in Cambridge who, in the course of other investigations, had been receiving vitamin pellets for a year, it seemed that the opportunity might usefully be taken to examine the general applicability of the findings of the Manchester investigators. To this end we have repeated the tests on the four functions which these workers found to be affected.

TABLE II.—Effect of Vitamin Supplements on Physiological Function

	Boys, 12 Years Old		Boys, 11 Years Old		Total Boys		Girls		Total Subjects	
	Vitamin Group	Control Group	Vitamin Group	Control Group	Vitamin Group	Control Group	Vitamin Group	Control Group	Vitamin Group	Control Group
Number examined	38	38	10	12	48	50	39	41	87	91
Average resting pulse rate (beats per min.)	83	77.6	86.8	90.4	83.6	80.8	88.2	87.8	85.8	85.4
Average vital capacity (ml.)	2,213	2,200	2,010	2,164	2,185	2,196	1,916	2,064	2,064	2,135
Average vital capacity/sq. metre body surface	79.4	75.8	34.8	39.7	39.3	36.4	34.2	32.2	37.0	34.5
Average breath-holding time (secs.)	40.4	35.8	22.8	25.0	25.7	24.5	18.7	21.1	22.8	23.1
Average endurance test (secs.)	26.4	23.9								

* Surface area not available for all subjects.

Experimental

Altogether 178 children have been examined; these comprised 80 12-year-old girls, 76 12-year-old boys, and 22 11-year-old boys. About half in each group—alternate children from the school register—had received vitamin pellets daily at school and the remainder control pellets. The vitamin pellets contained 5,000 I.U. vitamin A, 1 mg. vitamin B₁, 25 mg. vitamin C, and 500 I.U. vitamin D. The children were living and eating at their homes, except for some who had dinner at school. Allowing for week-ends and holidays, the average supplement over the year was roughly half the reputed daily requirements of these nutrients; apart from the vitamin B₁, which Harper *et al.* did not administer, the children were thus obtaining less of the supplemented vitamins than the subjects at Manchester.

The heart rate was measured over a half-minute period after the children had been sitting quietly and comfortably for 15 minutes, and again after a further 5 minutes. Preliminary tests had shown that this procedure gave much more consistent results than measurements taken with the children lying down.

The vital capacity was measured after the heart rate had been taken. It was found that the first one or two attempts were usually lower than subsequent attempts. Readings were therefore made until fairly consistent results were obtained, and the highest of these was taken as the true vital capacity; five or six attempts were usually sufficient. Owing to the variation in heights and weights of the children the vital capacity has been divided by the surface area in order to obtain a truer comparison.

Breath-holding was the time in seconds during which the subject could hold his breath after full inspiration, and the endurance test the time in seconds during which the subject could maintain, after full inspiration, a column of mercury at a height of 40 mm.

Half of the 12-year-old boys were examined three days after the completion of a vitamin C saturation test, during which they each received 70 mg. vitamin C daily per stone body weight (i.e., some 350 mg. daily on the average) for 5 successive days. A comparison was made of these 38 boys with the 38 who were not given the saturation test (Table I). (It might be

TABLE I.—Effect of Saturation with Vitamin C on Physiological Function

	Boys Receiving Vitamin Pellets		Boys Receiving Control Pellets	
	Saturated	Not Saturated	Saturated	Not Saturated
Number examined	19	19	15	23
Average resting pulse rate (beats per min.)	82.2	83.8	77	82
Average vital capacity (ml.)	2,310	2,142	2,297	2,145
Average vital capacity/sq. metre body surface	1,862	1,710	1,840	1,770
Average breath-holding time (secs.)	39.0	41.7	36.4	35.4
Average endurance test (secs.)	27.2	25.8	26.4	23.1

mentioned that all the boys subjected to the saturation test became saturated within the five days of the test, the majority within the first two days.) It will be seen that the differences between the "saturated" and "unsaturated" boys were in each case very small, and statistical treatment is hardly necessary to demonstrate that these differences are insignificant. We have nevertheless subjected some of the bigger differences to statistical analysis—for example, the apparent higher vital capacity in the "saturated" boys—and in each case the difference is not significant. This was also true when the "vitamin" group and the control group were combined.

We can therefore consider the "saturated" and "unsaturated" boys together, and compare those who had received the vitamin supplements with those who had not. Table II shows this comparison, together with the girls and the 11-year-old boys; none of the girls or the 11-year-old boys had been subjected to the vitamin C saturation test before the examination for physiological function.

It is evident from simple inspection that no significant difference exists between the subjects receiving the vitamin supplements and the controls. Such small differences as occur are often in opposite directions; thus the boys on the vitamin pellets have an average vital capacity, expressed as a function of their surface area, of 48 ml. less than that of the control group of boys; in the girls the value of the "vitamin" group is 38 ml. more than the control group. Also, considering all the children, whereas the average breath-holding time is higher in the vitamin group, the average vital capacity and the endurance time are slightly lower. Again statistical analysis confirms that none of the differences are significant.

Discussion

The Manchester workers have themselves pointed out some possible criticisms to which their results might be open. In particular, they refer to the small number of their subjects. Additional queries arise even although their results are statistically outside the limits normally accepted for chance variations (see Abrahams, 1943; also *British Medical Journal*, 1943).

If, however, we accept the validity of the findings of these workers, the fact that vitamin supplements did not induce such changes in physiological function in our subjects might possibly be due to their not having been deficient in these nutrients before the administration began. This is supported by the fact that there was also no improvement in other respects after the year's dosing (see Yudkin, 1943). Gain in height and weight, strength of grip, haemoglobin, intelligence, educational attainment, and dark-adaptation were no different in those children receiving the supplement from what they were in those receiving the control pellets. Moreover, although there was a reduction in the incidence and duration of colds in the vitamin group, this was seen only in the younger children and was not shown by the older children examined for physiological function.

It should be emphasized that the absence of effect in our subjects may be due to differences in age or in degree of deficiency; they are not therefore to be interpreted as contradicting the findings of Harper *et al.* Nevertheless it is clear that improvement of physical efficiency by vitamin supplements cannot be regarded as being generally applicable to all groups.

Summary

A group of 178 children aged 11 and 12 were examined after about half of them had received vitamin supplements daily at school for one year. The supplements provided each school day 5,000 I.U. vitamin A, 1 mg. vitamin B₁, 25 mg. vitamin C, and 500 I.U. vitamin D, the average addition over the year being about one-half of the reputed daily requirements of these substances.

No difference was observed between the control group and the supplemented groups in resting pulse rate, vital capacity, breath-holding, or 40-mm. endurance test.

REFERENCES

- Abrahams, A. (1943). *British Medical Journal*, 1, 394.
British Medical Journal (1943). 1, 417.
 Harper, A. A., Mackay, I. F. S., Raper, H. S., and Camm, G. L. (1943). *Ibid.*, 1, 243.
 Yudkin, J. (1943). *Lancet*, 1, 755.

THE CRY OF THE CHILD IN UTERO

BY

IAN M. JACKSON, F.R.C.S., M.R.C.O.G.
 Obstetric Registrar, London Hospital

"Vagitus uterinus" is the term applied to the crying of the child while its head is still in the uterus. Mohammed and Bartholomew are both supposed to have made themselves heard *in utero*. It may be of importance in medico-legal cases, as it is possible in this way for a child to be stillborn and have its lungs partly aerated. In some cases this cry of a child may also be a warning of foetal asphyxia, requiring rapid delivery.

Record of a Recent Case

Mrs. T., a primigravida aged 29, was sent up to the London Hospital at 40 weeks with a breech presentation. External version under anaesthesia failed and she came into labour spontaneously two days afterwards. The membranes ruptured after 27 hours with the cervix fully dilated, and 1½ hours later it was decided to assist delivery as the anterior buttock had been peeping without advance for half an hour and the mother was becoming distressed. The foetal heart rate was 160 a minute. The resident accoucheur performed a postero-lateral episiotomy under gas, oxygen, and ether, with the patient in the lithotomy position, but was unable to bring down a leg as there was little liquor. The registrar therefore took over, and just as he was passing his hand gently up the vagina the foetus was felt to give a convulsive movement and everyone in the labour theatre heard a "foetal cry." This was repeated twice more, and was accompanied by movement of the foetus. The cry was

loud, and was heard by three doctors, two hospital sisters, and nurses; and all this when the anterior buttock was just peeping the vulva. Rapid delivery was performed, bringing down the arms, and forceps was applied to the after-coming. Although this was done quickly the foetus was making inspiratory efforts during delivery. The female infant of 6 lb. was very cyanosed, but breathed at once and recovered rapidly.

Discussion

For this condition to occur it is necessary for air to be present in the uterus. This may be due to the suction of air along the examining hand during the relaxation of the uterus, as probably occurred in this case. If the patient had been delivered on the left side there would have been a tendency for gravity to pull the foetus and uterus out of the pelvis and so suck air into the vagina or even the uterus. Miss Field at the meeting of the Obstetric Section of the Royal Society of Medicine on March 19, 1943, described a case in which air rushed up the catheter during high rupture of the membranes and was followed by foetal crying, and 54 hours later by the delivery of a living child. Mr. Fraser's case at the same meeting was harder to understand. A 4-gravida 30 weeks pregnant, ruptured her membranes five days before delivery. Twenty-four hours before delivery the foetus was heard to cry *in utero* for 40 minutes with the os only one-fifth dilated. Tympanites and succussion splash were present. The premature foetus died with a cerebral haemorrhage three hours after delivery. Air was perhaps sucked into the uterus during a uterine relaxation, or by the piston-like action of the foetal head. Although afebrile there may have been a low-grade infection with gas-forming organisms.

Once there is air in the uterus the foetus must inspire in order to produce a cry. There are at least two types of intra-uterine cry. The first is a soft whimpering cry—best heard with a stethoscope to the abdomen—which may continue for a considerable time and is not associated with asphyxia of the infant. This was the type of cry in the latter two cases. The second type was found in our case, in which the cry was loud and gasping, and was accompanied by a convulsive movement of the foetus and associated with foetal asphyxia.

The work of Barcroft and Barron on the respiratory centre of lambs *in utero* throws light on this problem. The movement responsible for respiration can be traced back to the first efforts that the foetus makes, and it seems that a third of the way through pregnancy the essential neuro-muscular mechanism has been laid down and as it were tried out. At first the respiratory movements occur as a reflex to a stimulus. They become more sensitive and the response more differentiate but, later, with the development of the controlling high nervous centres the foetus again becomes inert. With the onset of labour there is a degree of anoxaemia which depresses the inhibiting higher centres, so that the foetus shows more movement. There is also an increase of CO₂ pressure, and an avalanche of sensory impulses which all have a large stimulating effect on respiration.

In the first group there is a gentle whimpering cry which is unassociated with asphyxia and occurs before or early in labour. This noise is due to air passing in and out of the chest, whereas normally there is a tidal flow of liquor. In these cases the foetus can be stimulated by prodding, where the cry may be louder. In the second group the type of respiration is gasping, is associated with foetal asphyxia, and occurs when labour is well advanced. It has been shown by Barcroft that transection of the brain-stem above the level of the hypoglossal nucleus in the sheep foetus causes this form of respiration, and it is suggested that this gasping type of cry in the human foetus is due to anoxaemia of the higher nervous centres releasing the lower medulla.

Yet another possibility is that once there is air in the body of the uterus it may be suddenly forced past a fold of membrane or vagina by a contraction of the uterus. A noise simulating a foetal cry might thus be produced. Sipple's case was quoted in the *British Medical Journal* of Sept. 14, 1911, while carrying out an internal version he had to hold the hand still during a contraction. At that moment there were two high-pitched noises just like an infant's cry, but he noticed that they were accompanied by a sensation of air running in his forearm.

It is probable that this condition is more common than supposed. Prof. F. J. Browne has found that the lungs of stillborn foetuses often float in water, which shows that some aeration has taken place. This post-mortem test of stillbirth is thus of little significance. DeLee said that he has heard babies sneeze and cough in utero, and even hiccup.

We have seen that at an early date in development the movements of respiration have been tried out. For a cry to be heard, however, there must be air in the uterus, with a variable degree of foetal anaemia, rise in CO₂ pressure, and peripheral stimulation. The cry will be quiet and whimpering if the asphyxia and peripheral stimulation are slight, but loud and gasping if these are severe. It is in the last group that the foetus is distressed and requires immediate delivery. In our case there is little doubt that air was drawn into the uterus along the examining hand between pains, and the long second stage and prolonged manipulation caused partial asphyxia and stimulation of the foetus. Rapid delivery possibly saved the child's life.

I must thank Mr. Eardley Holland and Mr. Alan Brews for permission to publish this case and for their help.

BIBLIOGRAPHY

- Barcroft, Sir Joseph (1940). *J. Physiol.*, 97, 338.
 — (1941). *Lancet*, 2, 91.
 — (1942). *Ibid.*, 2, 117.
 — (1942). *Camb. Univ. med. Soc. Mag.*, 20, 6.
British Medical Journal (1912), 2, 653.
 Bucura, C. J. (1904). *Zbl. Gynäk.*, 28, 129.
 DeLee, J. B. (1938). *Principles and Practice of Obstetrics*, p. 855, Philadelphia.
 Gabastou, J. A. (1940). *Bol. Soc. Obst. Ginec. Buenos Aires*, 19, 25.
 Fuchs, H. (1920). *Zbl. Gynäk.*, 44, 1313.
 Klein, C. U. von (1922). *Atsch. Geburtsh. Gynäk.*, 60, 154.
 Pease, F. W. (1942). *J. Amer. Inst. Homeop.*, 33, 9.
 Reidy, J. (1912). *British Medical Journal*, 2, 1140.

Medical Memoranda

Paralysis of the Serratus Anterior following Glandular Fever

So far only one case of this condition appears to be recorded in the literature, and that was by J. S. Richardson (*Lancet*, 1942, 1, 618); but in his case the paralysis developed during the third week of illness and cleared up in four months, whereas in the one which came under my observation—a persistent serratus magnus palsy following glandular fever—the paralysis developed five days later, and is still present a year after the onset.

CASE HISTORY

A soldier aged 25 developed a sore throat on April 27, 1942. A throat swab showed Vincent's organisms; culture negative for K.L.B. On May 8 there was a rise in temperature, with an erythematous rash over the chest and marked glandular enlargement in the neck on both sides. The spleen also was probably enlarged, but no enlargement of glands was noticed elsewhere. The rash disappeared after a few hours, but the temperature was still raised. It was thought to be a case of rubella, but as the patient had had a definite attack of rubella two years previously this was improbable. The glands continued enlarged and tender, and remained so for six or seven weeks.

On May 9 a white cell count gave 11,200 per c.mm.—neutrophils 29%, lymphocytes 66%, monocytes 4%, eosinophils 1%. There was severe pain in the right shoulder, with inability to sleep. On the 11th there developed severe paralysis of the right serratus anterior muscle with no sensory changes and no meningeal symptoms. Pain disappeared at onset of paralysis. The Paul-Bunnell reaction was positive in a serum dilution of 1 in 900. On the 12th the test was repeated, and was still positive at 1 in 900. Throat and nasal swabs were taken and cultured for K.L.B., but the result was negative; also, no Vincent's organisms were found.

On May 16 the white cells numbered 5,700 per c.mm.—neutrophils 39%, lymphocytes 51%, monocytes 9%, eosinophils 1%. The faradic response in the right serratus anterior was very weak. Radiographs of the cervical spine were negative. On June 22 lumbar puncture produced a clear fluid under normal pressure. No leucocytes were seen in 1 c.mm. Total protein, 45 mg. per 100 c.cm.; sterile. Since then the patient has had splinting and physiotherapeutic treatment.

On May 12, 1943, the vertebral border of the scapula, and especially the lower angle, still stood out prominently behind, giving a characteristic winged appearance to the back. The arm could be pushed forward, but weakly. I could not elicit any response to faradism or galvanism in the right serratus anterior muscle. Although the functional recovery is about 50%, it is obvious that this is due to the function of the serratus anterior being taken by other muscles, as that muscle is still paralysed.

Manfield Orthopaedic Hospital, Northampton.

H. C. SAKSANA, M.B.

Reviews

LOCAL GOVERNMENT

The Municipal Year Book and Encyclopaedia of Local Government Administration, 1943. (Pp. 1,343. 42s.) London: Municipal Journal Limited.

Many new matters have appeared on the agenda of local government since the *Municipal Year Book* was first published in 1897, so many that one wonders what Victorian aldermen and councillors found to talk about. The most recent matter and the most prepotent is civil defence with its various ramifications—provision and maintenance of shelters, arrangements for evacuation, communal feeding, care of the bombed-out, fire, first-aid, and decontamination services. It was argued at first, before experience disproved it, that to add civil defence to the other functions of local government would be, not indeed the last straw, but the last big bale of hay on this patient camel's back. But that was to reckon without the adaptability and resourcefulness of those who administer local affairs, especially the permanent local government service. Never before has local government touched life at so many points, and it has its reward in a quickened public appreciation which has displaced the old apathy. It is beginning to be realized by the average citizen that his happiness, safety, and environmental health depend upon the town hall more than upon the Palace of Westminster. This most important side of community life has a guidebook worthy of it. There is not a fact or figure, name or emblem connected with local government, from the city corporation down to the seven-hundredth rural district council, which is not to be found in these 1,300 closely packed and well-sectioned pages. The yearbook is primarily a directory, but it is also an annual review of the chief events in local government, and among other things it gives a good summary of the different reports, statistics, and tendencies in the field of public health. Incidentally it shows how various is the structure of local government. In England and Wales there are 62 county councils, 83 county borough councils, more than 300 councils of other municipal authorities, and nearly 600 urban district councils. A growing feature and sign of things to come is the number of joint boards and committees, covering water and gas, sewerage and burial, and in Scotland poorhouses and district asylums, venereal diseases, and the welfare of the blind; but of all joint boards those which have to do with hospitals are most numerous, totalling 212 in England and Wales.

LARYNGEAL SURGERY

Diseases and Injuries of the Larynx. A Textbook for Students and Practitioners. Chevalier Jackson, M.D., Sc.D., F.A.C.S., and Chevalier L. Jackson, M.D., M.Sc., F.A.C.S. Second edition. (Pp. 633; illustrated. 36s.) New York and London: The Macmillan Company, 1942.

A second edition of *The Larynx and its Diseases*, by Chevalier Jackson and Chevalier L. Jackson, has been issued under the title *Diseases and Injuries of the Larynx*. The present edition does not differ in essentials from the first (reviewed in these columns on Oct. 16, 1937), but is longer because a chapter on war surgery of the larynx has been added. This is rather out of keeping with the rest of the book, which is almost entirely based on Jacksonian observation and experience, while the new chapter does not give any indication of personal experience in the surgery of war, except in the matter of the effects of poison gas, which so far has not been employed in the present conflict. The authors have changed their views to some extent on the surgical treatment of cancer of the larynx, but they still give a quite inadequate picture of what can be accomplished in the surgical treatment of the intrinsic variety of the disease, and the statement that in the "extrinsic type of cancer surgery is worse than useless" ignores what has been accomplished by others, and coming from such an authority must hinder any attempts at progress in this direction. In all other aspects of laryngeal surgery the book reveals what can be done by patient endeavour often extended over long periods, and how great is the debt of laryngology to endoscopy as practised and taught in the Jacksonian clinic. The book is of more value as a picture of how a great master of his art sees it and practises it than as the complete textbook at which he has aimed, for there is no attempt to keep abreast of recent

literature; for the authors the Jacksonian practice and tradition are all-sufficient. It constitutes, however, a valuable record of magnificent work in laryngology, which no laryngologist can neglect.

AFTER-CARE AND REHABILITATION

After-Care and Rehabilitation. By Various Authors. (Pp. 128. 8s. 6d.) London: The Practitioner in conjunction with Eyre and Spottiswoode.

This is the ninth of the series of "Practitioner" booklets. It deals with every aspect of after-care and rehabilitation in a comprehensive and easily readable form. There are twelve articles dealing with post-operative care, with the after-care of various medical conditions, and with rehabilitation after head injuries, fractures, and amputations. There is also a chapter on physiotherapy in post-operative convalescence, and a chapter on occupational therapy. All these papers are well and clearly written by experts, and if there is any fault to find with this booklet it is that there has been a certain amount of overlapping in the chapters on post-operative care.

One of the most useful and practical features of the book is the chapter by Dr. Geoffrey Evans on rehabilitation in patients confined to bed, in which is given some extremely practical and detailed advice on the types of exercises to be employed in these cases. All the chapters are of a high standard, and the book should have a very wide appeal. Prof. F. R. Fraser sums up the present position in an excellently written foreword urging a more positive and planned attitude on the part of the profession towards what used to be rather vaguely described as "convalescence."

Notes on Books

Volume 67 of the *Transactions of the American Gynecological Society*, for the year 1942, is edited by Dr. HOWARD C. TAYLOR and published at St. Louis by the C. V. Mosby Company. The papers in this volume are without exception reprinted from the *American Journal of Obstetrics and Gynecology*. The "In Memoriam" section includes an appreciation of Dr. Herbert R. Spencer, an honorary Fellow of the Society, by his friend Dr. George Gray Ward, who met him on various yearly visits to London.

E. B. UVAROV'S *Dictionary of Science* (Penguin Books; 9d.) is a work which is remarkable both for the wealth of matter included and for the clarity with which the subjects are explained. Hardly a word is missing in it that may occur in scientific literature, and wherever an enlargement of the given explanation may be desired a further store of information will be found under a kindred title to which a cross-reference is given. Complete, compact, and lucid, this volume is worth a bookbinder's finish.

Starch and its Derivatives (Chapman and Hall; 36s.), by J. A. RADLEY, is in essence a textbook of applied chemistry having starch for the centre of its interest. Starch itself presents a wide field of study in pure chemistry; it has many and diverse uses in industry and in the arts, and is the raw material for making a variety of economic products. There is here a large field for both pure and applied chemistry, and there have been extensive developments in both domains. These developments are here fully and ably described.

Preparations and Appliances

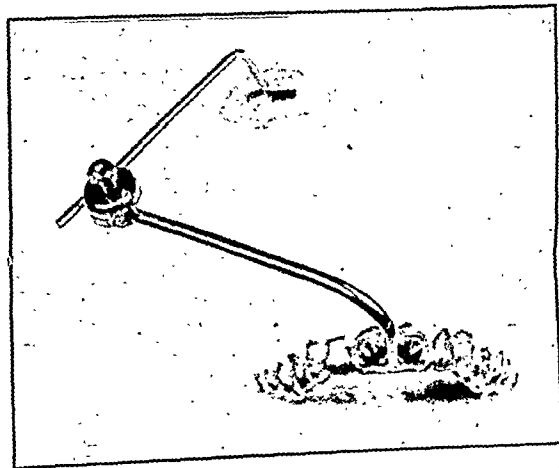
DEVICE FOR THE PROTECTION OF THE EXPOSED CORNEA

.... FREDERICK RIDLEY, F.R.C.S., writes:

From time to time cases are seen in which the cornea is exposed owing to loss of tissue or cicatricial contraction of the lids following burns. A case recently admitted to an E.M.S. hospital presented unusual difficulties. An extensive area of skin around the eye and including both lids was involved in a third-degree burn complicated by gross sepsis. The lids retracted rapidly, exposing the cornea, which became oedematous and threatened to ulcerate. The raw area round the eye would not tolerate any appliance, the skin condition did not permit of immediate grafting, and lid suture has always failed in this type of case.

The problem was tackled by means of the appliance illustrated. A dental cap splint with an extra-oral extension bar attached by means of screws and plates was fitted, and to this bar a second rod carrying a shield to fill in the palpebral aper-

ture was attached by means of a universal joint of the Clouste Walker pattern, provided with a locking screw. A Zeel impression of the palpebral aperture and exposed cornea a conjunctiva was taken, using a suitably curved and sharp small metal tray. Artificial stone moulds were prepared a the shield processed in acrylic resin in the usual way. The carrying the shield was cast integrally with it, as is shown the illustration. The sharp edges of the shield were removed the tips corresponding to the canthi rounded off, and the ocu-



surface lined with a thin layer of No. 8 gauge dental casting wax. Experience has shown that this wax is very well tolerated in contact with the cornea. If the shield shows a pronounced corneal bulge it is desirable to remove this by polishing or to fill the hollow with wax, as the cornea moves freely over the ocular surface of the shield.

The apparatus was made and fitted within six hours and proved comfortable in use, being adjusted so that the shield is just in contact with the cornea. As the cicatricial contraction increased, the appliance was built up with wax to maintain approximation to the lid edges. After ten days a larger shield was made, and this was subsequently built up in the same way. Apart from removal each day to irrigate and inspect the eye, the apparatus was worn day and night for seventeen days without discomfort. At the end of that time the skin was ready for grafting. Apart from a little injection of the conjunctiva no reaction was seen. The corneal oedema cleared up in a few hours and no further anxiety was experienced.

It is hoped that this apparatus, which can be prepared quickly in the larger dental units, may prove of value in the care of this rare but often disastrous condition.

My thanks are due to the staff of the dental department of the Maxillo-Facial Unit, East Grinstead, for their co-operation in planning and preparing the apparatus.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY AUGUST 28 1943

THE PENICILLIN POSITION

We print on p. 274 a statement on penicillin from the Medical Research Council, the object of which is evidently to warn the profession that supplies of this substance are unlikely to be available for general use for some considerable time—possibly until the end of the war, since Service needs will certainly be met first as long as it continues. The amount available at present is so small as to make it inadvisable to advertise the names of centres where its use is being studied, lest they should be overwhelmed with requests to treat cases which can only be declined. The object of the clinical work going on at present is indeed not so much to treat conditions already known to be amenable to penicillin treatment as to explore its further possibilities. Something will doubtless be heard shortly of the further progress of this work, and in the meantime readers of this *Journal* may like to be reminded of the main facts which are already known, especially since the subject has attracted a good deal of popular interest.

Penicillin is an antibacterial substance with a highly selective action formed by the mould *Penicillium notatum* and easily obtained in crude form in filtrates of cultures of this mould. Discovered by Fleming as long ago as 1929, it was restudied by Florey and his colleagues at Oxford after the war began, and by them a method was devised of extracting and partially purifying it, the result being an antiseptic having unheard-of properties. At this stage their main report,¹ which is still the chief exposition of its subject, made it clear that penicillin has all the qualities of the ideal antiseptic: an enormous capacity for inhibiting the growth of certain bacteria, an efficiency unimpaired by environment—neither serum, blood, nor pus detracting from its effect—and, above all, an almost complete freedom from toxicity to mammalian cells. It is upon this rock that every other "biological antiseptic" has foundered. Gramicidin, for example, the bactericidal substance isolated by Dubos from a soil bacillus now identified as *B. brevis*, is highly toxic to animals and clearly unsuitable for systemic use, although it may have limited uses as a local application. The same is true of actinomycin,² proactinomycin,³ of the unnamed substance⁴ extracted from *Penicillium claviforme*, and probably of streptothricin.⁵ These are only a few of the better known antibacterial products which have been isolated from various fungi in a systematic search to which the success of penicillin was the chief incentive. Among these studies, those of Raistrick and his colleagues⁶ have gone furthest, since these workers not only examined very many species of *Penicillium* and *Aspergillus* and identified a large number yielding antibacterial products, but determined the chemical constitution of some of the active substances and even synthesized them. Many of these other mould pro-

ducts are obtainable in large yields, stable and easily purified; in some cases they act on a wider range of bacteria than penicillin, including Gram-negative species, but none has so powerful an effect on Gram-positive cocci, and none so far as present information goes is non-toxic; those which have been studied from this standpoint are decidedly the reverse. The search for something else as good as penicillin but perhaps more easily produced has therefore failed, as have efforts to synthesize it.

The product used by the Oxford workers in 1941 was still grossly impure, having an activity of only about 40 Florey units per mg. A year later⁷ such further purification had been achieved that the activity was raised even to 500 units per mg., but this entailed serious loss, only about 15% of the active constituent surviving. This product completely inhibited the growth of *Staph. aureus* in dilutions as high as 1 in 30,000,000, but was even less toxic than its cruder predecessor: leucocytes survived exposure to a 1% solution. It was with penicillin thus further purified, although not always of the maximum potency attainable at such expense, that the further clinical trials were made which M. E. and H. W. Florey⁸ described at length a few months ago. Systemic treatment was given in 13 cases, the continuous intravenous drip originally advocated being largely replaced by three-hourly intramuscular injections: 10 of these cases were of severe staphylococcal infections, 6 having positive blood cultures, and all recovered. A case of streptococcal meningitis resistant to sulphonamide treatment was given penicillin intrathecally as well as intramuscularly, and recovered. A favourable effect was obtained in a case of pulmonary actinomycosis, and no lasting effect at all in a case of endocarditis lenta due to *Strep. viridans*. Except in the presence of renal failure,⁹ which might from this standpoint be actually an asset, penicillin is rapidly excreted by the kidney, and systemic treatment therefore demands frequently repeated doses often rising to a total of 2,000,000 units before recovery is assured. Contrasted with this lavish expenditure is the economy with which effects can be obtained by local application, the other form of treatment described in the Floreys' paper. Local sepsis, in the form of accidental wounds, mastoid disease, and chronic sinuses, was successfully treated by introducing comparatively small amounts of penicillin, as were various superficial infections of the eye. Colebrook and his colleagues¹⁰ have also found penicillin in the form of a cream highly effective in eliminating infection from burns.

The possible uses of penicillin have to be thought of in terms of the infecting organism. Pride of place goes to *Staph. aureus*, not only because of its extreme susceptibility to penicillin, but because it is far less controllable by sulphonamides than the other pyogenic cocci. That staphylococcal septicaemia is curable with penicillin is well established, and for this condition more than any other it is being most urgently demanded. It has also been used successfully in osteomyelitis, and in staphylococcal infection of wounds, burns, and the eye. Haemolytic streptococci and pneumococci are also susceptible to penicillin, but, since sulphonamide treatment for their various infections is usually effective, penicillin need only be considered when this fails. McKee and Rake¹¹ have shown that sulphadiazine-resistant strains of pneumococci respond normally to penicillin; the mode of action of the two substances is undoubtedly quite different, and resistance to one is an indication for treatment with the other. What else penicillin may conceivably be found capable of may be guessed

¹ *Lancet*, 1941, 2, 177.² Waksman, S. A., and Woodruff, H. B., *J. Bact.*, 1941, 42, 231.³ Gardner, A. D., and Chain, E., *Brit. J. exp. Path.*, 1942, 23, 123.⁴ Chain, E., Florey, H. W., and Jennings, M. A., *ibid.*, p. 232.⁵ Waksman, S. A., and Woodruff, H. B., *Proc. Soc. exp. Biol.*, N.Y., 1942, 43, 207.⁶ *Chem. and Ind.*, 1941, 60, 528; 1942, 61, 22, 48, 128.⁷ Florey, H. W., and Jennings, M. A., *Brit. J. exp. Path.*, 1942, 23, 120.⁸ *Lancet*, 1943, 1, 387.⁹ Rammelkamp, C. H., and Keefers, C. S., *J. clin. Invest.*, 1943, 22, 425.¹⁰ *Lancet*, 1943, 1, 605.¹¹ *Proc. Soc. exp. Biol.*, N.Y., 1942, 51, 275.

from the list of bacteriostatic titres for many species of bacteria in the original main paper by the Oxford team. Its action on tubercle bacilli, on the intestinal Gram-negative bacilli, and on *H. influenzae* is negligible. On the other hand it has a powerful action on the gas-gangrene group, which has received experimental confirmation in the studies of J. McIntosh and W. R. Selbie¹² on *Cl. welchii* infection in mice. It will thus be seen that all the major infections to be feared in battle wounds come within the theoretical scope of penicillin treatment, although its practical efficacy has yet to be proved and the best methods of application have yet to be devised. That the Services have a prior claim on available supplies no one is likely to dispute. Among other bacteria high up on the list of susceptible species are the anthrax bacillus, the gonococcus, and the meningococcus. This brief review of what is known and what fields remain to be explored will give some idea of the magnitude of the task which lies before those entrusted with prosecuting this investigation. Penicillin is in some ways the most remarkable of all the chemotherapeutic agents which have come to light in such profusion during the past eight years, and it is tantalizing that supply difficulties should bar its rapid exploitation. Where it most clearly excels the sulphonamides is in the local treatment of established sepsis; and the field for such treatment is enormous, especially in time of war. Whether to employ a given stock in the rapid restoration to health of many patients suffering from disabling but not dangerous infections, or to use it to save a single life endangered by septicaemia, must be a difficult decision to make, and is perhaps not the only dilemma which will arise as the further possibilities of penicillin treatment become known.

TUBERCULOSIS IN CHILDHOOD

Of all infectious diseases which are liable to spread in time of war, only tuberculosis has gained serious impetus in this country. That it now constitutes a grave problem everyone must be aware; but it is thought of mainly in terms of adult phthisis, and the effects in children deserve much more attention than they have so far received. Readers of this *Journal* may recall that the issue in which we published an abstract of the report of the M.R.C. Committee on Tuberculosis in Wartime¹³ also contained an article¹⁴ by Dr. Allen Daley, the Chief Medical Officer to the L.C.C., and Mr. B. Benjamin of the Statistical Branch. This paper analysed the trend of tuberculosis in London during 1938-41 and revealed an alarming increase of the disease in children: new cases of both pulmonary and non-pulmonary tuberculosis and deaths from the former all showed increases varying from 177 to 442% in 1941 compared with 1938; the greatest increases were in the youngest age group (0-4 years), but at 5-14 years they were also far greater than among adults. Whether even these figures, which are based on notifications, fully represent what is going on may be doubted after reading the account by Dr. Marcia Hall (*Lancet*, 1943, 2, 35) of her study of tuberculosis among evacuated children in East Sussex. The social change with which this study is concerned is evacuation and billeting, but it draws an alarming picture of the infectivity of the disease among children and well illustrates the consequences of their exposure to infection, which must everywhere be accentuated by an increase in adult disease. The method employed was the thorough examination of all home and school contacts of known cases, including radiography, estimation of the sedimentation rate,

tuberculin skin tests, and in some cases examination of gastric contents for tubercle bacilli. Two evacuated children found to be suffering from the disease had infected a total of 15 other children in their billets at school classes; both had been suspected of tuberculosis in London before their evacuation, but no note had been sent to the tuberculosis officer of the reception area. Of 6 children billeted with a foster-mother who herself had pulmonary tuberculosis, 5 became infected and in their turn transmitted the infection to a number of school contacts. Several of the children involved in these melancholy episodes have died, and a number of others are undergoing institutional treatment.

The danger to children of contact with open pulmonary tuberculosis cannot be over-emphasized. That they are much more readily infected than adults would be more clearly understood if the disease in them did not assume a form which is notoriously difficult to diagnose. Without radiographic and laboratory facilities its diagnosis is often little more than guesswork. The early recognition of tuberculosis in childhood is the subject of a report by a sub-committee of the British Paediatric Association which has been circulated to interested persons and institutions and deserves a wider publicity. This report recommends a series of far-reaching measures to remedy what is at present a serious defect in our public health system. The first need is the examination of all child contacts down to infancy of known cases of pulmonary tuberculosis, and, conversely, a search among adult contacts for the source of infection when a child develops the disease—this in order to prevent the infection of further children. There should be some mechanism whereby children suffering from erythema nodosum or phlyctenular conjunctivitis can be brought to the notice of the tuberculosis officer. Special clinics are required for the examination of children, not only equipped with all necessary diagnostic facilities but staffed by those with paediatric experience. Finally, there is a serious lack of facilities for institutional treatment: children should not in general be sent to adult sanatoria. These are the main points in a document which forms a serious indictment. The effect on children of the present increase in adult pulmonary tuberculosis is one of the worst features of the situation as we see it now, and such steps as may now be possible for dealing with it deserve earnest attention.

THE ERGOT ALKALOIDS AND INVOLUTION OF THE UTERUS

The discovery and isolation of a new alkaloid of ergot—ergometrine—were foreshadowed by Chassar Moir in these columns in 1932¹ and described in detail by H. W. Dudley and Chassar Moir in 1935.² Since then the rapid and strong oxytocic action of ergometrine has been amply confirmed by its widespread clinical application. Equal in speed and efficiency to extracts of posterior pituitary for the control of post-partum atony and haemorrhage, it possesses advantages over such extracts in that it is non-toxic and has no effect on the vascular or autonomic nervous systems. These advantages are not yet appreciated by all who practise obstetrics, and cases of "pituitrin shock," often mistaken for "obstetric shock," still occur. The introduction of this ergot alkaloid (also isolated and described by independent workers in Switzerland and the U.S.A. in 1935) was unfortunately clouded by a controversy over nomenclature, and it has been variously called "ergobasin," "ergotocin," "ergotrate," "ergostetrine," "ergocline," and "ergonovine." So far as this country is con-

¹² *Lancet*, 1942, 2, 750.

¹³ *British Medical Journal*, 1942, 2, 436.

¹⁴ *Ibid.*, p. 417.

¹ *British Medical Journal*, 1932, 1, 1119.

² *Ibid.*, 1935, 1, 520.

cerned, however, confusion has to a large extent been avoided by the ready and wide acceptance of the term "ergometrine," first suggested by its discoverers.

In a recent paper³ Chassar Moir and Scott Russell discuss the use of ergometrine and ergotamine during the puerperium. In a large series of cases the rate of involution of the uterus was assessed by careful observation of the height of the fundus and of the amount and character of the lochia. Their findings, in contrast with the results of similar if less carefully controlled investigations by other workers, go to show that neither of these ergot alkaloids is beneficial to the process of involution. Study of the problem is hampered by incomplete knowledge of the physiology of involution. The oldest view—that the muscle undergoes fatty degeneration and a large proportion of the fibres disappear—is no longer accepted. The process is one of atrophy, and is said to represent the most rapid type of atrophy known to occur in any tissue under either physiological or pathological conditions. The muscle fibres are reduced in size with loss of cytoplasm, but it is doubtful whether they are to any extent reduced in number. If this is the result of ischaemia brought about by the contraction and retraction of the uterine muscle fibres, then ergot should assist involution. But if the hypertrophy of the uterus during pregnancy is the result of the presence of large amounts of oestrogen in circulation and the mechanical stimulus of the products of conception, then it is reasonable to assume that the puerperal atrophy is the result of the withdrawal of such factors. In such a case ergot, by increasing the rate and amplitude of contractions to the extent of inducing spasm, could not assist involution, but might well have an adverse effect by hindering the absorption of the products of autolysis. The scientific basis of the traditional ergot therapy in the puerperium is certainly open to question, and the latest clinical observations indicate that it does not facilitate involution.

Ergot alkaloids are often advised in the treatment of uterine puerperal infection, but, again, Chassar Moir and Scott Russell record no decrease in the morbidity rate in patients given ergometrine and ergotamine. They argue, moreover, that, as infection elsewhere in the body is treated by resting the infected tissue, it is unreasonable to induce activity in a uterus that is infected. There is, however, a place for ergometrine in the treatment of those cases, not necessarily infected, in which the lochial discharge is partly retained in the uterus. In these days, when the supply of ergot and its alkaloids is limited and should be conserved, those clinicians who still prescribe them as a routine in the puerperium would do well to reconsider whether they should continue a practice which, if not harmful, is of doubtful value and is certainly wasteful.

CLINICAL BIOTIN DEFICIENCY

Biotin (formerly known as vitamin H and coenzyme R) is the latest vitamin to be synthesized. This was done last May by Harris and his colleagues in America,⁴ confirming the formula assigned to the vitamin last year by du Vigneaud and his collaborators, who concluded that it was a carboxylic acid with a nitrogen-substituted cyclic urea grouping and sulphur in a thio-ether linkage.^{5,6} The existence in raw egg-white of avidin—a protein which forms a complex with biotin—has been known for some time. Oral administration of large amounts of dried egg-white to rats produces a deficiency syndrome characterized by an exfoliative dermatitis, hyperkeratosis, alopecia, loss of

weight, and spasticity. This condition, known as egg white injury, is due to the avidin forming a complex with the biotin of the diet and preventing its absorption. We referred in these columns last year⁷ to the work of Sydenstricker and his colleagues,^{8,9} who claim to have induced biotin deficiency in human beings by the administration of large quantities of raw or dried egg-white. The subjects of the test suffered from a scaly dermatitis, ashen-grey pallor, tongue lesions, paraesthesiae, nausea and changes in the blood picture. The experiment afforded clear evidence that biotin is an essential food factor for man. In this connexion Williams's study of an old retired Italian labourer who had suffered from an exfoliative dermatitis and mild conjunctivitis for several years is of interest.¹⁰ There was no history of medication or exposure to chemicals to account for the rash, but the dietary history was significant. Since adolescence the patient had been extremely fond of raw eggs, and in order to get enough he had deserted his family so that he could run a chicken farm. His consumption of raw eggs ran into six dozen a week. He was not to be expected to eat regular meals on top of this, but what was unexpected was the fact that he drank one to four quarts of wine daily. His choice of foods was narrow and excluded good sources of biotin (milk, meat, liver). The skin lesion, which was also studied by biopsy, did not correspond to that due to deficiency of nicotinic acid, riboflavin, pantothenic acid, or pyridoxin (vitamin B₆), but closely resembled that seen in animal deficient in biotin. Before treatment the serum biotin was low. After the patient had been in hospital for a fortnight, during which time he received a liberal hospital diet and injections of the methyl ester of biotin, the dermatitis largely disappeared and the serum biotin returned to normal. This would appear to be the first recorded case of clinical biotin deficiency: Sydenstricker's patients were volunteers on an experimental diet. Biotin deficiency as a result of the action of avidin is unlikely in egg-depleted England. In any case the avidin binds biotin only when the eggs are eaten raw or dried and uncooked, and even then they would have to be taken for a long time. Williams's patient ate large quantities of raw eggs for years before deficiency symptoms appeared. It is not surprising, therefore, that Rhoads and Abels¹¹ could not induce a biotin deficiency in patients suffering from cancer—tumour tissue is rich in biotin, which is possibly essential for its growth—by feeding 375 g. of raw egg-white and 165 g. of dried egg-white daily for thirty weeks.

Kögl and Tönnis,¹² who first isolated biotin, obtained only a milligramme from a ton of dried egg-yolk. Now that it has been synthesized it should be available in quantities which will permit further investigation of its function in human nutrition.

VITAMIN C AND COOKING

Thanks to propaganda on the part of the Ministry of Food the nation has begun to worry about its vitamin C, and so imbued has it become with notions about rates of destruction and such-like that all sense of proportion is being lost. There is a popular idea nowadays, for instance, that if vegetables are left over from dinner it is useless to keep them and reheat them, for they will have lost all their nourishment; that they might just as well be thrown away. This idea is erroneous. The reheated vegetables will provide as many calories as when they were freshly cooked

³ J. Obstet. Gynaec. Brit. Emp., 1943, 50, 94.

⁴ Science, 1943, 97, 447.

⁵ J. Biol. Chem., 1942, 146, 475, 487.

⁶ Science, 1942, 96, 455.

⁷ British Medical Journal, 1942, 2, 543.

⁸ Science, 1942, 95, 176.

⁹ J. Amer. med. Ass., 1942, 118, 1199.

¹⁰ New Engl. J. Med., 1943, 228, 757.

¹¹ J. Amer. med. Ass., 1943, 121, 1261.

¹² Z. physiol. Chem., 1936, 242, 43.

(more if they are fried in a little fat), and they will contain just as much protein and minerals. "Save food" is the first rule in wartime cooking, and it is foolish to throw away good food just because it may have lost some of its ascorbic acid. This vitamin, however, has quite rightly been given special attention, because it is the dietary essential most likely to be deficient in wartime diets. Miss M. Olliver¹ has recently published the results of her extensive investigations into the vitamin C in fruits and vegetables, and the effects of storing and cooking them in different ways. Of common home-grown fruits, blackcurrants and strawberries contain more vitamin C than oranges or lemons. Other bush fruits with edible pips such as gooseberries, loganberries, raspberries, blackberries, and also tomatoes are moderately good sources (20 to 40 mg. per 100 g.), while apples, pears, and stone fruits such as plums and cherries contain very little (less than 10 mg. per 100 g.). When any of these fruits are stewed ascorbic acid is extracted into the juice, but as this is generally eaten there is little or no loss of the vitamin, or indeed of any of the constituents—only a dilution with the cooking water. Jams made from these fruits also retain all the vitamin C of the original fruit, but it is diluted with sugar and water. Blackcurrant jam is a better source of vitamin C than raw lemons or grapefruit; plum jam contains practically none.

Storage has a bad effect on vitamin C. Green leafy vegetables and peas in the pod, which when freshly gathered are an excellent source, lose about 10% of their ascorbic acid every day they are stored after harvesting. Root vegetables do not lose vitamin C so rapidly, but losses on storage cannot be ignored, because roots are often eaten many months after they are lifted. Potatoes, for example, contain 16 mg. ascorbic acid per 100 g. when they are freshly dug in August and September. By March they contain only 2 mg. per 100 g.

When vegetables are boiled the soluble constituents diffuse out into the cooking water, which the English cook or housewife generally throws away, and the more soluble the constituent the more will be dissolved out in this way. The extent of the loss also depends upon the volume of the cooking water and the time of cooking, but more still upon the surface area of the pieces of vegetables in relation to their size. Green leafy vegetables with a large surface area may lose 80 to 90% of their soluble constituents, while potatoes only about 20%. The addition of salt and soda to the cooking water seems to make no appreciable difference to the loss. So far as the minerals are concerned, these losses are of little importance. The soluble elements, Na, K, and Cl, are always plentiful in ordinary diets. Ca and Fe, which are more likely to be deficient, are relatively insoluble, and conservative methods of cooking are unlikely² to increase the daily intake by more than about 3%. Vitamin C, however, is soluble and it is scarce, and vegetables are now our chief source during most of the year. Every effort, therefore, should be made to preserve it. Two years ago a note was drawn up by the Accessory Food Factors Committee of the M.R.C.³ suggesting how this should be done, and the chief points were these. Obtain vegetables as fresh as possible and keep in a cool damp place. Use the smallest possible amount of water for cooking, and have it boiling before adding the vegetables. Cook vegetables no longer than is necessary to make them tender, and serve them directly they are cooked. Use the cooking water for soups and gravies. But—even if these rules have been broken—the vegetables should not be thrown away.

CLEANING MILK BOTTLES

Among the precautions necessary to ensure a safe milk supply the condition of the bottles into which it is filled must clearly be taken into account. Contaminated bottles have in fact been known to cause outbreaks of enteric fever though this mode of infection is much less common than contamination of the milk itself before bottling. It is generally agreed that the single-service carton is the ideal container for milk, but its widespread adoption is not only quite impracticable now but unlikely for many years, since much capital in the dairying industry is sunk in bottling plants. A study of methods now in use for cleaning and sterilizing milk bottles was carried out during 1937-9: the request of the Ministry of Health by Betty C. Hobbs and G. S. Wilson, and a condensed version of their report which is itself a formidable document containing much valuable information, has now been published. Their first task was to devise a method for determining the bacterial content of washed milk bottles, and the method chosen from among several studied is likely to be generally adopted: it consists in rinsing the bottle with sterile fluid of which aliquot portions are plated for bacterial counts. The standard suggested is a count of not more than 600 colonies per pint bottle, or approximately 1 per c.c.m. capacity. This method was used for the examination of bottles from 105 bottle-washing plants in Greater London which were of 26 different types. Generally speaking, the lowest counts were given by bottles from large plants employing detergents, the straight-through being better than the rotary type, and spraying being better than soaking in the detergent. Steam sterilization gave less satisfactory results, and hand-washing much the highest counts of all. It seems clear that combined cleaning and disinfection by detergents such as caustic soda, the disinfectant action of which has recently been exhaustively studied by these authors,² is preferable to steam sterilization. Bottles so treated are at that stage sterile or nearly so, yet the final product may be heavily contaminated; and, indeed, the large majority of those examined did not conform to the standard proposed. This was found to be due to recirculated water used for rinsing, this water being itself so heavily contaminated that bacterial growth evidently proceeded in it. This difficulty can be overcome by using hot water, but the objection to this is that the bottles need to be cooled before filling. An alternative is the use of chlorinated rinse water, but this method demands accurate control such as it is not likely always to receive, and the authors accordingly do not recommend it. Their remedy which deserves serious consideration in the future design of bottle-washing plants, is to follow rinsing with hot water by external washing only with recirculated cooling water and a final rinse, both external and internal, with a cold spray direct from the main. Apart from the actual danger of using imperfectly sterilized bottles, which may stultify all efforts to improve the bacterial quality of the milk itself, this question must have an important bearing on keeping quality. It is thus a subsidiary aspect of the milk problem which deserves more attention than it has so far received. The need for cooling bottles before filling would of course be removed were the milk to be pasteurized in bottle, a system which in theory at least has much to be said for it. The possibility of recontamination after pasteurization is not only a frequently advanced objection to reliance on this process but a practical difficulty inherent in any system which involves the further manipulation and transfer of a sterilized product.

¹ *Chem. and Ind.*, 1943, 82, 146.

² McCance, R. A., Widdowson, E. M., and Shackleton, L. R. B., *Spec. Rep. Ser. Med. Res. Cncl.*, 1936, No. 213.

³ *British Medical Journal*, 1941, 2, 26.

¹ *J. Hyg., Camb.*, 1943, 43, 96.

² *Ibid.*, 1942, 42, 436.

CHILD CARE IN A NATIONAL HEALTH SERVICE*

BY

GEORGE F. BUCHAN, M.D., F.R.C.P., D.P.H.

Medical Officer of Health, Willesden

It is difficult to say precisely when the child welfare movement began, but we do know that it initiated with voluntary agencies. At the outset I should pay my tribute to the pioneer work for the care of children which has been carried on by the component bodies of the National Council for Maternity and Child Welfare. Many societies over a period of years have interested themselves in and developed some particular phase of child care. These agencies for a time worked in isolation, but the need for co-ordination of their activities became apparent and resulted in the establishment of the National Council, under whose auspices we meet to-day. If the pioneer work of these voluntary bodies did nothing else it stirred the public at the end of last century to a realization of two facts—that the birth rate was falling, and that the infantile mortality rate remained at a high level. Thought begat action, with the result that since the beginning of the present century progressive provision has been made for infant care, and there now exists throughout the country a vast network of child welfare centres and other and allied provision, both municipal and voluntary, for the care and nurture of the child.

All this provision has been made with the view of securing the health of the child, and great good work has been achieved—notably a fall in the infantile mortality rate in 1942 to 49, as compared with 151 in 1901. Whether it is as the result of this splendid achievement or otherwise, the people generally are demanding health not only for the child but also for themselves, and it is my privilege to put before you the essential elements of a national health service and child care within it.

Concept of a National Health Service

Primarily a national health service must be based on the conception of the maintenance of the health of every individual from the cradle to the grave, and the measure of disease within such a service must be regarded as the measure of its failure. Health includes not only bodily health but mental health. Health is dependent on many circumstances. How can you expect to rear a healthy race if fathers or mothers are themselves suffering from transmissible diseases? Can the health of any family be at a level where there is not sufficient food or clothing? Is it to be expected that people can be at the top of their form if they are living under insanitary conditions in damp and overcrowded houses? Is the smoky atmosphere of our towns conducive to healthy lungs and a bright and cheerful outlook on life? Can we separate good health from good environmental conditions—from the conditions under which we live at home, from the conditions under which we work at the office or in the factory, or the child in the school or the nursery?

The doctor in a national health service must be a real family doctor who will know and appreciate all the various factors bearing on the health of the family or any individual member of it. He not only must be able to detect and cure disease but must realize the importance of the hereditary influences, environmental conditions, and social circumstances affecting health. The doctor must indeed be, more than ever before, the counsellor and friend of the people and assume responsibility for the achievement of health, which is the primary aim of a national health service.

A comprehensive health service has many components. It includes a medical service—consisting of general practitioners, public health practitioners, consultants, and specialists, working at and from well-equipped health centres and hospitals, visiting the people in their homes, and looking after their health and welfare in the factories and their work-places. Such a service further includes the provision of the necessary auxiliary services—e.g., health visiting, nursing, midwifery, sanitary, and ambulance services. A dental service is also a necessity. It

will be appreciated that a service of this character is vast and complex and, in the opinion of many well qualified to judge, requires a Minister of Cabinet rank as its administrative head, with a central department dealing only with matters that have a bearing on health. Locally such a service must be conducted in an area of suitable size under a unified control. Providing these desiderata are secured, it seems to me that a national health service will rapidly make harmonious progress towards better health. All health work will be co-ordinated, and the best means of attacking health problems will be devised after full consultation with all concerned.

I want to see the health, medical, and ancillary services appropriately co-ordinated in an area of adequate resources. Particularly I want to see in operation a scheme whereby every general medical practitioner, every public health medical practitioner, every specialist, and every consultant throughout the whole of the country will be constantly thinking about health and working together as one gigantic team for the health of the community. I am satisfied that the health of the community as a whole will then soon show an improvement as spectacular as that achieved for the child by the child welfare movement.

A Child's Charter

With the establishment, however, of a national health service we do not want any lag in the improvement of child health, and it would appear to be necessary to state what provisions should be made for child care in such a service. Here is the Child's Charter I would formulate. It contains 12 Articles of Faith.

1. The child must be well born and free from inherited disease.
2. The child must be assured of a good environment and a happy home.
3. There must be adequate children's allowances.
4. The pregnant woman must be fully cared for medically and socially, so that the child is born well and strong.
5. Home helps and convalescent homes should be available before, during, or after confinement as necessary.
6. The mother must be enabled to devote herself to her child for a period of three years after birth.
7. The child must receive an adequate diet.
8. The child must be under regular medical supervision.
9. Nurseries should be provided in which mothers may leave their children under 3 years for, say, 3 or 4 hours at a time, while they do their housework or shopping or have rest.
10. Nursery schools should be available for children over 3 years.
11. Hostels should be provided for children whose mothers are in hospital for confinement or illness.
12. Approved foster mothers should be available for approved cases.

In connexion with child care it should always be borne in mind that the natural agencies for the care and upbringing of a child are the family and the home, and that generally they are the best and that everything should be done to preserve these links. It may be, however, that this is not possible in some cases and that a foster mother has to be substituted. If this is so, then certain conditions should be required: (a) The decision to foster out a child should not be left entirely to the parent or guardian as at present. It should be necessary for the consent of the welfare authority to be obtained. (b) Applications for placing children with foster mothers should be made by the mothers to the welfare authority, and the mothers should be required to keep in touch with the welfare authority. (c) It is essential that foster mothers should be assured of regular and sufficient payment for the proper care of the child; to this end the payments to foster mothers should be made directly by the welfare authority to the foster mothers. (d) Foster mothers should be licensed by the welfare authority after a probationary period of, say, 1 year. (e) The child-protection visitors of the welfare authority should keep foster mothers under supervision and see that a reasonable standard of living is maintained; if foster mothers are paid by the welfare authority a proper standard can be required.

These are my 12 Articles for progressive improvement in child care and health. They include medical elements, but are by no means wholly medical. I cannot insist on this too strongly, because there are many who believe that a hospital policy is a health policy. It is the duty of the doctor to

* An address given to the National Conference on Maternity and Child Welfare, London, on July 9, 1943. (Abridged for publication.)

postpone the event of death at any age. Recent discoveries and hospital provision enable considerable patching to be done, with resulting prolongation of life. But while such work is laudable and necessary it can never be the essential basis of health. We do not want patching. We do not want to be crippled and obtain spasmodic relief for longer or shorter intervals after a period of treatment. We want health. We want and earnestly desire that the child shall be well born and shall remain well. We do not want the child to whom we have given so much care to develop into a hospital-visiting adult. We desire that all members of the community shall have the same consideration for the maintenance and improvement of their health as has been given to the infant with such conspicuous success. If the national health service in the making says down health as its aim, and makes provision so that the aim can be reached easily and simply under a single direction regardless of self-interest or vested interests, then I feel sure that rapid progress towards national health will be made.

6. *Abdomens*.—Nothing has made such an advance, at least as regards early saving of lives. Sew the tears in small bowel: exteriorize ones in the large. Get a Ryle's tube down and keep suction going with a blood transfusion apparatus (with water) to do the work. Then saline glucose, intravenous. Both of these for 4-5 days. And gr. 1/6 or 1/4 of morphine 4-hourly. Never despair of an abdomen.

7. *Heads*.—Shave, dust sulphanilamide, and leave the head units, with the diathermy and sucker, to do the rest.

The handy book I carry is *Treves's Student's Handbook of Surgical Operations*. For the things that worry—anatomical points like ligating the posterior tibial, etc.—are all there!

There, dear boy, forward surgery in a nutshell—and for nothing—by one who *should* know. But I'll write again soon with real news. This is just so as you won't worry if you are called up. If you are, come this way.

A NOTE ON SURGERY IN THE EIGHTH ARMY

The note published below was written by a surgeon in the 8th Army in the closing stages of the Tunisian campaign. It was written on a letter-card to a colleague at home who, about to go into the Army as a surgeon, wanted to have first-hand information on war surgery at the Front. We have not tampered with the author's idiom.

1. *Débridement*.—All my eye! Means excision of far too much. Skin edges rarely need excision. Dead tissue only is removed, and the wound, including deep fascia if necessary, opened up enough to allow adequate drainage and to relieve tension if present. This we call "wound trimming." Clean through-and-through wounds with a bullet, unless tension be present, are left alone except for sulphonamide dusting, which is done in all. Then lay a vaseline gauze dressing on; don't make it into a plug!

2. *Amputations*.—There are no sites of election in war surgery. You save all you can, as there is invariable sepsis in forward areas, and this means subsequent loss. So it usually has to be done again, to suit the instrument maker, many months later. A thin layer of sulphanilamide vaseline gauze is put over the muscle and some of the stump, and then the flaps approximated with not more than 3 stitches. The results are excellent. Don't worry about types of flaps: save all you can.

3. *Plaster-of-Paris*.—Always split if being evacuated within a week (I speak of fresh cases), and also for evacuation a lightly padded plaster is better than an unpadded. Evacuation, especially on our long lines of communication, knocks hades out of patients in all sorts of ways. Limb swelling is one of them.

4. *Fractures*.—Use your common sense. The way a fractured femur gets to the base (apart from initial treatment—see excellent description in R.A.M.C. manual of training) is in what is called a Tobruk plaster. Skin extension, plaster-of-Paris round the leg and split, Thomas splint on top of this, with pads of wool between the leg and the irons at the knee level to steady the extension to the end of the Thomas. Then two cuffs of plaster-of-Paris, right round splint and everything, in mid-thigh and mid-leg, either padding or splitting the cuff, again to prevent circulatory disasters.

The fractured humerus is more difficult to immobilize for a long journey. Generally it is done by a thoraco-brachial plaster. This explains itself. One big point is to keep the tip of the elbow forward from rubbing on the crest of the ilium. Any fracture of os calcis or astragalus is followed by immense swelling of the foot. Pad the plaster very well. Indeed, only put the plaster on to keep the padding on!

5. *Chest Wounds*.—Haemothorax. Leave alone as regards aspiration unless the patient is dyspnoeic at rest. They travel comfortably (on sulphonamides) and can be aspirated under the best circumstances at the base.

Sucking wounds. Don't sew up but stop the sucking with a sulphonamide vaseline gauze pad kept well in position with strapping or even stitches. Conservatism is the keynote in chests.

SUPPLIES AND DISTRIBUTION OF PENICILLIN

Statement by Medical Research Council

It is now generally known in the profession, and even to some extent among the laity, that penicillin has remarkable therapeutic properties, and frequent inquiries are made about its availability. The following is a statement of the present position. In order to extend and amplify the pioneer work of Prof. Fleming, and of Prof. Florey and his colleagues at Oxford, the Medical Research Council, at the request of the Ministry of Supply, last March appointed a Committee on Clinical Trials of Penicillin, which controls the distribution of penicillin for purposes of clinical research, and is instructed to employ the present limited supplies to gain new knowledge of the curative possibilities of the drug rather than merely to repeat the therapeutic successes of which it is already known to be capable. In addition to a quantity allocated to the War Office for trial in wounds in the Army over-seas, supplies of penicillin for research into the systemic treatment of selected infections have been allocated to four centres in this country; four others are receiving, or are about to receive, smaller supplies for the study of local treatment only. It has not seemed advisable at present that these centres should be issued generally known, nor that an invitation should be made to refer suitable cases to them, because the numbers of patients which can be dealt with are so limited that this could only cause widespread disappointment.

The policy of the therapeutic trials now proceeding is to treat conditions known to be susceptible only so far as is necessary to define the minimum effective dosage, the best methods of administration, and any factors not yet studied on which success may depend, and to explore the possibilities of penicillin treatment in conditions hitherto unstudied from this point of view. Penicillin is known to have an action on many species of bacteria, some of which cause a great variety of lesions: these, together with the many forms which an infected wound may take, afford a wide field of study.

Even with the fullest co-operation of the Ministry of Supply and of the manufacturing firms, the difficulties in making penicillin on a commercial scale are still so formidable that the present output in this country is scarcely sufficient for the work in the four main research centres, and is only a minute fraction of the quantity which would be required if all cases of even a few specified infections were to be afforded treatment. Production on a greatly increased scale is being urgently undertaken both here and in the United States, but in both countries the requirements of the fighting Services are likely to absorb most of the output for some time to come, and to name a date when adequate supplies will be available for general use is at present impossible. For the reasons given above it will be appreciated that requests for supplies of penicillin for the treatment of individual patients cannot, under existing conditions, be met.

F. S. Daft and co-workers (*Publ. Hlth. Rep.*, Wash., 1942, 57, 217) report the occurrence of extensive hyaline sclerosis and calcification of blood vessels in young rats given a diet containing 1% sulphaguanidine for from 62 to 192 days. The changes so far have been observed in the small arteries of the heart, lungs, kidney, pancreas, and the intestinal submucosa.

SPEECH THERAPY

Nova et Vetera

The Association of Speech Therapists, formerly the Remedial Section of the Association of Teachers of Speech and Drama, held a conference at B.M.A. House, London, during the first week of August. The organization of speech clinics and their relation to medical, educational, and social services and the allied professions were a principal subject of discussion. An entertaining demonstration of animal language, including gramophone records of such usually dumb beasts as the Bactrian camel, was given by Dr. Ludwig Koch, who has been working at the subject with Dr. Julian Huxley. There were also two lectures by medical men. In one of these Dr. Helen Watson spoke on the value of complete relaxation as a means of overcoming many nervous and other troubles, and in the other Dr. C. Worster-Drought developed the interesting subject of congenital auditory imperception and its relation to speech defects.

Auditory Imperception

Children who suffer from auditory imperception, although able to hear sound, fail to appreciate the significance of spoken words and to store their memories with words heard. On a casual observation they may appear to be deaf, and only by special tests can their cases be differentiated from ordinary types of deafness. Some of the children are mute; others have a language of their own, unintelligible to the stranger though understood by their parents. Dr. Worster-Drought emphasized the need for a careful and detailed examination of hearing before a definite conclusion is reached in a suspected case. If the condition is regarded at once as auditory imperception it may mean that real deafness in varying degrees is neglected. Tests which depend upon the subject's repeating what he hears should not be employed; these people can often repeat the sounds they hear: the trouble is that they do not understand them. Only tests which require that the subject shall understand the meaning of the sound can be accepted. Sometimes even the ability to repeat sounds is defective; the number of syllables may be caught correctly but not the actual sound. The recognition of musical sounds varies considerably in cases of this kind; some of the subjects cannot recognize discords made by themselves on the piano. The speech of the individual suffering from auditory imperception is rarely spontaneous; it is monotonous and lacks stress and intonation: often it is a series of unrelated sounds without grammatical structure. Yet, as a rule, the mental condition of these children is normal if they have been brought up in a good environment and treated with sympathetic understanding by parents and teachers; on the other hand, if neglected they may appear imbecile from deprivation. Cases are on record in which speech has not been acquired before the age of 12. Such children may find their way into schools for the deaf, and when, sooner or later, it is discovered that they can hear they are put down as lazy and inattentive.

For a long time, said Dr. Worster-Drought, this speech defect was considered to be an independent condition; its relation to the auditory mechanism was not understood. In its severe form it is rare, but minor degrees are common. It seems to appear much more often in boys than in girls, and there is a familial factor but no evidence to show how it is transmitted. The cause, whether birth trauma or some biological variation of the nature of aphasia, can only be a matter of speculation. Treatment depends on the early recognition of the defect, and the general aim must be the "socialization" of the individual and the planning of his education so as to secure for him a normal relationship with his fellows and qualify him for occupation. Training of the articulation by sound and touch and the teaching of lip-reading in the same way as with deaf-mutes may be applied, but teaching in classes for the deaf is to be avoided.

J. Singh (*Ind. med. Gaz.*, 1942, 77, 733) records a case of diphtheria of the glans penis in a boy aged 5 years, shown by an ulcer extending from the corona to the external urinary meatus. There was no lesion in the throat. Organisms morphologically resembling diphtheria bacilli were grown from the lesion. Recovery rapidly followed administration of diphtheria antitoxin.

THE BICENTENARY OF THE BIRTH OF LAVOISIER

Antoine Laurent Lavoisier was born in Paris on August 26, 1743. The son of a rich advocate, he studied anatomy in addition to chemistry and the other sciences. While still very young he joined the famous Guettard in a mineralogical tour, and at the age of 25 he entered the *Académie*. Almost at the same time he became a member of the *Ferme*, the body of private financiers who purchased the right of collecting the national taxes. Thus began a very active administrative and business career. In 1771 he married Marie Anne Pierrette Paulze, a girl of 14, who developed into a brilliant woman. A few years later Lavoisier was appointed an inspector of gunpowder for the Government, and till 1792 he and his wife resided at the Arsenal. His guidance enabled France to maintain the large stocks of powder necessary for the revolutionary wars. But Lavoisier had other interests, including politics. He did much work for the Academy, and he served on various committees dealing among other matters with agriculture and with weights and measures—the foundation of the metric system. He was in constant touch with all the brilliant men of his age. In 1791 he was appointed Secretary to the Treasury. But as a former Farmer-General he had to suffer under the suspicions—later shown to be unfounded—which fell upon the directors of the *Ferme*. An inquiry was instituted. The evidence was weighted heavily against the Farmers-General, and in November, 1793, they were arrested. After long confinement they received the farce of a trial on May 8, 1794. They were condemned to the guillotine, and the sentence was carried out forthwith. The bodies of Lavoisier and of the twenty-seven other victims were thrown into nameless graves.

Busy though he was with other matters, Lavoisier devoted six hours daily to scientific work. Although he was responsible for investigations into the purification of water, the lighting of cities, and on geological and meteorological subjects, his fame rests on his brilliant chemical synthesis. He has no claim to be regarded as the "discoverer" of oxygen. The active principle of the air had been suspected by Lower, and more especially by Mayow in 1674, but the significance of Mayow's "spiritus nitro-aereus" had long been forgotten—swamped in the subsequent development of the phlogiston theory. The gas was prepared by Scheele in 1772 and independently by Priestley in 1774. Priestley named it "dephlogisticated air," and he measured roughly its superiority to ordinary air. Priestley also recognized that it could be used to increase the force of a fire, and he suggested its use in medicine. But it was left to Lavoisier to demonstrate the vital importance of this newly recognized gas in combustion, in respiration, and in the formation of acids. The name "oxygen"—i.e., acid-producer—is due to him, and he must be credited with the first clear conception of the significance of the gas.

Mayow a century before had postulated that his "spiritus nitro-aereus" is necessary for life, and he showed that an animal in a closed vessel dies more quickly if a lighted candle is also introduced. He suspected that the vital particles of the "spiritus" unite with food particles in the muscles. This work was forgotten, and it was Lavoisier, alone and with Laplace, who established an equation between the quantity of heat formed in animal metabolism and that in ordinary combustion. He showed that animal heat results from oxidation—in the lungs, as he thought—and with Séguin he measured the oxygen consumed and the carbon dioxide and water produced in respiration. He was thus the founder of exact investigations on metabolism, and his wife's sketches show him in his laboratory using an apparatus which must have been one of the earliest attempts at quantitative calorimetry.

As a constructive thinker on chemical matters Lavoisier was very great. He virtually destroyed the phlogiston theory; he enunciated the law of indestructibility of matter, and he was largely responsible for the introduction of the chemical nomenclature which we use to-day. His *Traité Élémentaire de Chimie*, published in 1789, made chemistry a unified science. It was to chemistry what Newton's *Principia* was to the physical

sciences. On the day after Lavoisier's death Lagrange said: "*Il ne leur a fallu qu'un moment pour faire tomber cette tête, et cent années peut-être ne suffiront pour en reproduire une semblable.*"

E. A. UNDERWOOD.

RUSSIAN SURGEONS AND RUSSIAN SURGERY

BY

R. WATSON-JONES, F.R.C.S.

Mr. Watson-Jones was one of a group of British surgeons who recently visited the U.S.S.R. under the auspices of the Medical Research Council and the British Council, and has contributed the following article at our request.—Ed., B.M.J.

It is not easy to form an immediate impression of the people of Moscow because the closing of all shops except the few which supply food, the lack of colour, lighting, decorating, and flowers, the striking disappearance of dogs, cats, and pets, so that I saw but one dog in three weeks, the wearing of shoddy clothes and footwear so that the Army might be well clad, and the limitation of amusement to an occasional seat at the ballet are the restrictions of war, and they emphasize unduly the solid, determined, plodding, almost expressionless features of men and women in the streets. Life in Russia has been hard; pleasures have been few. It is true that there is no sign of malnutrition; the rations of the worker are comparable with those in England; I searched for evidence of rickets and found none; the children are bright-eyed, healthy, and happy. But there have been privations, and the faces of the people show it; it is not always easy to know what they are thinking. Nevertheless one impression was quickly formed by the surgeons who represented England, Canada, and the United States in a recent visit to the Soviet Union. It was impossible to mistake the spirit of overwhelming hospitality with which we were received. It was impossible to misjudge the very cordial friendship which developed. From high officials of the Commissariat who received us at the airfield, to hotel staff members who apologized because they could offer no more than one hot bath a week; from generals who thought of our comfort during arduous journeys over shelled roads and demolished bridges, to soldiers from Stalingrad who insisted on our climbing and entering the mightiest tanks; from hospital superintendents and commanding officers whose invitation to a cup of tea implied a heavily laden table and a two-hour banquet, to attendants in the Park of Rest and Culture who were satisfied only when we shared the terrors of a dummy aircraft which simultaneously rolled and looped; from crowds at the Exhibition of Captured War Material whose smiling comments included the words "Angleeskee" and "Americanskee," to the handful of determined survivors remaining from the half-million inhabitants of demolished Vyasma; from all people and all professions we received the greatest kindness and the most convincing evidence of friendship and good will.

We formed a second, very vivid impression on seeing the astonishing capacity of Russian women for hard work. Men employed in repairing roads and relaying tram tracks worked with an intensity which reminded us of home; but the women who shared their strenuous task paused less often and were more consistent. Girls of 18 and 19 drive the trams and scramble on to the roofs to repair the trolley arm. Traffic is controlled by sturdy women police armed with a black-and-white striped truncheon and a pistol at the hip. Hundreds of miles of military roads are guarded by women soldiers with Tommy guns. Women doctors, women surgeons, and nurses work in the front line; many of them wear the chevrons of multiple wounds. The Inspector-General of Medical Services of the Red Army is a woman.

Front-line Hospitals

Not only do nurses attend the wounded, but in the intervals of battle they build the hospitals. One of the front-line hospitals we visited is built in territory which until last March was occupied by the enemy; within four months a 2,000-bed hospital has been almost completed by nurses who are obviously

skilled in the use of the saw, the plane, and the spirit level. Many of these hospitals are buried six feet deep and covered with a thin layer of soil and turf. They are constructed wholly of wood from the forests in which they are perfectly camouflaged. Trees standing within an inch or two of the walls are left undisturbed, and wards may even be built round living trees which grow out of the roof, only branches within the building being stripped.

The reception-sorting ward is completely free of all fixtures and equipped only with collapsible trestles on which stretchers are laid. Washing and shaving is recognized as an important first-aid measure, and part of the ward is devoted to baths, or rather to positions near the wall where hot water is sprayed over the wounded man as he lies on the stretcher. After the patient has been examined he is marked with a coloured label—red for urgent surgery, blue for redressing, white for evacuation, each numbered 1, 2, or 3 in accordance with priority, and sent to one of the special wards—orthopaedic, neurosurgical, thoraco-abdominal, lightly wounded, etc. Each ward is equipped with its own x-ray, wound-dressing, and operating suite, and treatment by skilled specialists is instituted within 10 or 20 miles of the front line and within 24 to 48 hours of wounding. The provision of every ward with theatre and x-ray equipment may seem wasteful and extravagant; but it is to be recognized that each is a 200-bed ward, the equivalent of a small hospital which empties and refills every third or fourth day as patients are evacuated to the rear, and such a flow of casualties is more than enough to saturate one set of theatre and x-ray equipment. This concentration of 200 wounded to a single ward is possible because patients are nursed on stretchers in tiers of two or even three, laid on rods which are suspended from the upright supporting posts of the roof. The rods are easily turned back so that in periods of less intense activity only the middle bunks, or the middle and lower bunks, need be used, and sometimes the whole space may be cleared.

Such emergency hospital construction, with its emphasis on x-ray, plaster room, and operating theatre facilities rather than on ward design, was most impressive, particularly having regard to the speed of building which it permits, the conservation of space, the adaptability to a varying flow of casualties, the economy of transport of patients before and after operation, and the segregation and specialization which are possible almost at the line of battle. The principle of segregation is carried beyond the specialist wards of sorting-evacuating hospitals to specialist hospitals further behind the line of two to four thousand beds each. So great has been the flow of casualties that it has even been practicable to devote 2,000-bed hospitals to gunshot fractures of the thigh, to penetrating wounds of the hip-joint, and to other special injuries.

Closed-plaster Technique

The closed-plaster technique is used for all major wounds, compound fractures, and joint injuries. Prof. Yudin claims that in the surgery of war this was first practised over ninety years ago by the famous Russian surgeon Pirogof.

"After the resection had been made, instead of amputation the limbs are put in plaster-of-Paris casts . . . but the main thing is that not all surgeons know how to apply a good plaster cast, the closed one . . . that is why I justified myself for applying closed and windowed plasters to every field knee wound. . . . I was surprised with the unacquaintance of the Italian and French surgeons with my method during the war of 1859. Neither the Frenchmen nor the Italians tried to apply the plaster. The worse it is for them."

Yudin teaches that after wound excision no tube or drain should be used, and no gauze pack or other "foreign body" should be inserted; an unpadded plaster cast is applied directly over the wound. I was interested to learn of this departure from the practice to which we are accustomed in this country, because I have always been impatient of discussion on the relative merits of vaseline gauze, plain gauze, and other forms of "pack." It is clear that in comparison with the principles of wound excision, immobilization, and freedom from repeated dressing, these are unimportant details of individual technique. But there is one essential difference of principle in the methods which are practised in Russia. "A large excision of all injured and all contused tissues" is recommended no matter how many

hours or days have elapsed since wounding and "independently of the presence and degree of infection." In England we believe that free excision is indicated only during the first 12 or possibly 24 hours, and that after that time wide dissection is liable to disseminate infection; we think that the correct treatment in late cases is incision and drainage rather than excision and drainage. When I submitted this contrary view Yudin maintained with all the dynamic force of which he is capable that no matter how acute and widespread the infection "simple incision and tamponade with gauze, or any kind of antiseptic, or vaseline by Winnett Orr, cannot replace the necessary excision of all damaged tissues and, still more important, the removal of foreign bodies. Such incisions are not a surgical aid, but only a primitive temporary measure in the most hopeless circumstances owing to enormous quantity of work. Such patients should be regarded as having undergone no surgical treatment at all."

Personally I am still unconvinced, but it is clear that further study is necessary. Large series of cases, comparable with Yudin's, with a similar proportion of late, "malignant septic," and desperately ill patients, must be examined. The mortality must be compared with Yudin's figures (3 to 30 days 4.1%; after 30 days 1.3%). The amputation rate must also be compared (6.5% immediate amputations for vascular damage and gangrene, and 5.5% late amputations for general septic condition).

Joint Wounds

A similar principle is adopted by many surgeons in the treatment of joint wounds; resection of the joint is preferred to arthrotomy in both early and late cases. In the hip-joint the head and neck of the femur is removed; in the knee-joint the resected bone varies from a thin sliver to a large section of the femoral condyles, but always including the joint capsule, without which drainage is considered inadequate. Sulphonamides are used and the limb is immobilized in plaster. On this subject there is some divergence of opinion, and arthrotomy of acutely infected joints has been advocated more recently in preference to resection. This coincides with our view. One of the striking features of the surgery of this war has been the excellence of function and the free mobility which are so often regained after the treatment of penetrating joint injuries by early excision of the wound (but not resection of the joint) and immobilization in plaster; we believe that resection at the height of acute infection is dangerous; and we think that excision of the head and neck of the femur leaves an unstable joint which is far less perfect in its function than a firmly ankylosed one.

Cerebral Surgery

Surgeons in this country are already familiar with Burdenko's pioneer work in neurosurgery, with Proper Graschenko's clinical investigation into gas-gangrene infection of the brain, and with Lena Stern's physiological research on the blood-brain barrier and intracisternal injection. The main principles adopted in the treatment of cranio-cerebral wounds are: (1) serious cases are not to be operated upon until shock is controlled; (2) operation is to be deferred until skilled surgeons and equipment are available; expert investigation and operation two or three days after wounding is better than inexperienced operations performed immediately; (3) haemorrhage and a rise of intracranial pressure are the only indications for operation on the spot; (4) the longest safe period of deferment is three days; after that time the operative mortality rises steeply; (5) specialized hospitals with neurosurgeon, neurologist, neuropathologist, ophthalmologist, oto-rhinologist, and radiologist must therefore be available within three days' travel of the battle line, and patients should usually travel by air at heights not greater than 5,000 metres; (6) patients with cranio-cerebral wounds stand evacuation better before than after operation; when operation has been performed the wounded man must stay where he is for fifteen to twenty days; (7) in the diagnosis and location of cerebral abscess contrast media are used, and excision with removal of the capsule is considered the treatment of choice.

Blood Transfusion

The blood-donor system of Moscow is worthy of emulation throughout the world. In one hospital we saw 300 donors bled in a single day; in another there were no fewer than 600.

Many thousand pints of plasma are also collected from filial institutes in other cities. Donors are assembled in different rooms in accordance with their blood groups, which have already been tested. They are given a special fat-free meal, undressed and clad in sterile theatre clothing, including caps, masks, and cloth boots. For each blood group there is a separate operating theatre. A single woman surgeon with two nursing sisters and five technical assistants controls six operating tables simultaneously. The work is done with skill and precision. It is a model of careful organization, of the highest possible standard of theatre asepsis, and of repeated check and control of both contamination and accurate blood grouping. Dried plasma is put up in small ampoules, connected by means of a rubber tube and clip to a larger ampoule of sterile distilled water, ready for immediate mixing and administration to the patient. Blood is flown to the front in thermostatic boxes, lined with glass wool and cork, with a central compartment for ice or warm water according to the season. At the regimental aid posts and field mobile hospitals the blood is stored in deep pits; the temperature is tested thrice daily, and in the summer months it is controlled by ice blocks which were stored underground after cutting in winter.

Other Fields of Surgery

So many aspects of surgery were studied that selection is difficult. One might write of ultrasonic emulsification of therapeutic agents, of intracarotid injection of sulphonamides, of intracisternal injection of antitetanic serum, of cap splints for maxillary fractures, of gap fractures of long bones, of acrylic resin for dentures (which are delivered many miles behind enemy lines), of plastic reconstruction of the penis by tube grafts and cartilage inlays producing an organ capable of both urination and erection, of the treatment of oesophageal stricture by jejunal transplants, or of the excellent system of medical education by which 25,000 doctors a year are trained. The astonishing fact is that so high a standard of surgery has been achieved in a country where the full development is so young and where contacts with the surgery of other countries has been so limited.

We believe that Soviet surgeons would gain from visits to other countries; we believe that in this way their technique would be improved; but we believe with equal conviction that we gained from our visit to them. We did not approve of all we saw; we disagreed on the treatment of frost-bite; we were unconvinced of the merit of muds, balsams, and wood distillates; we thought that our rehabilitation was better than theirs. But on the other hand much of their work is better than ours: their specialization is excellent; their training of medical students is more thorough; their organization of surgical services is superb. Each of us can learn from the other. In the words of Academician Burdenko: "Our friendship must be much tighter."

RELIEF OF DISTRESS IN THE PROFESSIONS

The Professional Classes Aid Council was a creation of the last war. Soon after that war began it was appreciated how hardly hit were men and women in the professions—in some professions more than others—for whose work the demand had suddenly collapsed. But, as may easily happen again, post-war conditions impoverished many people of the professional classes to an even greater extent than those of war itself, and the Council was reconstituted in 1921 and has carried on its excellent work until the present day. It is a very representative body, its council of over eighty members comprising representatives of nearly all professional bodies with a benevolent side to their activities. The British Medical Association is represented by Dr. Henry Robinson. Last year the Council spent £12,417 on relief, but for the third year in succession there is a debit balance—this time of £1,710. A feature of the work of the Council is the education of children whose parents have suffered misfortune—in some cases children whose parents have been interned in enemy-occupied countries. The number of children assisted last year was 124, and the grants cover school fees, outfits, and maintenance. A very useful almoner work is being sympathetically done; while immediate pecuniary help is given where necessary, the main purpose is to set professional men and women on their feet again and to see them through their difficulties. The class of people it sets out to help are those most liable to be overlooked by ordinary charity, as many or most of them are diffident about calling attention to their plight. The address is 20, Campden Hill Square, W.3.

Correspondence

Foundations of a Comprehensive Health Service

SIR,—I was interested in the letter of Dr. H. C. Killingback (*Supplement*, Aug. 14, p. 24). The need for a considerable accession to the medical profession for the running of a comprehensive medical service is, I think, nowhere in doubt, although there may be different opinions as to its magnitude. In a paper I submitted to the Medical Planning Commission I set out the facts and figures which enabled me to come to the conclusion that the general practitioner service of a comprehensive health service could be begun on the basis that every general practitioner working a whole-time scheme could cope with 2,000 persons, and would carry out all the work now undertaken by general practitioners and the non-hospital medical staffs of local authorities. Such work could be accomplished on the basis of a 40-hour week with, in addition, the time involved in such night duties as might arise in connexion with the care of 2,000 persons. Four weeks' holiday per annum was also allotted to each practitioner in such a service.

It was, however, indicated that this was only a beginning, and that if the work were to be extended to include such services as suggested in para. 4 of Dr. Killingback's letter, the number of persons on a doctor's list would have to be reduced below 2,000. As the population of Great Britain in 1938 was some 46,000,000 and as general practitioners and local authority doctors are computed by Dr. Killingback to number 25,000, it will be seen that there is in any case a sufficient number of general practitioners to make a beginning.

I am unaware that any responsible body advocates the immediate adoption of a whole-time salaried service. The Society of Medical Officers of Health does, in fact, support the policy of a whole-time salaried service, but they do not suggest its immediate adoption. They realize that a comprehensive health service, whether on the basis of whole-time or part-time service, requires to be established on a sound foundation, and that there must be something in the nature of a transition period during which foundations may be laid and various methods of medical service tried out. In the report of the society dated Nov. 20, 1942, they clearly indicated the spade work which was necessary in order that a comprehensive health service might ultimately be established. The order in which this work should be carried out was this:

1. That the Government put its own house in order in the first place so that a Health Ministry be established to include all the health functions of Government Departments and with health as its sole function. This could be done quickly and during the war.
 2. That local government areas of sufficient size and with adequate resources be established, in each of which the administration of a comprehensive health service could be satisfactorily carried out. This, again, could be done by the Government without undue delay and without unduly impeding the war effort.
 3. That following upon 1 and 2 powers should be given to the new local government authorities to plan and develop such a comprehensive health service as might be considered best for their respective areas after consultation with the local medical profession.
- In coming to this conclusion the society, while supporting a whole-time salaried service, nevertheless realized that all reasonable methods of medical practice should be tried out before any final conclusion was reached. Such experimentation will take time, and would be almost impossible to conduct it during the war.

In the course of the discussions of the Medical Planning Commission and Representative Committee and other bodies nothing has appalled me more than the idea, often expressed, that a comprehensive health service must be established at once and that time was "of the essence of the contract." After all, even in these strenuous days of war, the public does receive medical attention, if not so promptly as before, and we are told on the highest authority that the national health was never better. Why, then, all this hurry? In any case immediate steps towards a comprehensive health service can be taken if the Government will play its part and proceed to lay the foundations by establishing a real Ministry of Health and suitable areas for local government. Following upon these necessary preliminary steps the medical profession can

be relied upon faithfully to perform its task of working with all concerned so that the public may have the best health and medical services within its power to give.—I am, etc.,

Willesden.

GEORGE F. BUCHAN,
Medical Officer of Health.

A Prisoner of War on State Medical Service

SIR,—After nearly 3 years of total isolation from British medical literature in this little outpost contact has been re-established. Several copies of the *Journal* have lately trickled through. We were in touch with Continental progress through subscription to a local medical journal, but events at home depended on private correspondents. From these we hear rumours of a projected State Medical Service, almost unbelievable since our informants seemed to think it already *fait accompli*. How justified was our scepticism! Surely it was easier to obtain agreement among mediaeval theologians than among modern doctors. The B.M.A. seems anxious to have the opinions of as many doctors as possible. We think that the only way to get a State service in our time would be to ask the opinions of as few as possible, and preferably only one to ensure unanimity. In either case the number of malcontents would be the same.

And why cling to the "free choice of doctor" myth? All our patients for 3 years have had no choice at all, and although we have treated patients of five nationalities—a feat involving no small linguistic difficulty (lay interpreters are a menace)—the results have been no worse than at home, and the number of dissatisfied patients negligible. We hasten to add that the expression of dissatisfaction by the patient entails no material disadvantage to him here. Anyway, how often does the hospital patient choose his house officer or his "honorary"? Meanwhile we follow with interest and good will your efforts and wish you success "in our time."—I am, etc.,

Stalag VB, Germany.

STANLEY GILDER,
Capt., R.A.M.C.

General Principles for Future Medical Services

SIR,—To anyone who has at heart the desire to see the profession retain its freedom and respect as an independent body the principles which the Council of the B.M.A. has adopted must come as a bitter disappointment. In nearly every other word there is the assumption that our battle for freedom has already been lost—if, indeed, it has been fought—and that the peace-term negotiations will only determine which body is to take over control of us.

Although the principles do not at present admit of our being converted into a salaried branch of central or local government service, they clearly lay down that future changes must be preceded by the setting up of a "central administrative structure by the State for the central administration of the medical services in the future." This means control by the State direct or control by the State via an intermediary body such as the B.M.A. The continuation of the personal relationship between patient and doctor and right of choice is only the sugar coating to the pill which is coming to the profession in the shape of loss of freedom and control by central authority. Although we may not negotiate away our complete independence now, we shall part with three-quarters of it and so prejudice heavily the position of the next medical generation. Our sons, born into partial captivity, will be an easy prey to a future Ministry of Health, who will complete the second stage of the operation, and, with the loudest protestations of good faith, secure final and absolute control over what was once a respected profession.

If anyone has doubt about the control which is now in sight let him reread the principles adopted by the Council of the B.M.A., paying particular attention to Recommendations A4, D (first part), E (first part), F, I, K, and L, and Immediate Proposal I. In the whole lamentable document there is not a hint that the Representative Committee wants to put up a fight to retain our status as an independent, learned, and liberal body. The discussions have been conducted in the greatest secrecy, and even now they are completed no word may be hinted at by our Representatives until the White Paper has been published. It follows that from this the Government will benefit, not us.

In the future Division meetings members will have the opportunity either to express their views and insist on freedom

or to give the negotiating body permission to hand over our independence and place us under central control. Let us make up our minds that there will be no more voting on prepared resolutions based on what the Representative Body *believes* to be the opinion of the profession. Let there be more statement of fact about our opinions, and due consideration given to the fact that even yet it is not too late for the R.B. to take a firm line with the Ministry. Our freedom can be preserved at any rate until the doctors in the Services come home and have the opportunity of assisting in the reconstitution of the medical services, if they then think that it is necessary.

Above all, it is necessary for every doctor to do his duty by asking himself three questions before voting for a scheme which will lead to central control: (1) Is it going to do the public any good? (2) Is he allowing himself to be used as a pawn in a game of political chess? (3) Is he voting away a birthright of the next medical generation? At the same time let him bear in mind that half the world is locked in a bloody struggle for freedom and the right to live an independent existence. Also, his many colleagues on active service who are engaged in this struggle will feel little gratitude to him for voting away their freedom in exchange for a system of central control, the key positions in which will have been earmarked for highly paid officials promoted in their absence.—I am, etc.,

St. Ives.

E. C. ATKINSON.

National Health Policy

SIR,—The B.M.A. rightly states that the provision of adequate food, good housing, good working conditions, ample recreational facilities, and a widespread health education are more important for the health of the nation than a "reshuffling" of the medical services. The B.M.A. then proceeds to argue that the Government should first provide all the social and environmental conditions for good health, and only, after this would have the right to interfere in the organization of the medical services. This argument is, in reality, extremely hollow, apart from being ill-becoming to our profession, for who will listen to us if we refuse to put our own house in order?

It is a complete figment of the imagination to think that any democratic Government can carry out important social and economic reforms without the active encouragement and support of the people, organized in political parties, trade unions, professional associations, etc., and without having to sustain a severe struggle against powerful interests which oppose those reforms. Shall not the medical profession lend the maximum support to the forces fighting for the achievement of those environmental conditions which make for better health? It is not enough that leaders of the profession and public figures as Prof. Ryle, Lord Horder, or Sir Farquhar Buzzard should intermittently write letters to the Press, give lectures, or speak in Parliament about health matters and the importance of social medicine. The task is so big that it requires the joint efforts of the whole profession, and requires also that we should educate ourselves. This can be done only if there is continuous free interplay between the preventive and curative services, and between the medical and the other allied health services—that is to say, we need a national health service based on the health-centres and the hospitals at the earliest possible moment. It would indeed be a melancholy and defeatist policy to wait for the advent of a new generation of medical practitioners educated by the medical schools in social medicine. This new generation of practitioners would also find that the conditions of practice from isolated private surgeries would frustrate and stultify all their aspirations and knowledge.

The B.M.A. and Dr. Geoffrey Bourne wish to enlarge the already regrettable gap between scientists and politicians. We should, instead, work to bridge that gap, so as to bring the voice of science nearer to the people and in the counsel of their political leaders. If we ally ourselves to the democratic forces in the nation we need have little fear that we shall not be able to maintain, in an organized health service, our democratic traditions, scientific freedom, and a decent standard of living. Proof that this statement is not based on pious aspirations only is given by the recent introduction by the

L.C.C., which controls the largest group of hospitals in the world, of enlightened measures that will meet the most important criticisms the profession justly raised against the hospital services of local authorities. The world is moving on, and with it local authorities.

The reorganization of the medical and allied health services thus forms an integral part of the larger aspect of a national health policy, which, of course, must include adequate housing, nutrition, recreation, and education.—We are, etc.,

Queen Mary's Hospital, Sidcup.

C. K. VARTAN.
E. MONTUSCHI.

Fact and Fancy in Poliomyelitis

SIR.—I would like to congratulate you upon the masterly leading article in the *Journal* of July 31. There is little to add to your critical review of the Kenny "concept." Nevertheless I would like to remark upon the view of the Kenny enthusiasts that there is something strikingly new in Miss Kenny's methods of treatment by meticulous nursing care, freedom from splints, and hot packs. You have rightly stressed the weight of authoritative opinion in the United States upon the question of infantile paralysis, which has contributed so importantly to our knowledge. In that regard, I would like to draw attention to a classical paper on poliomyelitis written by Peabody, Draper, and Dochez in 1912 (Monograph No. 4, Rockefeller Institute, New York, 1912). May I quote from their section on treatment:

"During the acute stage absolute rest in bed is, of course, a necessity." "The most prominent indication for treatment is usually pain . . . this necessitates the utmost gentleness and care in moving or turning the child." The psychological approach is emphasized. The weight of bed-clothes must be removed. In some cases "a light well-padded splint seems to steady the limb." "In general the most effective simple agent for overcoming pain seems to be heat. Wrapping the limb in cotton-wool, blankets, hot packs, and hot-water bottles gives great comfort." "When the acute symptoms pass, more active treatment directed towards the prevention of deformities and the restoration of muscular function should be instituted." "As soon after the first fortnight as the child can bear any movement or handling without pain, massage should be begun." "Contractures begin to develop early in poliomyelitis, and it is essential that they should be guarded against from the onset."

Apart from cradles, "sandbags may be used to support a limb"; or "light apparatus, well padded" and "loosely applied so that there is no obstruction to the circulation." "The danger of apparatus is that it will keep the limb too quiet and prevent any attempt to use weakened muscles at precisely the period in which both active and passive motions are most to be encouraged. To obviate this it has been our custom to have the apparatus applied at night only, and to leave the limbs free to move during the daytime." "We have begun massage as soon as pain would allow and given it twice daily. Its chief usefulness probably consists in assisting the circulation by replacing the effect of lost muscular activity." "Heat similarly exerts a good influence on the circulation. With massage passive motion is used, the rhythmic performance of certain movements stimulating the patient to try to attempt them himself. Of all the methods, however, by far the most valuable one is active movement, or training." The psychological ingenuity required to achieve this is discussed in brief. (The italics in the above quotations are mine.)

Those of Miss Kenny's medical associates who wish to enunciate a new concept of the pathology in muscle should read another excellent article from the United States—namely, that dealing with the changes in denervated muscle by Dr. Sarah S. Tower (*Physiol. Rev.*, 1939, 19, 1).—I am, etc.,

Exeter.

NORMAN CAPENER.

Ariboflavinosis Syndrome

SIR.—I read your leader on the ariboflavinosis syndrome (July 24, p. 110) with more than passing interest, for I have done a good deal of research into the tropical syndrome of retrobulbar neuritis with sore tongue, mouth, scrotum, etc., and was the first to describe a retrobulbar neuritis. (You refer to Métiévier as "she." May I correct you? Métiévier is a man. I knew him well as a fellow-student at Bart's, and also we have exchanged reprints.)

Your article is obviously well timed and necessary. As one interested in tropical deficiency states one has noticed too ready

an acceptance of a new biochemically discovered factor being used therapeutically, and too sweeping claims made for its success in dealing with a syndrome. My own experience in this syndrome up to 1938 (it included nicotinic acid, and mine was actually the first report to show the relative failure of its therapeutic use in this condition: see *J. trop. Med. Hyg.*, April 15, 1939) was that it was very simple to demonstrate that marmite cured the frankly visible signs on mouth, scrotum, etc., but it was a much longer task to include the whole curative effect on the eyes as well. It took some six months' closest observation, as against almost days in the other case. An end-result to include the whole syndrome was only possible over a comparatively long period. With riboflavin therapy some reports appear to be too early and lacked completeness. It is clear that such reports have indeed gone for the more visible signs only, and, therefore, part of the syndrome, not the whole. Again, there is much conflicting evidence as to exactly how much the tongue and scrotum do respond to riboflavin, and this is where I feel your article is so timely.

My particular reason for so welcoming your article is the danger, especially in the Tropics, of claiming an all-too-simple solution or explanation, and with that an apparent simple solution of the important food problems at issue. For the syndrome is not only excessively common but may be very severe. It seems there must be more than one factor involved, and a lot of misunderstanding can be created by over-simplifying the cause, particularly if the whole weight of proof is manifestly lacking.

I feel that a great deal of interest attaches to the possible part that poor-grade high-excess carbohydrate diet may play in production. This is not an original claim, but as early as 1930 I drew attention to "gari," a processed manioc derivative, in its constant place in the dietary in affected people in Nigeria. More recent information has given me cause to think that rice is equally likely to play such a part in other countries where it is a staple, and I have published some of my reasons (*J. trop. Med. Hyg.*, Sept. 1, 1942) to that effect. In that article I did not care to say—for reasons which might raise controversial feelings—that, with the exception of Stannus, nearly all the better known and accepted authorities on research had up till 1936, or later, claimed that this sore-tongue syndrome was due to vitamin A deficiency. So persistent and compelling was that influence that the League of Nations Report on Nutrition (1937) insisted this was so. The effect was a wholesale deviation to fat preventive foodstuffs in the rice-eating countries. And yet this syndrome is common to almost every rice-eating country: Malaya, India, Ceylon, China, West Indies, Sierra Leone. It is equally noticeable, again, that visual symptoms are now being found there which seemed to be completely overlooked before Sydenstricker's work. I see no reason why rice should merely hold the field for one particular vitamin B deficiency disease—namely, beriberi—and have no part in the production of other B-deficiency states. Food planning for the future will be of little value if it includes in poor areas a wholesale increase of rice or other staple foods poor in B vitamins.

I should like to end my letter by saying how deeply impressed I have always been with Stannus's work; how little recognized it has been. I think it was in 1940 that he advanced an interesting theory of the possible biochemical causes of pellagra, and *inter alia* he produced the idea that sugars and starches in excess could so disturb metabolism. It seems that there is much back this view, especially where there are no compensating factors in the rest of the diet, or rather insufficient compensating factors.—I am, etc.,

Blackpool.

D. FITZGERALD MOORE.

Specific Gravity of Cerebrospinal Fluid

SIR.—All those who are interested in spinal anaesthesia will, I am sure, feel grateful to Mr. W. Etherington-Wilson (Aug. 7, p. 165) for having investigated the specific gravity of normal cerebrospinal fluid with such admirable thoroughness. There is no doubt that many of the statements which appear in some of the most reputable writings on the subject have been copied from book to book with no attempt to confirm them by personal observation. This criticism, however, cannot be

directed to an article ("Precision in Spinal Anaesthesia," *Lancet*, July 30, 1938) in which I ventured to offer a friendly criticism of the Wilson method on the basis of the variability of specific gravity of the cerebrospinal fluid, although acknowledging that in practice the method had proved its worth.

The variations which I then mentioned—from 1.004 to 1.01—were observed in a very careful, although small, series of investigations which were undertaken, in conjunction with late Dr. Howard Jones, as far back as 1930. The expert who estimated the specific gravity for us used the most accurate method possible—namely, he used the specific gravity bottle. He informed us that the bead method was inaccurate when applied to fluids of this description, so that, although weighing method required not less than 10 c.cm. of fluid, we were able to find a small series of cases in which the withdrawal of this quantity of fluid as a preliminary to anaesthesia was thought to have no ill effect. The temperatures were, of course, carefully recorded and taken into account before arriving at the final results.

Recent inquiries among physicist friends have confirmed the inaccuracy of the bead method, for reasons which need not be entered into here. I must confess to being rather surprised that our estimations should give such variable results, since the chemical composition of normal cerebrospinal fluid is known to be remarkably constant. However, there was getting away from the observations. And so, despite the excellence of Mr. Etherington-Wilson's work, I feel that the problem cannot be regarded as finally solved.

Fluids injected into the spinal theca are subjected to a complexity of physical forces that it is unwise to rely upon theoretical reasoning in deducing what will happen, and so both the Wilson method and the one which I here describe have now been administered successfully in some thousands of cases; they must both be regarded as reasonably satisfactory. In both emphasis is laid on gravitational control, but we should not overlook the displacement factor, which probably determines the extent and in some degree the duration of anaesthesia, while the gravitational factor controls the precise localization of the anaesthetic zone.—I am, etc.,

London, W.I.

NORMAN C. LAKE

Globin Insulin

SIR.—There are two points I must mention in reply to Dr. J. Trevan's letter (Aug. 14, p. 212).

1. The following are the figures sent me by Wellcome Laboratories of a comparison (May, 1942) between globin-zinc insulin and protamine-zinc-insulin, expressed in the same way as the later results on p. 212:

Hours after Injection:	2	4	6	8	10	12
Blood sugar:						
G.Z.I.	50	66	79	81	87	90
P.Z.I.	54	63	72	77	89.5	82

This shows identical action, and I wonder why the results on p. 212 are different and which are right. I must also excuse myself for wondering if the small blood-sugar differences, p. 212 (at most 12 mg.) show a difference of practical significance in the action of these two insulins.

2. Dr. Trevan is not right in thinking my patient's reaction to soluble insulin abnormal or unusual. It is the exception and not the rule, to find any marked fall in the high fast blood sugar within 2 hours of soluble insulin in severe diabetes and the maximum fall after 30 to 40 units is between 8 and 12 hours (see *Diabetic Life*, p. 224), though this is usually obscured in routine treatment by the carbohydrate given at lunch.—I am, etc.,

London, W.I.

R. D. LAWRENCE

Mastoiditis and D. and V. in Infants

SIR.—May I express my agreement with Dr. P. W. Leath (Aug. 7, p. 168) that diarrhoea and vomiting of infants may be attributed to over-activity of the parasympathetic nervous system in relation to the gastro-intestinal tract. This, however,

not necessarily due to seventh and ninth nerve stimulation in mastoiditis. The hypersecretion and hypermotility of the t which give the diarrhoea of infants may arise in the bowel elf from products of protein decomposition stimulating the gal branches concerned to abnormal reflex activity. Furthermore, we may attribute the mortality of such cases to a spread this nervous disorder where there is no evidence of broncho-pneumonia or other localized inflammation sufficient to cause ath.

I submit that the majority of deaths associated with infantile arthra and vomiting are due to a condition of shock, in rich an overwhelming predominance of cholinergic nervous tivity produces the typical pallor, cold clammy skin, rapid ak pulse, shallow respiration, and moribund state. The eed with which this condition of shock may develop, in some ses even before there is sufficient diarrhoea and vomiting to use an appreciable loss of fluid from the body, suggests that e infection produces death mainly by affecting the central rous system and thereby the gastro-intestinal and circulatory stems.

From this point of view, the haemoconcentration typical of fantile diarrhoea and vomiting at its worst is due to the creased capillary permeability of shock, as well as to the tual loss of fluid from the body. The oedema of various rgans so often found post mortem in fatal cases of diarrhoea nd vomiting supports this view. Apparently the relatively nstable equilibrium of an infant's bodily processes is especilly susceptible to shock-producing agents whatever their ture and wherever they act.—I am, etc.,

Cambridge.

R. L. WORRALL.

SIR.—Mr. P. W. Leathart's paper on mastoiditis being a ossible cause of fatal diarrhoea and vomiting in infancy ug. 7, p. 168) restates a problem of considerable importance. s he remarks, the post-mortem finding of bilateral purulent mastoiditis in such cases is common and is well known to aediatricians. The possibility of such infection being gravita-onal is supported by the simple experiment of placing owered charcoal in the nares of infants moribund from ehydration following diarrhoea and vomiting and the recovery f charcoal from the middle ear at necropsy. Mr. Leathart's ypothesis would have been considerably stronger had he roduced statistical proof of mastoiditis prior to or soon after ne onset of diarrhoea and vomiting, and it is to be hoped e will at some future date produce such evidence. In our resent state of ignorance the statement that more often than ot no causal organism is discovered is of no value (cf. ulcerative colitis; which has not yet been associated with any causal rganism).

Mr. Leathart's condemnation of feeding infants in sickness nd health in the supine position should find universal support rom paediatricians. The question he raises is of such importance in infantile mortality that it might well engage the mmediate attention of the M.R.C.—I am, etc.,

London, W.1.

BRUCE WILLIAMSON.

SIR.—I was interested in Mr. P. W. Leathart's article on iarrhoea and vomiting in infants (Aug. 7, p. 168), and should ke to add my observations.

In a series of 63 cases of infants suffering from so-called gastro-enteritis in a large L.C.C. hospital during 1936 there ere 12 deaths. Post-mortem examinations were carried out in 8 of these, and in every case a petrositis was present; the nastoids were not always involved. In one other fatal case a double mastoid operation had been performed and pus was present; Vomiting was not a prominent feature in this series, and the degree of dehydration was very variable. The ears ere examined in all cases, but generally no abnormality was detected and the usual physical signs of otitis media vere absent.

This frequent association of otitis media and gastro-enteritis is now well recognized in L.C.C. fever hospitals, where the ear, nose, and throat surgeon is being increasingly consulted.—I am, etc.,

London, W.5.

EMILY L. SIMON.

The Government's Milk Policy

SIR.—While generally welcoming the Government's milk policy outlined in the recent White Paper, I was, like the writer of your leader (Aug. 7, p. 173), disappointed with certain proposals, and particularly with those concerning accredited milk. What possible justification is there for excluding accredited milk from a compulsory heat treatment Order? Accredited milk may perhaps be "cleaner" than ordinary milk, but is it any safer? I would submit that accredited milk is almost as likely to contain tubercle bacilli as ordinary milk, and therefore like all such potentially dangerous milk should be subjected to adequate heat treatment before consumption. It would be a real advantage and not asking too much if all milk had to conform to the present accredited standard before pasteurization. The newly introduced resazurin test sets a very low standard.

I was also concerned with the proposal to give equal recognition to all forms of heat treatment provided that the treated milk complies with the phosphatase test and a prescribed methylene-blue test. Incidentally, it is to be hoped that the latter will be of a considerably higher standard than the present bacterial count test for pasteurized milk. But surely the process of pasteurization, which has been proved beyond reasonable doubt to make milk safe without altering its nutritional qualities, should be preferred to sterilization or any other form of heat treatment. Milk, which is such an important article of diet, should first be safe to drink, and, secondly, should be as nutritious as possible. Pasteurization will achieve these two aims, but sterilization will satisfy only the first requirement. Why, therefore, give equal encouragement to both processes?

I realize that for some time there will be an acute shortage of dairy plant, and that the immediate concern is to make all milk safe, and therefore there is some justification for including sterilization of milk in a short-term policy. But I would strongly suggest that a time limit of, say, three or five years should be included in the heat treatment Order to the effect that at the end of this period the process of pasteurization would be the only method of heat treatment recognized. If this suggestion could be included, then the welcome expansion in the heat treatment of milk will be directed towards pasteurization rather than sterilization. If the proposals are left as they are, then I feel that the opposite may be the case, as there is a real danger that sterilized milk, because of its better keeping qualities, may become more popular than pasteurized milk. Such a position has already been reached in this city, where more than half of the heat-treated milk is sterilized.—I am, etc.,

J. F. WARIN.
Senior Asst. M.O.H.

Birmingham.

SIR.—May I refer to the final paragraph of your leader (Aug. 7, p. 173). The farmers do not dictate the health policy of the country. This is in the hands of the Government, who can give the public the enlightening facts if it wishes, but it dare not until it is prepared to effect the necessary remedies. It is quite unfair to pit the farmers against the community, endeavouring to place on them an impossible financial burden.

Under present conditions T.T. herds exist only because there are so many non-T.T. herds which give an outlet for "rejects." The Government should provide the market for these and liquidate them. Most of them could be spotted before being impregnated and fed for beef. Our Government might usefully follow the example of the U.S. Governments and compensate the farmers up to two-thirds of the actual value of the rejects.—I am, etc.,

Blackpool.

PETER J. McKENNA.

The Medical Superintendent

SIR.—During the years between the passing of the Local Government Act, 1929, and the outbreak of war medical superintendents of municipal hospitals strove hard to improve the efficiency of their hospitals. New departments were built; the medical and nursing staff augmented in numbers and in quality; the trappings of "Bumbledom" ripped off and everything made more seemly. The success of these efforts was shown in the thanks of harassed general practitioners whose patients could be given immediate admission, the gratitude at

the patients who were quick to appreciate the change, laudatory notices in the medical press, and faint praise from the voluntary hospitals. So far so good. The best municipal hospitals, it was generally acknowledged, were probably equal in standards of treatment (the only true criterion) to the best of the voluntary hospitals.

With the advent of the "period of planning," however, a change has come over the scene. Strong criticism of municipal hospitals and of medical superintendents has come from voluntary hospital sources, both lay and medical, apparently because it is feared that the Government may decide to place all hospitals under local government control and install medical superintendents in the voluntary hospitals. I, for one, sincerely hope that the Government do nothing of the kind, for if voluntary and municipal hospitals were given equal status and opportunities I am convinced that within a few years the latter would fully vindicate themselves in the eyes of the public, who, after all, are the judges in the long run.

Of particular interest is the criticism of medical superintendents, which comes mainly, I note, from London voluntary hospital consultants. I do not venture to speculate on the reasons for this curious geographical grouping of the critics. In your own columns Dr. Geoffrey Bourne has expressed himself trenchantly in articles, and in letters. Dr. Bourne is always interesting when treating of semi-philosophical generalizations, but in tilting at medical superintendents he shows that he is ignorant of his facts and has gained his knowledge at second hand. He should know that medical superintendents as a body wish to see their hospitals adequately staffed, clinicians assuming full clinical responsibility for their patients and protected by the medical superintendent from all interference from local politicians in their professional work. For the most part this is the existing state of affairs. Exceptions there may be, but in voluntary hospitals one has seen the most flagrant examples of clinical interference when the chief of a unit was on bad terms with his assistant. Of this Dr. Bourne should be well aware.

The Medical Superintendents' Society, of which I have the honour to be president, has formulated rules for the guidance of its members and local authorities, setting forth the relationship between superintendents and the other members of the hospital staff. While the medical superintendent is senior administrative officer of a hospital, he is not responsible for the actual treatment of all the patients but only for ensuring that they are afforded treatment by the medical staff. In a voluntary hospital it is taken for granted that the patients are adequately treated, but we all know that that is not always the case. The society considers that a certain proportion of the clinical work (bearing in mind his other duties) should be allotted to the medical superintendent, and this should be the only work, apart from administration, for which he should be responsible.

I am sure that attacks on municipal hospitals and their administrators will do little to promote the good of the voluntary hospitals and may well have different results from those expected. It would be easy to criticize the shortcomings of voluntary hospitals—everyone is aware of them—but members of municipal hospital staffs have largely refrained from doing so. Would that a similar restraint were exercised by our critics.—I am, etc.,

W. A. RAMSAY,
Medical Superintendent.

Crumpsall Hospital, Manchester.

Sterility and the State

SIR,—The purport of this letter is to draw attention to certain important aspects of sterility—such as can be done in a brief communication—inspired by recent discussions in both Houses of Parliament, by numerous questions from Members, and particularly by the lengthy debate in the Commons on July 16. The fall in the birth rate and the problem of Britain's declining future population have become the tasty bone of contention of Parliamentarians and sociologists with little or no real or intimate knowledge of the problems of infertility, either voluntary or involuntary. Lord Dawson and Dr. Edith Summerskill have, however, had their say and brought much stratospheric dialectics down to earth.

Family allowances, either at a flat rate as proposed in the Beveridge report or on a sliding scale as urged by Harrod

of Oxford, importation of the cream of Hitler's victims from the population of Europe, and the building of a social system in which women can have both a career and motherhood: among the main plans which have been suggested to combat the "silent revolt" against maternity. But the fact that there are nearly one million involuntary barren marriages (so it can be estimated) in Great Britain seems to have escaped notice. The gynaecologists in this country, and especially those of us who conduct special clinics for the investigation and treatment of sterility, are under no illusion as to the large numbers of infertile couples who seek a family and have been unsuccessful. The numbers seeking medical aid are rising throughout the country. The following are the year totals of women who come to the Royal Samaritan Hospital for Women, Glasgow, complaining of the total infertility of their marriage: 1938, 393; 1939, 387; 1940, 378; 1941, 319; 1942, 505; 1943 (first half), 318.

What is the explanation of the marked increase in the year 1942 and 1943? It has been suggested by Miss Rathbone and others that a good many women find pregnancy a convenient way of avoiding war service. Sir Wm. Fletcher Shaw, President of the R.C.O.G., is reported as saying that this is incorrect and that the majority are really conscientiously desirous of a family. I have tried to investigate this point as accurately as is possible by closely interrogating a consecutive and selected series of 200 "sterility patients." The number was admitted that evasion of war service was wholly or even a slight degree responsible for their complaint of infertility amounted to 26—i.e., 13%. If this figure can be accepted an approximately correct one and indicating the percentage complaining of sterility who endeavour to evade the Ministry of Labour's order that "any childless wife with no household responsibility is liable for war work," then some other factors are responsible for the increase. One of these, in my experience, is the general increase in the number of out-patients, which makes the apparent large jump in "sterilities" not quite so great, relatively—namely, in 1943 the total of new out-patients at the Royal Samaritan Hospital for Women was 3,706, but in 1942 the figure had risen to 4,446.

Another factor is the separation of husband and wife, either actual for short periods or impending, which often has the effect of stimulating the desire for parenthood and encouraging impatience. This is illustrated in one way by the increase in the percentage of couples complaining of infertility and who are married less than one year. This figure rose from 4.1% in a consecutive and unselected series of cases (500) before the war to 8% during the past year. Still another factor is the public's increasing knowledge of the value of expert treatment—in effect, this tends to make more and more seek advice without inquiring acceptance of a barren fate and a reticence based on a kind of modesty are both disappearing. The sooner the public gets to know that most sterility clinics (and experienced gynaecologists) successfully treat more than 30% of their cases the better it will be.

The whole problem of infertility is obviously one of the greatest importance to the State. The Government must take an active part in the planning and financing of the work. The Family Planning Association and the British Social Hygiene Council are doing valuable pioneering and deserve nothing but praise. But involuntary infertility must be the State's responsibility and, at the same time, opportunity.—I am, etc.

Royal Samaritan Hospital for Women,
Glasgow.

ALBERT SHARMAN.

Kienböck's Disease

SIR,—I was interested to read the two cases of Kienböck's disease of the semilunar (Aug. 14, p. 200) since I have recently seen bilateral Kienböck's disease in a girl at the unusually early age of 17. Attention was first drawn to the condition by increasing pain and stiffness of the left wrist following injury in which there had been forcible palmar flexion of the wrist. On examination it was found that both flexion and extension were severely restricted, the total movement of the wrist being little more than 10 degrees. There was some swelling of the dorsum of the wrist, and tenderness sharply localized over the back of the semilunar. X-ray examination showed gross abnormality of the semilunar, which was

terably flattened, with irregularity of all articular surfaces. The general density of the bone was much greater than that of the other carpal bones, but there was considerable unevenness of the texture, and some fragmentation was present. In view of this finding radiographs were also taken of the right wrist, and showed similar but less marked changes in the lunate. The bone was flattened, with rough articular surfaces, while the density was greater than that of the adjacent bones. There was no fragmentation on this side, though the bony texture was uneven. There was no history of injury to the right wrist, and the condition had given rise to no signs or symptoms. It would therefore seem that though trauma had aggravated the condition of the left wrist it was not the sole factor in the aetiology; but I was unable to obtain evidence of a septic focus.

It would be interesting to know if radiographs of the apparently normal wrists in the two cases reported by Mr. Officer Gordon also showed changes in the semilunar, since the similar condition of Köhler's disease of the tarsal apophysis is not infrequently bilateral.—I am, etc.,

Maryport, Cumberland.

J. D. H. BIRD, F.R.C.S.

The Teaching of Dermatology

SIR.—Brig. R. M. B. MacKenna, in his timely communication (Aug. 14, p. 191), states that "the standard of dermatological knowledge of recently qualified medical men is not proportionate, as it should be, to the incidence of cutaneous diseases in both civil and military practice," and he suggests the creation of a diploma in dermatology as one way out of a situation which reflects small credit upon the medical curriculum. Before the last war it was no uncommon thing for a medical student to graduate having put in only the most perfunctory attendances at "skins," which, for some strange reason, was seldom a popular subject. He is perfectly right in his contention that skin disorders "are statistically and economically of great importance," in both war and peace, and he rightly laments that self-prescribed or advertised remedies appear to be increasingly used by a suffering public.

First, I can personally testify that the nucleus of an examination requiring a high standard of knowledge of skin diseases already exists in the competition for the Chesterfield Silver Medal in Dermatology, instituted some years ago at the St. John's Hospital for Diseases of the Skin (London School of Dermatology), and were this, or some similar examination, to be sponsored by one of our universities with the power to grant not a "D.D." but a "Dipl. Derm.," men would not be found wanting to "keep alight the torch" of dermatology. Secondly, it may not be generally known south of the Tweed that a candidate for the M.R.C.P.E.d. may select dermatology as his "special subject in which a high standard of proficiency is required," and this examination demands a very thorough knowledge of the specialty, comprising as it does written papers, together with clinical, histological, and viva voce tests.—I am, etc.,

Ringwood, Hants.

G. NORMAN MEACHEN.

Maintenance Dose of Digitalis

SIR.—In his paper on maintenance treatment with digitalis (June 5, p. 694) Dr. A. S. Rogén proves that patients who have been in heart failure and have required digitalis are in need of a maintenance dose of the drug in order to prevent a recurrence of failure. This view is fairly widely accepted, but the author was impelled to re-examine the matter as the result of a statement by Gold to the effect that only 15% of the cardiac population requires digitalis. Rogén's finding that all the patients of the group he studied required digitalis implies a disagreement with the above statement. Gold's observations were based on the fact that of all people who have heart disease only about 15% have heart failure. These are the patients that require digitalis and constitute the group which Rogén studied—namely, patients who had been in the hospital with "definite signs of cardiac failure." There is, therefore, no real discordance between Rogén's findings and the statement by Gold that only 15% of the cardiac population requires digitalis.—I am, etc.,

Cornell University Medical College.

HARRY GOLD.

Obituary

DONALD ALEXANDER COLES, M.R.C.S., L.R.C.P.

We regret to announce the death, at the age of 88, of Dr. Donald Coles, formerly chairman of the Advisory Medical Committee of the Industrial Welfare Society and of the Council of Industrial Medicine.

Donald Alexander Coles received his medical education at St. Bartholomew's Hospital, where he was house-surgeon, house-physician, and ophthalmic house-surgeon, having qualified L.S.A., M.R.C.S., and L.R.C.P. in 1879. For a number of years Dr. Coles was medical officer to the Gas Light and Coke Company, and was a pioneer in industrial medicine in this country. At one time he was honorary secretary and Associate Editor of the *Journal of Industrial Hygiene*.

We are indebted to Prof. EDGAR L. COLLIS for the following appreciation: Few of us are privileged, before being called hence, to complete our life's work. Such, however, has been the lot of Donald Coles, essentially a Londoner, though his family sprang from Burgie in Morayshire. Always actively busy, no call to crowd even further work into time apparently already bespoke was ever refused. A veritable encyclopaedia of knowledge, he was always ready to acquire more, and revelled in learning from his juniors. He was an untiring attendant at meetings, and we were wont to tell him that his obituary notice would be: "He's gone to a meeting." Now it has come true; for he has gone to meet his life's dear companion with whom he kept their golden wedding. When the last great war drove him from Jerusalem, where he was attached to the English hospital, he came back home to London, bringing with him great knowledge of Eastern lore and marvellous Oriental rugs which seemed unusual in his Beckton home in East London. There he threw himself into the field of industrial medicine which was just seeing its birth, working for the Gas Light and Coke Company. His delightful personality and ever-present charm soon carried him to the front. A perfect chairman: without Coles presiding no international congress abroad on industrial accidents and diseases, or meeting at home discussing some technical aspect of the same subjects, seemed complete. At length in the fullness of years he had perforce to forgo coming to meetings, where his presence was ever missed, and his passing will now be recorded with deep regret and sorrow. Truly, a great gentleman has left us.

Mr. T. E. A. STOWELL, chairman of the Advisory Medical Committee, Industrial Welfare Society, writes: Death has removed a much-loved and gracious personality from the world of industrial medicine in the passing of Donald A. Coles—affectionately known as "dear old Coles." He was a leading pioneer in industrial medicine, and his advice was as gladly given as it was eagerly sought by his younger professional brethren who were interested in medicine in its application to the problems of industry. For a number of years Dr. Coles was medical officer to the Gas Light and Coke Company—a popular figure in the many international congresses on industrial medicine, and, up to the time of his death, a member of the Council of the Industrial Welfare Society.

GEOFFREY HOLMES, M.B.

The sudden death of Geoffrey Holmes, which took place at his home in Matlock on Aug. 16, came as a great shock to his wide circle of friends and has left a gap in the ranks of practitioners of physical medicine in general and hydrotherapy in particular which will not readily be filled.

Geoffrey Holmes received his medical training at Cambridge and afterwards at St. Mary's Hospital, qualifying as B.Ch. in 1910 and M.B. in 1911. He filled the posts of house-physician at St. Mary's and house-surgeon to the Hampstead and North-West London Hospital, and then became house-physician to the Devonshire Hospital for Rheumatic Diseases in Buxton, an appointment which directed his attention to the study of rheumatism and its treatment by physical methods, and this became his life's work. At the completion of this appointment Holmes decided to practise in Buxton, but very shortly afterwards, in

1914, he was among the first to join the R.A.M.C.; he served in France till 1917, when his health broke down and he was invalided out of the Service. Although this breakdown left him with a permanent disability which seriously handicapped his physical activities, he took up private practice in Harrogate almost immediately in order to free another doctor for service, and at the conclusion of the war he continued in practice there in collaboration with Dr. Edgcombe. Holmes quickly built up a large general and spa practice and served on the staff of the Harrogate Bath Hospital, to which institution he rendered notable service. He took a live interest in the B.M.A. and became president of the Yorkshire Branch. Always keen on physical methods of treatment, he was an active member of the Section of Physical Medicine of the Royal Society of Medicine and became its president; he was also a member of the Scientific Advisory Committee of the Empire Rheumatism Council and other scientific societies. He studied deeply the place of hydrology in the treatment of disease, and when the University of Leeds set the example of founding a lectureship in the subject he was appointed to it and continued to hold it till the time of his death. In 1938 he was offered the post of senior physician to Smedley's Hydropathic Institution at Matlock, and as he was beginning to feel the strain of private practice he accepted it and devoted himself more exclusively to hydrotherapy. A member of the Spa Practitioners Group and the Physical Medicine Group of the B.M.A., Holmes became chairman of the latter a few months ago, bringing to this new office the energy and enthusiasm which always characterized him. Early in the present year he was invited to join the staff of the Devonshire Hospital for Rheumatic Diseases in Buxton, and combined this with the oversight of the Smedley Memorial Hospital, to the advantage of both.

Holmes had a hatred of humbug of any kind and was often very outspoken in his criticisms, but at the same time he was the soul of good fellowship, and his friendship was shared and valued by a large circle. Those who did not know him well often failed to realize that beneath his love of the good things of life, both material and spiritual, was an intense keenness for his profession and especially for that specialty to which he had devoted himself. Handicapped by the physical breakdown which ended his Army career, he was obliged to forgo the open-air pursuits of his earlier years, but in their place he became an enthusiastic fly-fisherman, and no mean exponent of the art; he had been a member of the Flyfishers Club for many years.

JOHN MURRAY, F.R.C.S.

Mr. John Murray, consulting surgeon to the Middlesex Hospital, died at the age of 80 on Aug. 16.

Born at Monkstown, Co. Dublin, the son of a Dublin solicitor, John Murray was educated at Repton and Dublin University, where he graduated B.A. in 1884, and took the M.B., B.Ch. in 1886. He was house-surgeon to the London Temperance Hospital in 1887, and in 1890 took the F.R.C.S. and also became casualty surgical officer to the Middlesex Hospital, a post he held for 3 years. He was then successively surgical registrar, assistant surgeon in 1896, and surgeon to out-patients. He was Dean of the Middlesex from 1902 to 1908. Mr. Murray was also consulting surgeon to the Hospital for Hip Diseases, Sevenoaks, surgeon to St. Saviour's Hospital, and consulting surgeon, Paddington Green Children's Hospital. In the last war he was captain, R.A.M.C.(T.), and was attached to the Third London General Hospital at Wandsworth. He was the author of an article on surgery of the thorax in the *International Textbook of Surgery*. Mr. Murray married twice, and had one son and one daughter.

PROF. C. M. CAMPBELL, M.D.

News has just been received of the death in the U.S.A. of Dr. C. Macfie Campbell, professor in psychiatry in the Harvard Medical School since 1920, and medical director of the Boston Psychopathic Hospital.

Charles Macfie Campbell was born in Edinburgh in 1876, and was educated at George Watson's College, Edinburgh, and University, where he graduated M.A. in 1897, B.Sc. in 1900, and M.B., Ch.B. in 1902, proceeding to the M.D. in 1911. After studying in Paris and Heidelberg, Campbell then returned to

Edinburgh, where he was for a time resident physician in the Royal Infirmary. Nearly 40 years ago he went to the U.S. and was appointed assistant physician in the Psychiatric Institution, Ward's Island, New York. He later held a similar post at Bloomingdale Hospital, White Plains, New York. He was subsequently associate professor of psychiatry in Johns Hopkins University, and it was then that he became a naturalized American. Prof. Campbell was a pioneer in psychiatric treatment, taking a special interest in child delinquency. His views and his writings were well known to psychiatrists in this country, and at the Centenary Meeting of the British Medical Association in 1932 he read before the Section of Mental Medicine a paper entitled "The General Practitioner's Approach to his Nervous or Mental Patients"; this was published in the *Journal* of Dec. 31, 1932. In his book, *Destiny Disease in Mental Disorders*, he stressed the danger in psychiatry of diagnostic terms, and insisted that what was most important was the formulation of a case "in terms of forces of human life based on the painstaking dynamic analysis of the patient in his relation to the environment." His attitude was well illustrated in the title of another of his books: *Human Personality and the Environment*. He married in 1908 Jean Deans Rankin of Glasgow, also a doctor. Mrs. Campbell died a few years ago. They are survived by three daughters and a son, who is serving with the United States Forces.

E. C. SMITH, M.D., M.R.C.P.

We regret to announce the death through enemy action of Dr. E. C. Smith, Medical Research Institute, Lagos, W. Africa. Edward Cyril Smith qualified M.B., Ch.B. Dublin in 1921. Two years later he took the D.P.H. and in 1924 proceeded to his M.D. He took the M.R.C.P. in 1936. He was early interested in tropical medicine, and in 1927 took the D.T.M.&H. For a time he was pathologist at Sir Patrick Dun's Hospital and Mercer's Hospital.

The tragic death of E. C. Smith by enemy action, writes a colleague, is an irreparable loss, not only to his many friends—and he had a genius for friendship—but to the whole Colonial Medical Service, of which he was one of the brightest stars. There are few aspects of pathology in West Africa which Smith's work has not helped to illuminate, while his *Atlas of Skin Diseases in the Tropics* and his *Pathology and Bacteriology for Medical Students* will long remain essential books for all those who treat illness south of the Sahara. It is therefore not surprising, though official recognition lagged behind, that Smith had earned for himself an international reputation, so that hardly a medical officer of whatever nationality who found himself in Lagos failed to make the pilgrimage to the Medical Research Institute at Yaba. When war came Smith was most anxious to join the Army, but it was only too obvious that his work at Yaba was of the utmost importance, not only for the health of the civilian population but for the Army Medical Services themselves. When these services were still in embryo Smith's help with media, vaccines, and, above all, advice was invaluable. In addition he most efficiently organized classes in tropical medicine for all newly arrived Army medical officers. Yet it is not only as a competent pathologist that Smith should be remembered. He was perhaps at his best in his garden, with his roses and flowering shrubs, or in his bungalow, surrounded by his dogs and books, listening to the music he adored. He was one of the most generous and he was one of the most unassuming of men. West Africa is the poorer for his passing.

SIR BECKWITH WHITEHOUSE

Major R. D. G. VANN, R.A.M.C., writes: It came as a great shock to read in the *Iraq Times* of the sudden death of an old teacher and friend, Sir Beckwith Whitehouse. By those of us who had been his students in the Birmingham Medical School and General Hospital "Becky" was regarded with genuine affection. He was an excellent teacher, whether in O.P.D., ward, or theatre. He had the ability to impart to an audience his wealth of knowledge and experience with a command of English that was a delight to hear. He could always produce that touch of wit or the *mot juste* which went so far in forcing home the point he wished to make. We shall miss him, his impressive personality and dignity, his sense of humour but, as long as memory is left to us, we shall not lose him.

No. 31

EPIDEMIOLOGICAL NOTES

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended August 7.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of the Infant Mortality Rate, for: (a) The 126 great towns in England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. The 13 principal towns in Eire. (f) The 13 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	34	2	22	—	—	77	—	24	7	11
Deaths ..	—	—	—	—	—	—	—	—	—	—
Diphtheria ..	493	28	162	66	18	580	26	164	55	14
Deaths ..	8	—	2	—	—	11	1	1	1	—
Dysentery ..	122	13	95	—	—	82	9	85	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute ..	1	—	1	—	—	4	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Erysipelas ..	—	—	36	3	1	—	—	54	6	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	33	6	6	82	10	34	3	12	13	5
Measles ..	1,903	138	26	18	2	5,619	563	126	26	64
Deaths ..	2	—	—	—	—	8	—	5	—	—
Ophthalmia neonatorum ..	75	6	8	—	1	81	5	17	1	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever ..	5	1	—	—	1	15	—	3	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza* ..	484	24	1	1	3	413	19	3	2	2
Deaths (from influenza) ..	3	—	1	—	—	10	—	3	—	—
Pneumonia, primary ..	—	—	126	13	—	—	—	129	16	—
Deaths ..	—	16	—	3	10	—	9	—	3	16
Poliio-encephalitis, acute ..	—	—	—	—	—	4	1	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute ..	16	2	—	2	—	10	1	4	4	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever ..	—	2	9	—	—	—	2	6	4	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia† ..	170	12	11	1	2	142	10	11	—	4
Deaths ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever ..	1,520	138	176	32	42	1,340	86	231	46	28
Deaths ..	—	—	—	—	—	—	—	—	—	—
Small-pox ..	—	—	—	—	—	—	—	2	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever ..	8	1	1	3	1	6	—	7	7	1
Deaths ..	—	—	—	—	—	—	—	—	—	—
Typhus fever ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough ..	1,614	109	59	10	25	953	83	14	50	13
Deaths ..	8	2	2	1	1	2	1	1	3	—
Deaths (0-1 year) ..	263	34	40	36	34	271	27	48	34	29
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) ..	3,527	509	520	195	126	3,475	483	505	149	129
Annual death rate (per 1,000 persons living) ..	—	—	—	—	—	—	—	—	—	—
Live births ..	5,745	658	855	435	269	5,626	606	836	400	269
Annual rate per 1,000 persons living ..	—	—	—	—	—	—	—	—	—	—
Stillbirths ..	191	15	42	—	—	206	14	38	—	—
Rate per 1,000 total births (including stillbirths) ..	—	—	—	—	—	—	—	—	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Discussion of Table

In England and Wales the incidence of infectious diseases continued to fall—scarlet fever by 459 cases, measles by 359, whooping-cough by 282, diphtheria by 116, and cerebrospinal fever by 13. The figure for acute pneumonia was higher by 52 and that for dysentery by 23.

The biggest drops in the totals of scarlet fever were Yorks West Riding 79, Lancashire 67, London 55, Staffordshire 42; and for measles, Lancashire 60, Monmouthshire 58, Northumberland 46, Essex 34. There were 84 fewer cases of whooping-cough in Yorks West Riding and 35 fewer in Warwickshire, and there were 14 fewer cases of diphtheria in Lancashire.

The rise in acute pneumonia was due to Lancashire and Yorks West Riding, with 21 and 26 cases respectively more than last week; with these exceptions there was no change in the general incidence.

Cerebrospinal fever, with 34 notifications, has fallen in incidence to a pre-war level for the first time since the end of 1939.

The seasonal rise in acute poliomyelitis has begun; 16 cases were recorded—the highest total since last autumn.

No sizable fresh outbreak of dysentery was reported during the week, but there were increases in existing outbreaks. The chief centres of infection were Lancashire 18 (Salford C.B. 10); Gloucestershire, Bristol C.B., 17; Shropshire, Oswestry R.D., 14; London 13; Cumberland, Border R.D., 10.

In Scotland there were 34 more notifications of diphtheria. The chief centre of infection was Glasgow, with 60 cases. The number of cases of dysentery fell by 65, but the incidence is still high at 95. The largest totals were Kincardine County 19, West Lothian County 17, and the cities of Aberdeen 14 and Glasgow 12.

Diphtheria

During the week the notifications of diphtheria in England and Wales fell below 500. The lowest weekly totals in the three years 1940-2 were 589, 674, and 572. The incidence of diphtheria during the present year has been lower than in the corresponding period of recent years; the notifications in the first 31 weeks of the six years 1937-42 expressed as a percentage of the number in 1943 were 109, 137, 101, 133, 178, and 145. The experience of the large towns suggests that the case fatality has also decreased. The number of deaths per 100 cases in the large towns during the first 31 weeks of 1940-3 were 5.5, 5.8, 4.2, and 4.0.

During the week reviewed the largest county totals were Lancashire 91, Yorks West Riding 55, Durham 42, and Staffordshire 30. These four Northern counties accounted for 44% of the total notifications in the country.

The Week Ending August 14

The notifications of infectious diseases during the week in England and Wales included: scarlet fever 1,558, whooping-cough 1,855, diphtheria 491, measles 1,476, acute pneumonia 346, cerebrospinal fever 46, dysentery 149, paratyphoid 6, typhoid 10.

The Services

Capt. (Temp. Major) R. M. Johnstone, Capt. J. J. Hogan and J. G. S. Holman, R.A.M.C., Capt. N. A. Subramaniam, I.M.S., and Capt. C. Arumainayagam, I.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in the Middle East.

The Efficiency Decoration of the Territorial Army has been conferred upon Lieut.-Col. J. G. Morgan, Majors A. M. Jones, T.A.R.O. (ret.), I. H. Lloyd-Williams, M.C., J. O. Moffat, and H. W. L. Nichols, all R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Prisoners of War.—War Subs. Capt. B. H. M. Aldridge, R.A.M.C., War Subs. Capt. W. T. G. Atkins, R.A.M.C., Acting Major R. C. Burgess, R.A.M.C., War Subs. Capt. C. Rigby, R.A.M.C., War Subs. Capt. L. D. Stone, R.A.M.C., Acting Col. J. Taylor, O.B.E., R.A.M.C.

Yorkshire has three orthopaedic hospitals for children, but there is no provision for treatment after the child reaches school-leaving age unless the condition is tuberculous. It is estimated that the county needs about 800 beds for children and 250 for adults; at present there are fewer than half of this number for children and practically none for adult cripples.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on July 24 the following medical degrees were conferred:

M.Ch.—J. P. Childs, *A. N. Guthkelch.
B.M., B.Ch.—J. M. Rice-Oxley, G. D. Bolsover, G. S. Dawes, A. Roper.
G. Gordon, R. D. K. Levy, *P. Shubik, *T. C. Bradshaw, *C. W. Bartley,
*J. H. Cumberland.

In a Congregation held on July 31 the following medical degrees were conferred:

D.M.—R. H. Gardiner.
B.M., B.Ch.—J. E. French, M. Weatherall, A. A. C. Dutton, G. J. Fraenkel,
Mrs. C. M. Phillips, E. C. Mercer.
*In absentia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND
CORRECTION

In the *Journal* of Aug. 14 (p. 218) the Diploma in Ophthalmic Medicine and Surgery was, owing to a printer's error, wrongly described as the Diploma in "Orthopaedic" Medicine and Surgery.

Medical News

The British Medical Students Association has arranged a series of lectures on war surgery, to be given at University College Hospital Medical School at 4.30 p.m. every Wednesday as follows: Sept. 1, Mr. A. Tudor Edwards on "Wounds of the Thorax"; Sept. 8, Major-Gen. C. Max Page on "Surgery in the Field"; Sept. 15, Mr. A. H. McIndoe on "Injuries of the Face"; Sept. 22, Col. Elliott C. Cutler, U.S.A., on "American Views"; Sept. 29, Mr. H. J. B. Atkins on "Burns"; Oct. 6, Surg. Rear-Adml. G. Gordon-Taylor on "Sea Injuries and Problems of Shipwrecked Seamen." Two previous lectures were by Sir James Walton on "Recent Advances in the Treatment of War Wounds" and by Prof. J. Trueta on "The Biological Treatment of War Wounds and Fractures." The series is open to members of the British Medical Students Association only. Tickets, price 1s. for all, or any, of the eight lectures, are available from the B.M.S.A. representative in each school.

A meeting of the Colour Group of the Physical Society will be held at 2.30 p.m. on Thursday, Sept. 9, at the Science Museum, Exhibition Road, London, S.W.7, when a paper on the theory of colour photography will be read by Mr. J. B. Reid.

A meeting of the Royal Eye Hospital Clinical Society will be held at the hospital, St. George's Circus, Southwark, S.E., on Friday, Sept. 24, at 5.30 p.m., when a talk will be given by Mr. V. E. Negus, M.S., F.R.C.S., on the relationship of ophthalmology and rhinology.

On Aug. 23 Mrs. Rebecca Strong, O.B.E., at one time matron of the Glasgow Royal Infirmary, celebrated her hundredth birthday. Mrs. Strong received her early training at St. Thomas's Hospital, London, and from the Dundee Royal Infirmary went to Glasgow, where in 1895 she started a training school for nurses. She retired from active work thirty-five years ago, but in 1929 went to Montreal to address the International Council of Nurses.

Sir Felix Cassel has endowed a number of bursaries to be held by State-registered nurses desiring to take a short intensive course in modern methods of psychological treatment. The greater part of the course, which altogether will last 16 weeks, will be taken at the Cassel Hospital for Functional Nervous Disorders, but four weeks will be spent in London in visits to child guidance clinics and other centres of psychiatric interest. The bursaries, which will be administered by a committee under the chairmanship of Sir Farquhar Buzzard, will provide £4 10s. a week, out of which students will have to pay their living and training expenses, tuition being free. Inquiries should be sent to the Secretary, The Cassel Bursaries, Ash Hall, Bucknall, Stoke-on-Trent.

The first Wellcome Junior Fellowship for Veterinary Research has been awarded by the joint advisory committee of the Wellcome Foundation and the Veterinary Educational Trust to Mr. John Lochiel McGirr, B.Sc., M.R.C.V.S. The fellowship is tenable for one year at £400 per annum and can be renewed for a further one or two years at the discretion of the advisory committee. Another fellowship of equal value will be awarded in April, 1944.

A new physiotherapy department has just been opened at Malvern Hospital. It is hoped that this will become a centre for the treatment of rheumatism.

Dr. Allan Watt Downie, who since 1940 has been pathologist in charge of the Emergency Public Health Laboratory at Cambridge, has been appointed professor of bacteriology at Liverpool University.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are accepted to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required as proof is not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager, 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be sent to the Secretary.

TELEPHONE NO.—B.M.A. and B.M.J.: EUSTON, 2111.

TELEGRAPHIC ADDRESSES—EDITOR, *Alitology Western*, London; SECRETARY, *Medicra Western*, London.

B.M.A. SCOTTISH OFFICE: 7, Drumshough Gardens, Edinburgh.

ANY QUESTIONS?

Treatment of P.M.A.

Q.—What is the latest treatment for progressive muscular atrophy, I am working in India, and have a patient, a 15-year-old girl, whom I have tried vitamins B and E, massage, and sinusoidal faradic currents without success.

A.—Reference to the latest literature shows that there is no convincing evidence that any vitamin therapy benefits wasting of muscle, and carefully controlled experiment shows that vitamins E and B are without effect in progressive muscular atrophy. Similarly physiotherapy has at best a palliative effect. Progressive muscular atrophy is very unusual in a girl of 15, but if the diagnosis is certain there is no specific treatment which will in any way modify its course.

"Postural" Headache

Q.—A patient complains of headache on the top of the cranium during the daytime, but can manage to do his work. On going to bed at night the headache becomes so intense in about a couple of hours that the patient feels "as if the skull was going to burst" and the eyes become bloodshot. There is vertigo when he lies down to turn in bed from one side to another, and also when he gets up from the bed. What is the cause of this postural headache and vertigo, and what is the line of treatment?

A.—The question does not give sufficient information as regards physical examination, blood count, blood pressure, x-ray examination of the skull, etc. Hyperaemia from hypertensive polycythaemia would first be suspected. Hypertensive headache may be relieved by elevation of the head of the bed. The symptoms are also a little suggestive of a type of headache described by Horton (*J. Amer. med. Ass.*, 1941, 116, 377) as occurring in middle-aged or elderly patients, tending to awaken the patient shortly after he has fallen asleep and lessened by sitting or standing erect. This type of headache, however, is usually hemicranial in distribution and associated with the presence of swollen temporal vessels on the affected side. It can be relieved by a course of treatment with small doses of histamine diphosphate.

Laryngoscopy

Q.—What is the technique required in passing the directoscope invented by Haslinger of Vienna? Is it still a useful instrument?

A.—The directoscope of Haslinger is a self-retaining speculum which exposes the entrance to the larynx. It is a modification of Killian's suspension laryngoscope, but in suspension laryngoscopy a gallows is needed from which the speculum is suspended, while the directoscope when opened is self-retaining, the position of the patient being the same in either method. The principal advantage claimed was that it leaves both hands of the operator free as it does not require to be held in the left hand, as does the ordinary endoscopic speculum or tube. It does, however, stretch the cords of the pharynx rather tightly, and this is probably the reason why the apparatus is no longer fashionable. It is, presumably, as useful now as it ever was, and is capable of giving a good view of the larynx, but, as with suspension laryngoscopy, there are some cases in which the anterior commissure of the larynx is not exposed and for this an endoscopic tube must be used.

The Safe Period

Q.—What are the limits of the so-called "safe period"? I am often asked this question by patients who, for religious or other reasons, wish to avoid contraceptives.

A.—The "safe period" is based on the knowledge that ovulation usually occurs about fifteen days before the onset of a menstrual period—i.e., on the twelfth to fourteenth day of a 26- to 30-day cycle, counting from the first day of the last menstrual period.

etermination of the "safe period" in any individual demands accurate knowledge of the average length of the cycle and requires careful records over many months. The time of ovulation is then ascertained by subtracting fifteen days from the expected onset of the next period. The fertile period covers the eleven days made up of the five days preceding and the five days following the expected date of ovulation: e.g., the eighth to eighteenth days of an average 28-day cycle, first to eleventh days of an average 21-day cycle, and thirteenth to twenty-fifth days of an average 35-day cycle. The days of the cycle outside these limits constitute the "safe period."

The time of ovulation, however, is not so constant as to make the "safe period" absolutely safe, and conception has been recorded on any day in the cycle. But it is relatively safe, particularly in women with regular menses.

Cadaver Body Temperature

Q.—Occasion may arise when one is called upon to express an opinion as to time of death in a body. Apart from other signs, rate of post-mortem cooling is given in textbooks of medical jurisprudence as of importance. *Brend*, for instance, gives the rules: "to 3° F. per hour for first 5 hours, then 1° F. per hour following p. 32, 1934 edition). No mention is made as to how this temperature is taken. The ordinary clinical thermometer registers down to 5° F., but supposing a body has been dead 4 to 5 hours one would require a thermometer registering lower degrees. Is the use of an ordinary household thermometer, placed in the axilla, practicable as giving a reading, or, if not, what method does one use to estimate the body temperature of the cadaver?"

A.—The rate of cooling given in textbooks of forensic medicine cannot be more than a rough approximation owing to the number of factors to be considered. These are the state of nourishment and age of the body; the nature and amount of clothing; whether the body is in a room or out of doors, in a draught or in still air; and the temperature of the air. A clinical thermometer is of little use, and it is not advisable to take the temperature in the axilla. An ordinary tube thermometer should be used per rectum. The body temperature and the room temperature should be taken as soon as possible and the time of death worked out from all the data available.

Fragilitas Ossium

Q.—Is any treatment likely to benefit a frail boy aged 7, suffering from fragilitas ossium, and what is the prognosis?

A.—"Fragilitas ossium," or "osteogenesis imperfecta," is a condition characterized by the ease and frequency with which bones are fractured. The excessive fragility is due to a defect in the activity of osteoblasts, which is often manifest in intra-uterine life and involves bones from cartilage as well as those formed in membrane. Occasionally the condition is hereditary, when the patients generally have blue sclerae, which in some children may be marked without any undue bony weakness. The clinical picture varies with the number and site of fractures, and may resemble superficially those of rickets and achondroplasia. The x-ray appearance is quite sufficient to differentiate it from either of these diseases. The tendency to spontaneous fracture varies considerably, as also the rate and degree of effective bony healing. If fractures occur readily the prognosis is poor as regards general fitness, since severe distortion of the skeleton, with crippling, may result. In some patients the tendency to fracture diminishes in later years.

Metabolic and biochemical studies have failed to throw further light on the pathogenesis, aetiology, or therapeutics of this disease. It has been suggested that there is a deficiency of phosphatase (a ferment of importance in the laying down of lime salts in bone), especially in the subperiosteal area; but this finding has still to be confirmed, and, even if true, it is probably only a reflection of diminished osteoblastic activity. Unfortunately no specific treatment is known. Vitamin D, calcium salts, ultra-violet irradiation, and other therapeutic measures have been tried without noticeably affecting the progress of the disease. For the patient in question one would advise (1) making certain of the diagnosis; (2) as careful handling as possible in order to prevent fractures; (3) carefully regulated exercise and massage; and (4) a good general diet. Care in these directions may sometimes tide the patient over until a natural improvement occurs. This is well worth hoping for, but there is no x-ray, biochemical, or other test by which it can be foreseen.

Blood W.R. in a Child

Q.—What method or methods do experienced doctors recommend in taking blood for Wassermann (a) in infancy, (b) in childhood? Is the Behring venule satisfactory for infants and children, or is a serum syringe preferred? What percentage, if any, require an anaesthetic for successful withdrawal of blood?

A.—In infants it is usually best, after applying a tourniquet to the leg or thigh, to prick the heel with a triangular needle or make a small incision with a sharp scalpel. Quite often it is possible to obtain blood from one of the veins of the scalp, or from the

anterior jugular vein, with a syringe and fine needle; puncture of the superior longitudinal sinus has been done but it is not recommended. In children it is usually fairly easy to obtain blood from a vein in the antecubital fossa; if this is impossible one of the methods mentioned above should be employed.

The use of a Behring venule as opposed to a syringe is a matter of taste; the latter is more easy to manipulate, particularly if it has a peripheral nozzle and a really sharp needle is used. It should rarely, if ever, be necessary to employ an anaesthetic to obtain a specimen of blood; it is wise to enlist the services of a nurse to hold the infant or child and exclude the mother from the room during the operation.

Gynaecomastia

Q.—A stoker aged 21 has moderate gynaecomastia of which he is very self-conscious. Will it improve without treatment? What can be done with Roentgen radiation? Is this dangerous? Could surgery achieve a result without a scar having the same mental results as the original lesion?

A.—"Gynaecomastia" is the term usually applied to the excessive growth of the breast or breasts in the male. It may or may not be associated with endocrine disorders, and the morbid anatomy is that of chronic interstitial mastitis. It occurs as a transitory phenomenon in adolescence in a small percentage of normal males. Experimentally, enlargement of the breast may be produced by oestradiol, progesterone, pituitary "mammoth" hormone, testosterone, desoxycorticosterone, and extracts of the adrenal cortex. Clinically, the disorder may be associated with neoplasm of the testes, or adrenal cortex, or pituitary; with atrophy of the testes; and with cirrhosis of the liver, which normally deactivates oestrogens.

In spite of an obvious hormone origin in a particular case, only one breast may appear affected. The treatment is that of the endocrinopathy, where such exists. In idiopathic cases testosterone has been used empirically. The writer has no experience of radiation therapy, but surgical excision has been undertaken with success.

Prevention of Midge Bites

Q.—Is there any successful method of warding off midges and other biting insects? They are apt to cause much distress among e.g., forestry girls. Has there been any experience with Stockholm tar? Is it efficacious, and is it likely to cause dermatitis? If chemical repellants are inefficacious, is the use of materials such as butter muslin and chiffon acceptable?

A.—Many applications are employed to ward off midges and biting insects. These mostly contain an aromatic oil such as oil of citronella, eucalyptus, or oil of cajuput, but since these oils are volatile the effect in hot weather is transitory, and occasionally irritation results. Colloidal sulphur is noxious to many small insects. The following lotion is useful: phenol: t. viij; thymol. gr. v; tinct. iod. mit. j; aq. camphor. ad. j. This solution not only repels the insects for some hours but is excellent to relieve the irritation and inflammation of bites. Solution of coal tar, 5% in lead lotion or calamine lotion, is useful too. Whatever is used, watch should be kept for any personal idiosyncrasy to the application, or a dermatitis will ensue. A protective net of butter muslin worn round the head would, of course, be very effective, if acceptable by the wearer.

Professional Secrecy

Q.—Could you give me any advice on a question that is being raised with increasing frequency these days. It is a point in connexion with professional secrecy which arises when inquiries are made about patients who have been in the hospital where I am registrar. Some of these inquiries are made by non-professional people such as Army officers, and they are written on official forms suggesting that replies are expected and usually obtained. Some only require office details, but others demand a whole medical history. One instance recently was a request by a regimental paymaster for dates of admission and prognosis of a woman whose husband, a soldier, was applying for extra allowance. The questions which arise are these: Am I obliged to answer these inquiries? and, Is there any safeguard against redress sought by persons concerned?

A.—The duty of secrecy is owed by the doctor to his patient. It is quite distinct from any obligation which binds him to be discreet in matters concerning his professional colleagues or hospital. It is necessarily abrogated by the patient's consent, given freely and with full knowledge, or by a legal or moral obligation. In the example given, the request is made by an official, presumably in accordance with regulations and in the patient's own interests. The doctor's duty to his patient is surely first to satisfy himself that the official needs the information to comply with the law, and that to give it is in the patient's interests; and, secondly, to explain the situation fully to his patient and ask her consent. This should be put in writing and signed if the doctor fears that some day the patient may repudiate the consent; but it is worth noting that no doctor has ever been sued before any English court for breach of confidence (one Scots case was reported many years ago). The doctor should

then give precisely what information is required of him. He has thus done his duty to the patient, which includes a duty of disclosure in such cases as this. Where the giving of the information will not help the patient's interests, the doctor should not give it without satisfying himself that he is bound to give it by law—not merely that the inquirer is bound by law to ask him for it. He should ask the inquirer to state the legal authority under which he asks, and verify it himself or seek the help of a colleague better able to do so.

Pyretotherapy for Arthritis

Q.—I should be glad to have details of intravenous T.A.B. therapy for the purpose of hyperpyrexia. The patient is a professional man, of the apprehensive type, suffering from gonococcal rheumatism of two months' duration. The original infection was 20 years ago. Before the onset of the acute arthritis he had a urethral discharge. Smears and cultures were negative. C.F.T. \pm . E.M. 1. Admitted. Response to chemotherapy, irrigation, and vaccines was disappointing. Threads were still present in first glass. Ankles and knees swollen, with starting pains. Prostate tender, not enlarged. Recent massage begun. Temperature occasionally 99° F. in the last three weeks. No instrumentation and no physiotherapy carried out. Immediate prognosis appears poor.

A.—If the complement fixation test was carried out in a reliable laboratory and gave only a doubtful (\pm) result, it is very unlikely that the case is one of true gonococcal arthritis; it is more probably an "infective" arthritis due to some other organism, in which case the prognosis is less favourable. The first step is to give regular prostatic massage, noting the effect on the expressed secretions; if available, diathermy to the prostate is likely to be helpful. Intravenous T.A.B. therapy is not without danger. It should only be given in circumstances where skilled nursing and the means of combating shock and other complications are readily available. The initial dose should be 25 million organisms; subsequent doses will depend on the degree of reaction produced by the preceding dose or doses. For the second dose 50 millions, and for the third 100 to 150 millions, are usually adequate; the interval between injections should be three days. Alternatively, it has been found more effective to give an initial dose of 25 millions and a second one, also 25 millions, during the height of the fever produced by the first. By this method higher and more prolonged temperatures are usually obtained.

Technique.—Put the fasting patient to bed between blankets as soon as the first injection has been given; when shivering starts put a hot-water bottle in the bed and add more blankets. When free perspiration takes place give the patient plenty of 0.6% saline to drink and change his pyjamas as soon as they get wet. Give the second dose of vaccine when the temperature has risen to about 100° F., usually about four hours after the first. The patient can as a rule be allowed to get up on the following day. The doses of vaccine should be specially put up in sealed ampoules by a pathologist in order to ensure correct dosage and absolute sterility.

Prognosis in Epilepsy

Q.—A boy aged 11 has had frequent and severe epileptic fits for seven years, often two a day even on large doses of luminal. Three months ago the fits suddenly stopped and they have not returned, even though the patient has been off sedatives for the past two months. What is the prognosis in this case? What further precautionary measures should be taken? Incidentally it was exactly three months ago that I took swabs to see whether he was a diphtheria carrier, and the swabs turned out to be positive.

A.—It is not unknown for epileptic fits which have been frequent to stop for a while, with or without any anticonvulsant treatment. In a case of this sort the treatment should be continued for at least three years after the last fit. In a boy who started to have fits at the age of 4 years, and who has had them in spite of large doses of luminal, the chances of their recurring are very great. Observation of large numbers of epileptics shows that fits tend to occur in cycles, and it may well be that when this boy's attacks start again he will at some future date have another period when he is relatively free. The fact that he is a diphtheria carrier is merely a coincidence.

A Point of Nomenclature

Q.—In standard Latin-English dictionaries "valgus" is given as meaning "having the legs bent outwards, or bow-legged," and "varus" as meaning "having the legs bent inwards, or knock-kneed." In modern surgical terminology "genu valgum" means "knock-kneed" and "genu varum" means "bow-legged." How has this reversal of the original meaning come about?

A.—In genu valgum (knock-knee)—classical term *varus*—the knees are bent inwards, and the lower ends of the legs (tibiae or hank bones) are splayed outward. In genu varum (bow-legged)—classical term *valgus*—the knees are bowed outward, and the distal ends of the tibiae or leg-bones are inclined inward. It seems clear

from the following quotation—*hunc varum distortis cruribus* (H)—that the adjective used refers to the legs and not to the knees. apparent reversal of the meaning of the Latin words *valgus* *varus*, which has taken place in the modern use of these words with reference to the knees, may have arisen from the desire of surgical writers to specify clearly the particular part of the limb which is bent outward or inward in these two conditions, at the same time to emphasize that the deformity involves the including the adjoining epiphysal ends of the femur and tibia

INCOME TAX

Two Years' Tax in One Year

J. H. holds a temporary Government appointment. Income is being deducted from him in a manner which in effect means that he will have to pay two years' tax in one year. Has he any redress?

* * Tax on Government salaries, etc., is payable on the current year's basis and is deductible within the year in which the income is earned. What has apparently happened is that the assessors of the Department in which J. H. is serving was late in making necessary arrangements for tax to be deducted. (We assume J. H. made the appropriate declaration and claimed any allowance due to him within a reasonable time of being supplied with form of return.) Legally there is no redress, but we recommend J. H. to write to the Controller of Departmental Assessments, Hydro, Llandudno, North Wales, stating the facts and asking some part of the burden to be spread forward.

LETTERS, NOTES, ETC.

Total Loss of Hair

Dr. H. HALDIN-DAVIS writes: I see in "Any Question" (July 31) that one of the *B.M.J.* "Brains Trust" states that loss of hair is usually the result of shock or acute anxiety. I much doubt if this be true. I have seen numerous cases of alopecia in children in whom there was no question of shock or anxiety. It is well known that in the syndrome known as "alopecia areata" there is every gradation in severity from a single small transitory patch of baldness to complete alopecia of the scalp even disappearance of the hair on the body. It is a disease prone to run in families, and I recall a well-known legal family which there were several cases, and one member delayed exhibited his tendency to becoming subject to this condition until he was past 70 years of age. But when he did so he became completely bald within a few weeks, and in his case there was no question of shock or anxiety. To anticipate critics I will add that his baldness was not of the ordinary senile description. It began with patches which speedily spread and coalesced, producing the typical billiard-ball effect. But I regret to say that I was not able to follow the case long enough for it to be of any help in assisting the correspondent as to the prognosis in the case of his schoolmaster.

Wanted: Tapeworm Segments

Prof. R. M. GORDON, Department of Entomology and Parasitology, School of Tropical Medicine, Pembroke Place, Liverpool, 3, writes: We are anxious to obtain segments of the tapeworm *Diplobothrium latum* in connexion with some experimental work we are doing here in Liverpool. The best way to forward the segments would be to place a little damp, but not soaking wet, cotton wool at the bottom of a small screw-top bottle, then to drop in the segments and fill up the remaining space with more damp wool. Of course, I would be only too glad to defray the cost of postage.

An Appeal for Back Numbers

Members who do not preserve the *Journal* for binding are invited to send their copies (preferably in bulk) to B.M.A. House, Tavistock Square, W.C.1, addressed to the Secretary of the *Journal*. The cost of carriage will be repaid. There is a constant demand for back numbers, and each issue goes quickly out of print; hence spare copies published during the war will be welcome. The growth in membership to a figure well above 43,000 has increased the circulation of the *Journal* by 12% in the past four years, but every new member must have his weekly copy. Meanwhile there has been a very severe and progressive cut in the amount of paper allowed to be used for printing. Every means of economizing has been adopted in order to make the paper ration go as far as possible, and nothing more can be done except to reduce the number of pages still further. A member who returns his copies at an early date after reading them will in that way put them back into circulation through the Head Office. If the response to this appeal is spread the help thus given will be very material at a time of increasing difficulty.

LONDON SATURDAY SEPTEMBER 4 1943

THE Rh FACTOR AND ERYTHROBLASTOSIS FOETALIS

AN INVESTIGATION OF 50 FAMILIES

BY

R. R. RACE,* M.R.C.S., L.R.C.P. G. L. TAYLOR,* M.D., Ph.D., M.R.C.P. D. F. CAPPELL, M.D.

AND

MARJORY N. McFARLANE, M.B., Ch.B.

(From the Galton Laboratory Serum Unit, Department of Pathology, Cambridge, and the Pathology Department, University of St. Andrews and Royal Infirmary, Dundee)

Recent American work has shown that iso-immunization plays an important part in the aetiology of erythroblastosis foetalis, a familial disease of the newborn, which Parsons, with justification, thinks would be better called "haemolytic disease of the newborn."

The part played by iso-immunization in this condition has been described at length by Levine, Burnham, Katzin, and Vogel (1941) and by Boorman, Dodd, and Mollison (1942). In their view, erythroblastosis foetalis results from iso-immunization of the mother to a red-blood-cell antigen present in the foetus, inherited from the father but absent in the mother herself, and the subsequent passage of the mother's immune agglutinins through the placenta to act on the susceptible blood of the foetus. In most cases described by the above authors iso-immunization to the Rh blood-group factor appeared to be responsible, as more than 90% of the mothers were Rh-negative and an antibody to the Rh factor was found in the serum of many of them. The Rh factor is inherited as a dominant character. Whenever it was possible to examine the blood of an erythroblastic baby of an Rh-negative mother it proved to be Rh-positive. The finding that more than 90% of mothers of erythroblastic children are Rh-negative when only 15% of the normal population are Rh-negative is in itself so overwhelmingly significant statistically that a connexion between the Rh groups and this disease can hardly be doubted, even apart from the evidence provided by the detection of the antibody in many of the cases.

It can be shown that in one pregnancy in ten the mother is Rh-negative and the baby Rh-positive, and that in one pregnancy in five the mother has an agglutinin for an antigen of the A-B-O system of groups present in her foetus. Haemolytic disease of the newborn is, however, much rarer than would be expected if iso-immunization and placental transmission of harmful agglutinins from mother to foetus occurred in every instance in which the possibility exists. It is obvious, therefore, that there is yet much to be learned about the way in which iso-immunization operates in such families. The subject is undoubtedly of importance in obstetrics and in paediatrics, and while at the moment it is not clear what facts may prove of importance in extending our knowledge, it is essential that no opportunity of making serological investigations should be lost.

The object of the present paper is to put on record our findings in the examination of 50 families in which erythroblastosis foetalis has been diagnosed, and a list of their pedigrees forms the main part of this communication. The cases have been sent to us by practitioners and pathologists from many parts of the United Kingdom and from Northern Ireland, and in those reported it seems reasonably certain that the diagnosis of erythroblastosis foetalis was correct. The material is far from complete, for the great difficulties always present in the

pursuit and investigation of human families are in wartime enormously increased. For instance, men and women are away from home in the Forces; travelling is difficult; and, with doctors so fully occupied, personal visiting is practically impossible. Nevertheless, much information has been gathered together, and some of it may well prove of value to future workers. The technique used for detecting the Rh factor and its antibody has been described by Taylor (1943).

Results

Of the 50 mothers 6 were Rh-positive and 44 were Rh-negative; while in the sera of 38 of these Rh-negative women anti-Rh agglutinins were found. If Rh were not concerned in the causation of erythroblastosis foetalis only 7 or 8 of these 50 women would be expected to be Rh-negative; that 44 were Rh-negative and that Rh antibody was present in the serum of the great majority confirms the connexion between this recently discovered blood-group factor and the disease. In spite of the absence of demonstrable anti-Rh agglutinins in the remaining six Rh-negative cases it is highly probable that iso-immunization of the mother to the Rh factor played a part; the absence of anti-Rh may in some of them have been due to the length of time since delivery, which on the average was four years as against less than a year for the 38 cases in which antibody was found. In none of the six was there any certain evidence of other blood-group factors being involved. That as many as six of the twelve mothers in whose serum anti-Rh was not found were Rh-negative strongly suggests that Rh was concerned.

While Rh is the blood-group factor most commonly involved in the causation of erythroblastosis foetalis, it appears certain that other red-cell antigens may behave in a similar way. As mentioned above, in one pregnancy in five the mother's serum contains an iso-agglutinin for an antigen of the A-B-O system of groups present in her foetus. (This will always be so where the foetus is of group AB, save in about one case in six in which the mother will also be of group AB.) In such a heterospecific pregnancy the mother's natural iso-agglutinins might perhaps cause the destruction of her child's red cells. Even when the mother is Rh-negative iso-immunization to some antigen other than Rh might be concerned in the causation of erythroblastosis. For example, in one case recently studied (but not included in the 50 cases of this series) the mother was of group A,B Rh-negative and her husband and baby were both A, Rh-positive; anti-Rh agglutinins were present in good amount in her serum, but in addition a very strong alpha₁ agglutinin (with A, Rh-negative cells titre at room temp. 128-256, at 37° C. 32) was also present. It would appear that this woman had become iso-immunized against both A₁ and Rh contained in the cells of the foetus, for the strength of the alpha₁ was greater than we have found in grouping more than 100,000 persons (see Taylor, Race, Prior, and Ikin, 1942). It seems probable that the erythroblastosis from which her baby suffered may have been due to placental transmission

* Working on behalf of the Medical Research Council.

Family No.	Mother's Age in 1942	Mother's Group		Father's Group		Mother's Serum		Pregnancies					Notes
		Rh	ABO	Rh	ABO	Anti-Rh	Taken after Delivery	1	2	3	4	5	
1	25	-	A ₁	+	B	Found	4 mths.	M, 1940, A.W.	M, 1942, I.G.N., d. 2 days				
2	32	+	O	-	A	Not found	3 mths. before delivery of last child	M, 1940, E.F., d.	M, 1942, A.W.				1st child showed hydrops jaundice
3	22	-	O			Found	7 mths.	F, 1940, A.W., Gp. O Rh+	F, 1941, jaundice, d. 10 days				p.m. diagnosis: "leuc erythroblastic anaemia"
4	34	-	A ₁			Found	14 mths.	M, 1926, A.W. 6 M, 1934, A.W.	M, 1927, d. 1 year lung abscess 7 M, d. 1 mth.	F, 1930, A.W. 8 M, 1938, A.W.	M, 1932, A.W. 9 M, 1939, A.W.	F, 1933, d. 3 mths. pneumonia 10 F, 1941, E.F., d. 6 days	7th child died of umbilical haemorrhage 1 mth.; child jaundiced after birth
5	32	-	O	+	A ₁	Found	2 years	F, 1935, A.W.	Misc., 1939	F, 1940, I.G.N. Surv.			1940 child mentally physically backward
6	33	-	A ₁			Found	20 mths.	F, 1935, A.W., Gp. A ₁ Rh+	M, 1939, I.G.N., d. 2 days	Misc., 1941, 6½ mths.			Mother Wassermann reaction + in 1941, 1943; Stillborn treatment at V.D. clinic
7	36	-	A ₁			Found	Few days	F, 1931, A.W.	M, 1933, A.W.	SB, male, 1937, Full time	M, 1942, d. 5 days, jaundice		1937: SB was anencephalic and had foetal asphyxia 1942 child—hydramnios
8	45	-	A ₁	+	O	Found	10 days and 7 mths.	M, 1929, A.W., Gp. A ₁ Rh+	M, 1931, A.W., Gp. A ₁ Rh+	F, 1940, A.W., Gp. A ₁ Rh+	F, 1942, E.F. Surv., Gp. A Rh+		4th child jaundiced from 5th day
9	32	-	A ₁			Found	3 years	F, 1929, A.W., Gp. O Rh+	M, 1931, A.W., Gp. O Rh+	M, 1933, A.W., Gp. A ₁ Rh+	Misc., 1935, 9 wks. M, 1936, d. 10 wks. imperforate anus		SB child—7 mths. premature—hydramnios, E.F. confirmed p.m. 7th child a few weeks premature
10	32	-	B	+	A ₁ B	Found	During last pregnancy	F, 1936, A.W., Gp. B Rh+	M, 1939, I.G.N., d. 4 days	F, 1943, I.G.N., d. 4 days Gp. A ₁ Rh+			Antibody first found when 4 mths. pregnant with child
11	42	-	A ₁	+	A ₁	Found	8 years	SB, 1919, premature 6 SB, 1928, premature	M, 1921, A.W. 7 M, 1932, I.G.N., d. 6 days	F, 1922, A.W. 8 M, 1934, I.G.N., d. 2 days	SB, 1923, premature SB, 1926, premature		Mother sterilized in 1931 p.m. exam. of 7th and 8th children confirmed diagnosis 8th child had other congenital abnormalities
12	22	-	O	+	O	Found	10 days	F, 1939, A.W.	F, 1942, I.G.N. Surv., Gp. O Rh+				Last child had umbilical haemorrhage
13	33	-	A ₁			Found	8 days	SB U, d. 4 days jaundice	F, 1942, I.G.N. Surv.				Stillbirth macerated
14	24	-	O			Found	1 day	U, 1937, d. 5 days	U, 1938, A.W.	U, 1940, A.W.	F, 1942, E.F., d. 3 wks. Gp. O Rh+		3rd child was jaundiced 3rd day
15	32	-	A ₁	+	A ₁	Found	9 mths.	M, 1937, A.W., Gp. A ₁ Rh+	M, 1938, I.G.N., d. 4 wks.	M, 1940, I.G.N., d. 10 wks.	M, 1942, A.W., Gp. A ₁ Rh+		p.m. on 2nd and 3rd children "marasmus, icterus, li firm"
16	36	+	A ₂			Not found	2 days	F, 1934, A.W.	M, 1935, A.W.	SB, 1942, H.F.			Stillbirth, male; hydramnion
17	37	-	O	+	B	Found	During last pregnancy and 8 days after last confinement	M, 1934, A.W., Gp. B Rh+	H.F. Misc., 1935, 3-4 mths. Misc., 1935, 3-4 mths.		F, 1936, Gp. O Rh+	M, 1938, I.G.N., d.	2nd and 3rd children twin hydramnios
18	25	-	O	+	O	Found	2 days	M, 1937, A.W., Gp. O Rh+	M, 1938, I.G.N. Surv., Gp. O Rh+	F, 1942, H.F., d. few days			
19	37	-	A	+	O	Found	1st day and 7th day	M, 1933, Gp. O Rh+	M, 1935, Gp. A ₁ Rh+	F, 1942, E.F., d. minutes			
20	34	-	B			Found	8 mths.	F, 1929, A.W.	F, 1931, A.W.	F, 1933, A.W.	M, 1940, A.W.	F, 1941, E.F. Surv.	Last child—4 wks. premature jaundiced, splenectomy 1 mth.
21	35	-	O	+	A ₁	Found	6 weeks	F, 1936, A.W., Gp. A ₁ Rh+	M, 1940, A.W., Gp. O Rh+	M, 1942, E.F., d. 3 days			Last child jaundiced after 56 hours. 3 wks. premature
22	42	-	A ₁ B			Found	4 years	M, 1921, A.W. 6 M, 1928, A.W., Gp. B Rh+	M, 1921, d. 3½ yrs. 7 F, 1929, A.W., Gp. B Rh+	F, 1923, A.W. 8 F, 1929, d. 9 mths. "convulsions"	M, 1925, d. 4 wks. jaundiced 9 M, 1935, I.G.N., d.	F, 1926, A.W., Gp. B Rh+ 10 F, 1938, I.G.N., d.	4th child diagnosis: "congenital obliteration of bile ducts" 7th and 8th children twin 9th child p.m. I.G.N. confirmed

For key to abbreviations, etc., see end of table.

Family No.	Mother's Age in 1942	Mother's Group		Father's Group		Mother's Serum		Pregnancies					Notes
		Rh	ABO	Rh	ABO	Anti-Rh	Taken after Delivery	1	2	3	4	5	
23		-	O	+	O	Found	3 years	F, 1931, A.W. 6 F, 1939, E.F. Surv. Gp. O Rh+	F, 1932, A.W.	F, 1935, A.W.	F, 1935, A.W.	F, 1937, A.W.	Last child deeply jaundiced at birth
24		-	A ₂	+	O	Not found	9 mths.	U, 1938, A.W.	U, 1941, E.F. Surv. Gp. O Rh+				Last child jaundiced at birth
25	18	+	O			Not found	1st day	SB, 1942, E.F.					8 mths. foetus; p.m.: "liver showed advanced erythroblastosis" Very oedematous
26	30	+	O	-	O	Not found	Now pregnant	F, 1930, A.W. Gp. O Rh+	M, 1935, A.W. Gp. O Rh+	F, 1939, A.W. Gp. O Rh+	M, 1940, I.G.N. Surv. Gp. O Rh+		4th child is an idiot and is partially paralysed
27	32	-	B			Found	14 mths.	F, 1934, A.W.	M, 1936, A.W.	F, 1939, A.W.	F, 1941, I.G.N. Surv. Gp. O Rh+		Last child mentally backward. Born jaundiced
28	29	-	AB			Found	Less than 1 year	U, 1937	SB, male, 1938, 7½ mths.	SB, male, 1940, 8 mths.	SB, female, 1941, 7½ mths.	SB, 1942, E.F.	p.m. report (on last child) suggests E.F.
29	26	+	AB			Not found	6 mths.	U, 1942, E.F., d. 12 wks.					p.m.: "typical of E.F." First and only child
30	34	-	A ₁ B	2nd husband + A ₁		Found	5 weeks	By 1st husband F, 1930, A.W. Gp. B Rh+	By 2nd husband F, 1941, I.G.N., d. 3 days	M, 1942, I.G.N. Surv. Gp. A ₁ Rh+			
31		-	A			Not found	8 years	M, 1920, A.W. 6 M, 1932, A.W.	M, 1922, A.W. 7 M, 1933, A.W.	M, 1925, A.W. 8 U, 1934, I.G.N., d. 5 wks.	F, 1929, A.W. Gp. A ₁ Rh+	M, 1931, A.W. Gp. A ₁ Rh+	8th child jaundiced on 2nd day
32	30	-	O	+	A ₁	Found	22 mths.	M, 1934, A.W. Gp. A ₁ Rh+	M, 1936, I.G.N. Surv. Gp. O Rh+	M, 1936, I.G.N., d. 4 days	M, 1935, I.G.N., d.	F, 1941, I.G.N., d.	2nd and 3rd children twins
33		-	O			Not found	11 years	M, 1922, A.W.	F, 1926, A.W.	U, 1931, I.G.N.			Last child born with jaundice and enlarged liver and spleen
34	35	-	A ₁	+	O	Found	2 wks., still present 1 year later	M, 1939, A.W. Gp. A ₁ Rh+	F, 1942, I.G.N., d. 8 days. Gp. A				
35	32	-	O	+	O	Found	3 days	M, 1931, A.W.	M, 1934, A.W.	F, 1938, I.G.N., d. 9th day	M, 1942, I.G.N. Surv. Gp. O Rh+		1938 child's jaundice appeared on 3rd day
36	24	-	A ₂	+	A ₂	Found	1 year	F, 1938, A.W. Gp. O Rh+	F, 1941, E.F., d. 18 hours				Last child jaundiced at birth
37	34	-	A ₁	+	O	Not found	3 years	Misc., 1932, 3 mths.	F, 1935, d. 3 days jaundiced	Misc., 1939, 4 mths.			2nd child premature 7 mths.
38	35	-	A ₁	+	A ₁	Found	3 mths.	F, 1929, A.W. Gp. O Rh+	F, 1930, I.G.N., d. 3 days	M, 1931, I.G.N., d. 3 days	M, 1934, I.G.N., d. 3 days	M, 1936, I.G.N., d. 3 days	
								6 SB, 1937, F, premature	7 M, 1938, I.G.N., d. 2 days	8 M, 1940, I.G.N., d. few hours	9 F, 1942, I.G.N. Surv.		
39	32	-	A ₁	+	O	Found	During last pregnancy	M, 1931, A.W.	F, 1932, A.W.	F, 1934, A.W.	M, 1935, A.W.	M, 1938, A.W.	6th child's jaundice appeared on 3rd day. 7th child's on 2nd day p.m. confirmation of 7th child's diagnosis
								6 M, 1940, I.G.N., d. 4 days	7 M, 1941, E.F., d.				
40	27	-	B	+	O	Found	1 week	U, 1940, A.W.	M, 1942, H.F., d. 1 hr. Gp. O Rh+				Dead child was jaundiced p.m. confirmation of diagnosis
41	39	-	A ₁		B	Not found	1 mth.	M, 1927, A.W.	F, 1932, A.W.	M, 1942, E.F. Surv.			
42	40	-	O			Found	Few days	U, A.W.	U, A.W.	U, A.W.	U, A.W.	U, 1941, I.G.N., d. 8 days	6th child delivered by hysterotomy for placenta praevia
								6 U, 1942, H.F., d. few days					
43	34	-	A ₂	+	O	Found	2 weeks	SB, 1940	SB, female, 1942, H.F.				Diagnosis confirmed p.m.
44	22	-	O	+	A ₁	Not found	3rd day and 10th day	M, 1942, I.G.N., d. 3 days Gp. O Rh+					1st (and only) child premature 7 mths. Born jaundiced, p.m. confirmation of diagnosis

For key to abbreviations, etc., see end of table.

Rh FACTOR AND ERYTHROBLASTOSIS FOETALIS

BRITISH
MEDICAL JOURNAL

Family No.	Mother's Age in 1942	Mother's Group		Father's Group		Mother's Serum		Pregnancies					Notes
		Rh	ABO	Rh	ABO	Anti-Rh	Taken after Delivery	1	2	3	4	5	
45	38	+	O										
46		-	B	+	O	Not found	3 weeks	SB, 1942, I.G.N.					
						Found	14 mths.	Misc., 3 mths.	M, 1933, A.W. Gp. B Rh+	Misc., 3 mths.	M, 1936, A.W. Gp. B Rh+	F, 1937, A.W. Gp. O Rh+	Full term. First (only) child
47	32	-	A ₁					6 F, 1939, I.G.N., d. 36 hours	7 SB, female, 1940, H.F. 7 mths.	8 Misc., H.F. 5 mths.			The last miscarriage 12" from hydrops
						Found	1 week	M, 1934, A.W.	F, 1935, d. 9 days, melaena	F, 1936, A.W.	F, 1937, A.W.	F, 1938, A.W.	p.m. confirmation of diagnosis of 8th child
48	31	-	O					6 SB, female	F, 1941, d. 6 weeks microcephaly	8 F, 1942, I.G.N., d. few hours			
						Found	19 mths.	M, 1935, A.W. Gp. O Rh+	M, 1937, d. 4 mths.	Misc., 1940,	F, 1941, d. 1 day		2nd child died of "diseased liver"
49	34	-	A ₁					U	F, 1942, I.G.N. Surv. Gp. A ₁ Rh+				No information concerning miscarriages, if any. 2nd child jaundiced on second day. Oedema of legs & abdomen
						Found	1 mth.						Mother's Wassermann reaction negative. 4th child's jaundice persists for 1 mth.
50	42	-	A ₁	+	O	Found	2 weeks	F, 1932, A.W. Gp. O Rh+	U, 1936, d. 1 hour, "cancer"	Misc., 1941, 4 mths.	F, 1942, I.G.N. Surv. Gp. A ₁ Rh+		

F=Affected female. M=Affected male. U=Affected, sex unknown. SB=Affected stillbirth.
 F=Unaffected female. M=Unaffected male. U=Unaffected, sex unknown. SB=Stillbirth, not diagnosed as erythroblastotic.
 A.W.=Alive and well. d.=died. Gp.=Blood group. Misc.=Miscarriage (termination of pregnancy before 28th week). p.m.=Post-mortem examination.
 Surv.=Survived. H.F.=Hydrops foetalis. I.G.N.=Icterus gravis neonatorum. E.F.=Erythroblastosis foetalis.
 The last three represent diagnosis as reported to us.
 49 of the 50 families in this table were mentioned by Taylor (1943).

of both these agglutinins. When the mother is Rh-positive it seems certain, if iso-immunization is responsible, that another antigen must be involved. In 6 of the families in the above series the mother was Rh-positive, but in only one of the 6 (No. 26) were we able to examine the blood of the affected child. Both mother and child were O Rh-negative; the father O Rh-negative; obviously in this case the A-B-O groups could not be involved. We were able to examine the blood of the husbands of only two of these six Rh-positive mothers; both these men were Rh-negative. Since then, however, we have examined two further cases of Rh-positive mothers with affected children; in one the husband was Rh-negative, in the other he was Rh-positive. In this last case the serum of the mother (group O Rh-positive) contained a very powerful antibody more active at 37° C. than at room temperature. This serum gave clear-cut positive reactions with the red cells of 80% of a large number of unselected group O persons, including her erythroblastotic child (group O Rh-positive). When tested against group O Rh-negative bloods it was found to agglutinate strongly a series of 50 consecutive samples. After removal of the anti-A and anti-B iso-antibodies the serum still agglutinated the husband's cells (group A₁ Rh-positive). This antibody is not specific for any of the blood-cell antigens A, B, O, M, N, P, Rh, but it is suspected that it is similar to the irregular agglutinin found by Levine, Javert, and Katzin (see Levine, 1941) in the blood of an Rh-positive mother with Rh-negative husband and an erythroblastotic child, and named by them anti-Hr. According to Wiener (1942) this irregular agglutinin acts on Rh-negative cells and certain Rh-positive cells, which he designates Rh₂ on the analogy of the subdivisions of the A group. The work of Davidsohn and Boharsky (1942) indicates that the subdivision of the Rh factor is much more complex than this, and our experience bears this out. We are of the opinion that our finding of three out of four husbands of Rh-positive mothers with affected children to be Rh-negative is significant, and similar cases have been recorded by Javert (1942a, 1942b). These latter families are not among the 50 reported in this paper; it is hoped to publish further details about them when more information is available. It is possible that mistakes in diagnosis may contribute to the small group of families with Rh-positive mothers. For example, this series of families originally included one with a child at first thought to be erythroblastotic but which was later shown to have acholuric jaundice. Such a family, really not erythroblastotic at all, if mistakenly included in a series

of erythroblastotic families would in six cases out of seven fall into the group where the mother is Rh-positive, for there is no reason why mothers of, say, acholuric babies should not have the normal distribution of Rh groups.

There are other points arising from our findings that have interested us very much. In particular, we have failed to find a single Rh-negative child among the offspring of these 4 Rh-negative mothers; we have tested 33 healthy and 16 affected children. The absence of Rh-negative children from the healthy group is highly significant, and may be provisionally explained by two circumstances, both favourable to the predominance, among families showing the condition, of those of which the fathers are homozygous. There is reason to think (1) that all Rh-positive children of Rh-negative mothers are not equally liable to the disease—

In most families two or three positive children seem to be necessary before an affected child is produced, and where the father is homozygous (RhRh) and all his children are positive, these conditions are more likely to be met than when he is heterozygous (Rrh) and there is an equal chance that each conception may produce Rh-positive or Rh-negative children;

(2) that ascertainment is more frequent when the affected child has an affected sibling than when it is the only affected child in the family.

It can readily be shown that, in the absence of unforeseen disturbances, approximately three out of seven Rh-positive males must be homozygous, while four must be heterozygous. Since half the children of the heterozygotes by Rh-negative wives must be Rh-negative, the proportion of these is two-sevenths of all the children of marriages between Rh-positive men and Rh-negative women. If, therefore, it was sufficient to determine haemolytic disease for a child of an Rh-negative mother to be Rh-positive, and if all such cases had the same probability of ascertainment, we should expect one-fifth of their sibs taking haemolytic and normal together, to be Rh-negative.

Of 5 Rh-positive children the sibs of 3 (those of homozygous fathers) would all be positive; of the other 2 positive children (of heterozygous fathers) half the sibs would be positive—i.e., of all the sibs of Rh-positive children four-fifths would be positive and one-fifth negative.

This expectation is clearly contradicted by our finding in this series—none negative out of 33 normal.

If, on the other hand, to take a second simple hypothesis for comparison with the facts, we suppose that a necessary

id sufficient condition for the appearance of the disease is at both the subject and the next prior sib must be Rh-positive. In single-child families would be excluded from the record, hile for all sizes of family greater than one the representation of families having heterozygous fathers would again be halved, that three families out of four would be the children of homozygotes. Of the children, excluding both the propositus and the child next preceding it, only one in eight would be expected to be Rh-negative. In our material this exclusion fit 26 children grouped for Rh; of these only 3.25 would be expected to be Rh-negative, which is not incompatible with the absence of observed cases.

The scarcity of Rh-negative children will have to be taken into consideration in estimating the chances of getting an h-negative (that is, an unaffected) child in such families. It has been possible to show, by finding an Rh-negative child, that the father is heterozygous, the chance of the next child being normal is one in two. In the absence of this indication prognosis is entirely unfavourable.

That an Rh-negative child may occur in an affected family as been shown by our finding very recently a family in which the first child was Rh-negative, the second Rh-positive, while the third died from jaundice. The blood of this child was not examined, but the mother was Rh-negative and her serum contained an anti-Rh agglutinin. In our present series, with one exception, no mother who has once produced an erythroblastic baby has ever had a normal surviving child. The exceptional child is the fourth of Family 15, and while we have been unable to obtain any evidence of his having been affected, he is Rh-positive, though only with certain sera. It is perhaps significant that his cells on several occasions failed to react with his mother's serum (on one occasion there was a suggestion of a weak reaction), whereas the cells of the first-born reacted strongly.

Of the first children borne by the 44 Rh-negative mothers 38 were unaffected, 5 were stillbirths or miscarriages, and 1 (No. 44) is known to have suffered from the disease. Although anti-Rh was not found in the mother's serum in this last case, it is likely that this factor was responsible, for the baby was O Rh-positive; so it does not seem possible that the A-B-O system of groups could have been involved. From the second birth onwards there was a steadily increasing ratio of affected to normal children. Four of the six Rh-positive mothers, on the other hand, had first children with the disease; two of these three were affected stillbirths. The earlier onset in this group might be due, if the A-B-O system of groups were responsible, to the iso-agglutinins being already present in the mother's serum, though in only one of the four cases is the father's group known to be such that a heterospecific pregnancy could occur.

In our series about a quarter of the children diagnosed as affected survived; three-quarters were born dead or died mostly within a week of birth. Although miscarriages and stillbirths not diagnosed as affected are not represented in these proportions it is probable that the same causes were operative in a substantial proportion; on the other hand, mild cases which recover may not find their way into such a series. Affected children were approximately evenly distributed between the two sexes.

We are grateful to the following pathologists and practitioners for sending us samples of blood and case details: E. F. Aubert, T. H. Boon, W. Broughton-Alcock, F. J. Burke, F. E. Camps, A. E. Chisholm, J. B. Cochrane, J. Craig, J. J. Dubash, Caroline A. Elliott, Margaret Fairlie, J. S. Faulds, A. Hanton, J. S. Hesketh, D. V. Hubble, P. H. Kendall, N. Lissimore, S. Lucas, A. J. McCall, S. G. M. Mackay, H. Mallinson, L. C. Martin, M. E. Matthews, S. F. Moores, J. Murray, G. R. Osborne, W. S. Stanbury, R. Williams, and C. H. Wrigley. We also wish to thank Prof. R. A. Fisher for help with the paragraphs dealing with the absence of Rh-negative children in our material.

REFERENCES

- Boerman, K. E., Dodd, B. E., and Mellison, P. L. (1942). *British Medical Journal*, 2, 535.
Davidsohn, I., and Toharsky, B. (1942). *Amer. J. clin. Path.*, 12, 434.
Javert, C. T. (1942a). *Surg. Gynec. Obstet.*, 74, 1.
— (1942b). *Amer. J. Obstet. Gynec.*, 43, 921.
Levine, P. (1941). In *Year-book of Pathology and Immunology*, p. 509. Chicago.
— Burnham, L., Katzin, E. M., and Vogel, P. (1941). *Amer. J. Obstet. Gynec.*, 42, 925.
Taylor, G. L. (1943). *Proc. roy. Soc. Med.*, 36, 225.
Race, R. R., Prior, A. M., and Klein, E. W. (1942). *J. Path. Bact.*, 54, 514.
Wiener, A. S. (1942). *Amer. J. clin. Path.*, 12, 302.

HAEMOLYTIC DISEASE OF THE NEWBORN (ERYTHROBLASTOSIS FOETALIS)

ITS TREATMENT WITH RHESUS-NEGATIVE BLOOD*

BY

JANET D. GIMSON, M.B., B.S.

Resident Assistant Physician to the Hospital for Sick Children,
Great Ormond Street

A series of 19 consecutive cases of haemolytic disease of the newborn, collected during the eleven months from March, 1942, to Feb., 1943, at the Hospital for Sick Children, Great Ormond Street, is here surveyed. Following on the work of Levine *et al.* (1941a, 1941b) on the iso-immunization theory of causation of erythroblastosis foetalis, it was desired to treat these infants by transfusion with rhesus-negative blood, free of agglutinins, and thus test out the recommendation that rhesus-negative blood would produce better results than rhesus-positive blood. The blood of the infants and mothers was tested with this theory in view.

Briefly, the iso-immunization theory may be stated thus: A man whose blood contains the Rh factor mates with a woman whose blood does not contain the Rh factor. If her foetus is Rh-positive she may produce anti-Rh agglutinins as a result of immunization with the foetal blood. The antibodies pass through the placenta, and in suitable concentration cause haemolysis of the foetal red cells. Several workers—Wiener in 1942, and Boorman, Dodd, and Mollison (1942)—have shown that a little less than 15% of a random sample of the population have blood which does not contain the rhesus factor—namely, is Rh-negative. In 1941 Landsteiner and Wiener showed that the Rh factor is inherited as a dominant Mendelian character. The Rh-positive child of an Rh-negative mother inherits the factor from the father, and if the mother responds by making anti-Rh the foetus is likely to be affected by haemolytic disease. If in such a family the father is heterozygous (RhRh) each child will have an even chance of being Rh-negative and so of escaping the disease, but if he is homozygous (RhRh) every child will be Rh-positive and likely to be affected. The difference in clinical forms is probably due to varying degree and duration of iso-immunization during the course of pregnancy. Although immunization to the Rh factor appears to be responsible for the great majority of cases of haemolytic disease (Levine *et al.*, 1941a, 1941b; Boorman *et al.*, 1942) other group factors are, evidently responsible in cases where the mother is found to be Rh-positive.

The consequent anaemia in the foetus calls forth a great effort of response from all erythropoietic tissue. This has often been shown post mortem by previous workers, and is usually demonstrable in varying degree in the blood during life. Parsons, Hawksley, and Gittins in 1933, and Hawksley and Lightwood in 1934, laid stress on the fact that there was more evidence for there being a primary haemolytic cause for erythroblastosis than for a primary disturbance of blood formation. The possibility of a hereditary transmitted factor had not then been adequately investigated.

Present Series of Cases

This series of 19 cases (see Table) is necessarily a selected group of this disease. The selection is automatic and is therefore typical of those cases coming to any children's hospital which is not directly attached to a maternity hospital: for macerated foetuses and stillborn infants are not seen, and it is rare for cases of hydrops foetalis or icterus gravis neonatorum, which are fatal within 24 hours of birth, to be sent in before death. Seventeen were primarily cases of icterus, with or without anaemia; two were anaemic only and showed no jaundice. Two had transient oedema of the eyelids; one had ascites in addition to jaundice and pallor. One case appeared mentally defective. The age when admitted to hospital varied between 3 days and 6 weeks: 4 came within the first week of life; 13 within the first fortnight.

* Substance of a communication to the British Paediatric Association, May, 1943.

TREATMENT OF ERYTHROBLASTOSIS FOETALIS

BRITISH
MEDICAL JOURNAL

Table showing Details of Cases

Case No. and Date of Birth	Age when first seen (Days)	Family History		Jaundice	Blood Picture on Presentation		Transfusions Given	Hb following Transfusion	Remarks	Result
		Child's Place	Other Children		C.I.	Hb* RBC† Eb‡				
1 11/3/42	10	4th	1st healthy 2nd born J.; died 3rd born J.; died 12th day	None; increas- ing pallor	1-3	35 1-33	(1) 200 c.c.m. Rh-pos. (2) 180 c.c.m. Rh-neg.	77% 24 hrs. after; 53% 7 days after. Therefore 2nd trans.; 98% 24 hrs. after; 83% 11 days after	Hb level poorly maintained after Rh-pos. trans.; well maintained after Rh-neg. trans.	Perfect
2 20/4/42	7	3rd	1st died 3 days before birth 2nd healthy	Severe 2nd day and severe pallor	1-3	50 1-81	(1) 60 c.c.m. Rh-pos. (2) 120 c.c.m. Rh-neg.	42% 36 hrs. after. Therefore 2nd trans.; 80% 4 days later; 89% 16 days later	Weakness and stertorous breathing noticed when 3 days old. Condition poor after 1st trans. J. im- proved and blood picture satis. after 2nd trans.	M.D. and spastic. D. Oct., 1942
3 1/5/42	12	3rd; prem. 2 wks.	1st prem.; died 2 days. 2nd J. and anaemic; many blood trans.; now well	At birth; faded in 8 days; to reveal pallor	1-7	17 0-52	(1) 200 c.c.m. Rh-pos. (2) 100 c.c.m. Rh-neg. (3) 180 c.c.m. Rh-neg.	58% 24 hrs.; 50% 3 days; 40% 4 days. Therefore 2nd trans.; Hb to 100% increased 3-4 days. Pallor 24 hrs.; 92% 13 days	J. increased greatly after first Rh-pos. trans.; spleen became palpable and liver enlarged. Haemolysis con- tinued; pallor became evident. Haemolysis con- satisfactory after 2nd Rh-neg. trans. Blood picture remained satisfactory	Died Aug., 1942. bronchopneumonia
4 2/6/42	15	2nd	1st normal	At birth; fading to reveal pallor	0-9	60 3-26 4 days later	Mixed transfusion 2-1; Rh-pos.	100%		
5 6/6/42	12	3rd	1st normal	From 36 hrs.	1-5	45 1-5	(1) 150 c.c.m. Rh-neg. (2) 150 c.c.m. Rh-neg.	85% 24 hrs.; 46% 6 wks. Therefore 2nd trans.	Blood picture then satisfactory	Perfect
6 8/6/42	12	2nd	1st normal	Since 3rd day	1-5	75 2-5	(1) 140 c.c.m. mixed Rh- neg. and Rh-pos.; 2-1 (2) 125 c.c.m. Rh-neg.	96% 24 hrs.; 63% 6 days. Therefore 2nd trans.	Spasticity noted on admission. 7 days after admission pallor had fallen to 60%. Therefore trans. Blood picture then satisfactory	Infant kernic- teric. Died Nov., 1942
7 25/6/42	13	5th	1st died 6 wks. 2nd, 3rd, 4th all mild J.	At birth	—	67	(1) 200 c.c.m. Rh-neg.	106% sat.; 115% 3 days later	15 days after 1st trans. practically all circulating cells Rh-neg. Blood picture following 2nd trans.	Perfect
8 4/7/42	35	3rd	1st stillborn 2nd mild J. and anaemic; now well	None; pallor and oedema eyelid	1-3	50 1-95	(1) 130 c.c.m. Rh-neg. (2) 100 c.c.m. mixed Rh-neg. and Rh-pos.	130% 3 hrs.; 56% 15 days. Therefore 2nd trans.; 90% 3 hrs.; 79% 12 days	Blood picture remained satisfactory	
9 26/7/42	3	1st	—	Within few hrs.	1-0	80 3-95	(1) 115 c.c.m. father's Rh-pos., continued c.c.m. Rh-neg.	94% 24 hrs.; 74% 7 days. Therefore 2nd trans.; 90% 24 hrs.	General condition only slowly improved until after 2nd trans. Blood picture then satisfactory	
10 13/8/42	3	2nd	1st normal	Within 12 hrs.	0-8	34 3-04	(1) 130 c.c.m. Rh-neg. and Rh-pos.; 1-1 (2) 200 c.c.m. Rh-neg. (3) 260 c.c.m. Rh-neg.	50% 36 hrs. Therefore 2nd trans.; 60% 70% 4 hrs.; 50% 4 days. 3rd trans.; 80% 24 hrs. after	Reaction occurred after 1st trans., therefore discon- tinued. No reaction after 2nd or 3rd trans. Hb remained between 60 and 70% 3 mths. Then satis- factory	
11 26/8/42	14	1st	—	Within 24 hrs.	1-0	100 5-0	(1) 300 c.c.m. Rh-neg.	100% 24 hrs. after	Nutritional anaemia superimposed on the mildest haemolytic anaemia. Blood picture remained satisfactory	
12 1/9/42	13	6th	All others normal	Within 12 hrs.	0-8	34 3-04	(1) 230 c.c.m. Rh-neg.	80% 24 hrs. after	Blood picture satisfactory	
13 3/10/42	21	2nd	1st J. at birth; now quite healthy	Within 24 hrs.	1-0	100 5-0	(1) 210 c.c.m. Rh-neg.	100% 24 hrs. after	Blood picture satisfactory	
14 8/11/42	12	4th	1st normal 2nd normal 3rd J. birth; d. 3 days	At 14 hours	0-8	50 3-15	(1) 150 c.c.m. Rh-neg.	105% 24 hrs. after	Obstructive element marked on admission. Gradual blood picture remained satisfactory	
15 22/11/42	28	4th	1st Mix. 4/12. 2nd J. spastic. 3rd normal	Since 2nd day; pallor	0-5	25 2-22	(1) 200 c.c.m. Rh-neg.	85% 24 hrs. after	Obstructive element marked on admission. Gradual blood picture remained satisfactory	
16 8/1/43	17	1st	—	At birth; then pallor	1-1	55 2-57	(1) 200 c.c.m. Rh-neg.	105% 24 hrs. after	Obstructive element marked on admission. Gradual blood picture remained satisfactory	
17 2/1/43	40	2nd	1st J. 4 days; now normal	From 24 hours	1-2	85 3-48 11 days later	(1) 100 c.c.m. Rh-neg.	105% 24 hrs. after	Obstructive element marked on admission. Gradual blood picture remained satisfactory	
18 10/1/43	30	3rd	1st normal	From 12 hours	1-1	60 2-63	(1) 200 c.c.m. Rh-neg.	105% 24 hrs. after	Obstructive element marked on admission. Gradual blood picture remained satisfactory	
19 11/2/43	8	1st normal	From birth; faded to pallor	From birth; faded to pallor	—	40	(1) 200 c.c.m. Rh-neg.	105% 24 hrs. after	Obstructive element marked on admission. Gradual blood picture remained satisfactory	

* Stable haemoglobinometer 14g./100 c.c.
† Millions per c.c.m.
‡ per cent.

Family History.—Five had the classical history of previous fants born jaundiced and dying within a few hours or days of birth, or a child jaundiced at birth who survived (in some cases living only to be mentally defective or kernicteric), or of stillbirths or miscarriages. Four had the family history of what might be called physiologically jaundiced infants previously. Three were first babies. Seven had no pertinent family history: of these, three were only the second child, three were the third child, and one was the sixth child. In only one family was there a history in the grandparents' generation. It is difficult to get these questions answered accurately, as people are naturally uncertain about aunts or uncles or cousins who have had stillbirths. None of the mothers had ever had a blood transfusion; therefore no history of transfusion accidents could be obtained.

Blood Findings with Reference to the Rhesus Factor

In every case the blood of the mother and infant was tested for the rhesus factor.* All the mothers of this series were Rh-negative and all the infants were Rh-positive. Anti-Rh agglutinins were found in the mother's serum in all but one case. When this has been proved it is suggested that the mother should have some words of warning written on her identity disk or card, such as: "Please note in case of blood transfusion: I am Rh-negative." Thus it is hoped to prevent haemolytic transfusion reactions which would be anticipated should Rh-positive blood be used in these cases.

The serological findings may be of diagnostic assistance. In some cases of jaundice of the newborn it is impossible to be certain whether one is dealing with a mild example of haemolytic disease or with physiological jaundice. This has been acknowledged before by Parsons, by Hawksley and Lightwood, and by Mollison. There may or may not be enough haemoglobin to cause a dangerous fall in red-blood-cell and haemoglobin levels. Case 11 bears out this point: jaundice had been maximal on the second day, after which it had faded until the tenth day, and then increased slightly; by the fourteenth day, when the baby reached hospital, the jaundice was again waning. This, then, might have been considered a case of physiological jaundice. The serological findings showed the mother to be Rh-negative and the infant Rh-positive. Anti-Rh agglutinins were found in the mother's serum. The diagnosis of a mild case of haemolytic disease of the newborn was therefore established. Congenital obliteration of the bile ducts had to be considered in the differential diagnosis of Cases 17 and 18. They were interesting examples of biliary obstruction lasting for an unusually long time in this haemolytic disease. Here again the blood findings aided the diagnosis, the mothers being Rh-negative and the infants Rh-positive (Lightwood—awaiting publication).

Treatment

It is well known that a certain number of cases, even of icterus gravis neonatorum, will recover with no treatment; though Hampson in 1929 quoted an 80% mortality in a survey of untreated cases. On admission to hospital the clinical condition of the patient was considered and the blood picture determined. It was rarely thought necessary to transfuse unless the erythrocyte count was below 3.5 millions. Case 11 was therefore the one patient of the series who was not transfused. It is interesting, however, to debate whether it would not have been a good therapeutic measure to give a transfusion in this case. The haemoglobin level continued to fall slowly until the baby was 4 weeks old, and until then she was lethargic, difficult over feeding, and did not gain weight. At the age of 4 weeks the haemolytic process ceased to progress, the anaemia lessened, and the general condition improved steadily. In all probability this would have happened sooner had a transfusion of rhesus-negative blood been given. Cases 4, 6, 13, and 18 were watched for a varying period of 6 days to 7 weeks before deciding that transfusion was necessary. The others were transfused within 24 hours of admission.

The procedure has been varied as experience has accumulated. At the beginning of the series a transfusion of Rh-positive blood was given when the condition was such that it was unjustifiable to withhold treatment until the Rh picture

had been determined and a supply of Rh-negative blood had been obtained. However, in the first three cases, in which Rh-positive blood was used, there was evidence of continued and even increased haemolysis. An initial rise of haemoglobin and erythrocyte levels occurred, as was hoped for by previous workers who treated their cases with parents' blood. An increase in the jaundice and in the size of the liver and spleen was also noted. Within a few hours or days the haemoglobin and erythrocyte levels had fallen considerably and the infants were in need of further transfusion. The next transfusion was of Rh-negative blood. The rationale of giving Rh-negative blood free of agglutinins is that the foetal blood is Rh-positive and is undergoing destruction. It is desirable to give blood which is not so destroyed. (Chart I—Case 1—shows the

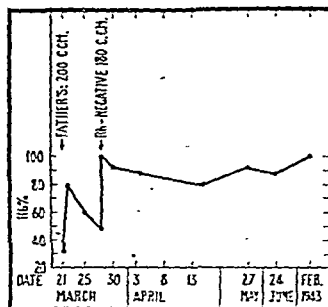


CHART I.—Case 1.

haemoglobin levels following transfusion with Rh-positive and then Rh-negative blood in the same patient. The level is not well maintained after the first transfusion, but is considerably better after the second.)

Further haemolysis of the patient's red cells is not prevented by giving Rh-negative blood. Blood is being provided, however, which will not be destroyed more rapidly than normal and on which the infant can live until the haemolytic process of the disease has come to an end. Haemolysis continued to occur, as seen by gradually increasing pallor and fall of haemoglobin (Cases 3, 5, 8, 10, and 12).

In a few cases mixed transfusions of Rh-positive and Rh-negative blood were given so that the survival rate of the two types of erythrocyte could be studied by Dr. Mollison. As reported by him in a paper read before the Medical Research Society in Oct., 1942, and not yet published, Rh-negative erythrocytes were usually found to survive for at least 90 days, whereas Rh-positive erythrocytes were often destroyed within a few days of transfusion. Because of these findings and because of the poor clinical results observed, it was felt unjustifiable to continue to give transfusions of Rh-positive blood. The later cases in this series therefore received Rh-negative blood exclusively. No increase of jaundice has been noticed following Rh-negative transfusion. When Rh-negative

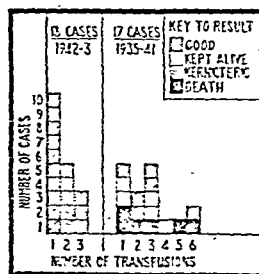


CHART II.—Comparison with another series of cases.

blood only was used, more than two transfusions were not necessary. This compares favourably with Diamond, Blackfan, and Baty's results when up to six transfusions in a single case were given, with those mentioned by Hawksley and Lightwood when from one to four transfusions were given, and also with previous cases treated at this hospital.

* All serological tests were performed by Miss Boorman, Miss Dodd, and Dr. Mollison.

A comparison of the present series with the 17 consecutive cases of erythroblastosis foetalis occurring in this hospital between 1935 and 1941 treated by blood transfusion is shown in Chart II. It will be seen that in the latter series up to six transfusions were required in a single case. The deaths (only those from the disease itself or transfusion are included) numbered 6 out of the 17 cases. Four of these patients were kept alive, but in analysing their blood pictures it was found that there had been no improvement after transfusions. Seven cases finally did satisfactorily, whereas in the 1942-3 series all 18 regained and maintained normal blood pictures. Eleven cases of the present series received an initial whole Rh-negative transfusion. Eight of these required only one transfusion. Two bottles of Group O Rh-negative stored blood supplied by the Transfusion Service are now always kept in the refrigerator. This store is renewed fortnightly.

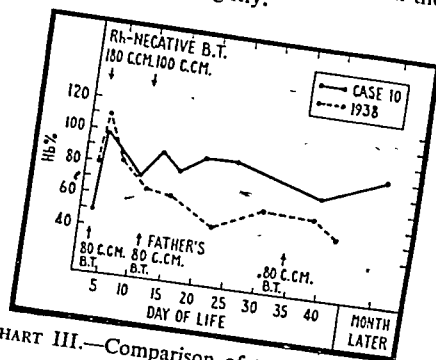


CHART III.—Comparison of two similar cases.

A comparison of two similar cases of the disease is shown in Chart III. They are alike in family history, both second children, sibling normal, and they both presented at hospital on the third day of life. 1938: Blood picture on admission—Hb 80%, R.B.C. 2.98 millions, no nucleated red cells seen. Therefore this presented as a milder case than Case 10. It is shown that in spite of three 80-c.c.m. transfusions (father's blood for first two, the third no specification) there is no improvement in the haemoglobin level; nor was there in erythrocyte count. On the 42nd day of life the infant is said to have developed diphtheria and its subsequent history is not known. Whereas the haemoglobin level of Case 10 was satisfactorily maintained after the second Rh-negative transfusion.

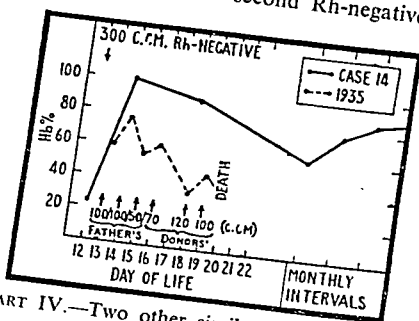


CHART IV.—Two other similar cases compared.

Chart IV shows another comparison of two similar cases. 1935: presented on the 13th day of life; sibling jaundiced, died on 10th day. Blood picture on admission: Hb 50%, R.B.C. 2.1 millions, erythroblasts 13%. From the blood picture on admission again it will be noted that this was apparently a milder case of the disease than Case 14. Six transfusions in all were given, but there was no arrest of the haemolytic process, and the infant died on the 20th day of life. Case 14 shows that the haemolytic process continued for two months after Rh-negative transfusion; but the haemoglobin level did not fall alarmingly, and the general condition of the patient was well sustained. After two months the haemoglobin and erythrocyte levels steadily returned to normal. Mollison found in Case 8 that 15 days after the first transfusion, which was of Rh-negative blood, the great majority of the circulating cells were Rh-negative—i.e., those of the donor. Had the transfusion not been given the infant would probably have been moribund.

Reaction to Transfusion

There has been only one case of reaction from transfusion (Case 12). Rh-positive and Rh-negative mixed blood fusion was being given. A total of 250 c.c.m. had been planned. By the time 100 c.c.m. had been given the jaundice increased considerably, the respirations were rapid at 60 per minute, and the pulse was thready and imperceptible at 100 per minute. Nikethamide 0.25 c.c.m. was given. The rate of transfusion had been reduced; however, it was considered inadvisable to continue beyond 130 c.c.m. The following day the jaundice remained deep but the general condition had improved. Thirt-six hours after the transfusion had been stopped the haemoglobin was 50% and the red cells 2.38 millions per c.c.m. A third strong Rh antibody had been found in the mother's serum. It was decided to give a whole Rh-negative blood transfusion of 200 c.c.m. No reaction occurred; the jaundice did not increase; but the haemoglobin 24 hours later was only 60% and the red cells 3.2 millions. Four days later the haemoglobin had fallen to 50% and the red cells to 2.86 millions. A third transfusion was given, of 260 c.c.m., this being the second entirely of Rh-negative blood. The general condition was much improved. The red cells were 4.71 millions per c.c.m. although the haemoglobin rose only to 70% forty-eight hours after this transfusion; it was still at this level a week later.

In this question of reaction after transfusion there is another interesting comparison to be drawn: the 1935-41 records show more often than not that a rise of temperature and some constitutional disturbance followed the transfusions. Also, as liver and spleen and in the depth of jaundice—the haemolytic process was accentuated rather than decreased. As already stated, only the one reaction has been witnessed, and this when giving mixed Rh-positive and Rh-negative blood. An increase of haemolysis has been observed in the present series from Rh-negative blood transfusion.

Size of Transfusion.—It will be noticed that larger transfusions have usually been given than were previously employed. The volume in c.c.m. to be transfused is calculated from the formula

$$\frac{\% \text{ rise of Hb required}}{100} \times \text{blood volume,}$$

the blood volume being approximately 88 c.c.m. per kilo of body weight (40 c.c.m. per lb.), calculated on expected weight for age from birth weight. This works out at more than 10 to 15 c.c.m. per lb., which was the old recommended rule. This had been a sound rule, as a reaction to transfusion was then such a frequent occurrence. These reactions could be explained on a haemolytic basis and therefore might have been more severe had larger amounts been employed.

All these transfusions have been given intravenously, by drip into the internal saphenous or a cubital fossa vein. It is aimed to maintain a constant rate of 15 to 20 c.c.m. per hour. The infants have been kept in hospital overnight after 1 transfusion.

Results

All these cases have been followed to the present date. Sixteen of the 19 are apparently normal. One (Case 3) died of fulminating bronchopneumonia at the age of 21 months; this was six weeks after the infant had regained a normal blood picture (and after it had been discharged from hospital).

Two cases were presumed to have brain damage. (No necropsy was performed, as these patients did not die in this hospital.) Both of them happened to have mothers with exceptionally high-titre antibodies in their sera. Both were severely jaundiced—one from the third, the other from the second day of life. The first baby (Case 6) was not admitted until 12 days old, by which time already its cerebral function was abnormal and spasticity was marked. Though the jaundice faded after the second transfusion and the anaemia was permanently relieved, no advantageous change occurred in the mentality or spasticity. This baby died in Nov., 1942, aged 5 months, of bronchopneumonia. The second baby (Case 2) was admitted aged 7 days. The jaundice was very severe and had become apparent on the second day. On the third day the infant had developed stertorous breathing and had become very weak. The erythrocyte count was only 1.8 millions, and

small transfusion of the father's blood (Rh-positive) was given -60 c.cm. (This case occurred early in the series.) The transfusion increased the jaundice; the blood picture, although immediately improved, was reduced to the original level in 36 hours. A second transfusion, of Rh-negative blood this time, as given, and a normal blood picture was thereafter maintained. Grave doubts were held as to the mentality of the infant from his 14th day of life, from which time he lay in marked opisthotonos and stared vacantly. No spasticity was noticed until the fifth month. The condition was thought to be due to nuclear jaundice. He died in Oct., 1942, of bronchopneumonia.

Rustin McIntosh (1941) quoted a kernicterus incidence of 0% in cases of erythroblastosis foetalis. In view of the fact that Fitzgerald, Greenfield, and Kounine (1939) state that it manifests itself within 24 hours of the jaundice, it is unlikely that this dreaded sequel can be avoided.

Recommendations

1. Blood transfusion with rhesus-negative blood free of agglutinins should be employed for the treatment of cases of haemolytic disease of the newborn. A relatively large transfusion is advocated when necessary, as no haemolytic reaction need be anticipated. The general condition of the infant is thus rapidly improved; a stay of only 24 hours in hospital with further out-patient observation can be allowed, and a minimum number of transfusions will be necessary.
2. A store of rhesus-negative blood free of agglutinins should be easily available to all paediatric units and maternity hospitals.
3. Pregnant women who have previously borne an infant thought to be affected with haemolytic disease should be tested for the rhesus factor. If Rh-negative, she should be delivered in a maternity institution where Rh-negative blood is available.
4. For an infant born jaundiced, with a strong family history of haemolytic disease, immediate transfusion with Rh-negative blood free of agglutinins should be given, no matter what the erythrocyte and haemoglobin levels.

Summary

Nineteen consecutive cases of haemolytic disease of the newborn have been treated and investigated with reference to the immunization theory of causation. Eighteen of these were transfused. Clinical comparison has been attempted between the effectiveness of rhesus-negative blood free of agglutinins and rhesus-positive blood. All these patients regained a normal blood picture with at most two Rh-negative transfusions.

These results are encouraging, and although the number of cases studied is small it would seem that if an infant with haemolytic disease of the newborn lives long enough to reach hospital there is a good chance of its survival.

Dr. Mollison and his co-workers at the Sutton Blood Transfusion Unit have done all the testing for the rhesus factor and supplied us with the Rh-negative blood used in the series. I should like here to thank him. My thanks are also due to the staff of the Hospital or Sick Children, Great Ormond Street, for their co-operation.

REFERENCES

- Boorman, K. E., Dodd, B. E., and Mollison, P. L. (1942). *British Medical Journal*, 2, 535, 569.
Fitzgerald, G. M., Greenfield, J. G., and Kounine, B. (1939). *Brain*, 62, 292.
Hawkesley, J. C., and Lightowler, R. (1934). *Quart. J. Med.*, 27, 195.
Landsteiner, K., and Wiener, A. S. (1941). *J. exp. Med.*, 74, 309.
Levine, P., Burnham, L., Katzin, E. M., and Vogel, P. (1941a). *Amer. J. Obstet. Gynec.*, 42, 925.
—, Katzin, E. M., and Burnham, L. (1941b). *J. Amer. med. Ass.*, 116, 825.
McIntosh, Rustin (1941). *Canad. med. Ass. J.*, 45, 488.
Parsons, L. G., Hawkesley, J. C., and Gittins, R. (1933). *Arch. Dis. Child.*, 8, 159.

Mr. Herbert Morrison foresees the Prison Medical Service, of the future as an integral part of a new comprehensive health and medical service, but providing more opportunities for studying the mental aspects of crime. The Home Secretary, who was speaking to the Prison Medical Officers' Association, said that study of this kind was developing well until stopped by the war, but it had been found possible to resume it on a limited scale at Wormwood Scrubs. The number of prisoners in Britain had risen from 10,236 in 1939 to 12,400 in 1942, due largely to wartime offences. The incidence of certain diseases, especially venereal disease, had increased, but thanks to the efforts of the prison medical staff prisoners generally were healthier at the end of their sentence than when admitted.

OCCURRENCE OF THE Rh ANTIGEN IN THE POPULATION

NOTES ON 5 CASES OF ERYTHROBLASTOSIS FOETALIS

BY

EDWARD D. HOARE, M.D.

Department of Pathology, Welsh National School of Medicine

In a recent paper Boorman, Dodd, and Mollison (1942) gave a full account of our present knowledge of the Rh factor in the blood. The following is a record of its incidence in 1,122 unselected blood donors in South Wales.* A study of 5 cases of erythroblastosis foetalis is also included.

Technique

The test serum was obtained by immunizing guinea-pigs with rhesus monkey blood as described by Landsteiner and Wiener (1941). Only 3 out of 10 guinea-pigs yielded satisfactory results, but from the three sera were obtained which gave a clear-cut distinction between Rh-positive and Rh-negative bloods at dilutions up to 1:60—a titre high enough to avoid confusion from any anti-A or anti-B agglutinins that might be present. It should be stated that the serum was kindly tested by Dr. Mollison, who confirmed the presence of Rh antibodies, but considered their titre somewhat low and apt to permit of false negatives. Dr. Mollison, however, in testing the serum, used equal volumes of cell suspension with 1:60 serum dilutions, whereas in testing the donors' bloods 1 volume of cell suspension with 2 volumes of serum was always used, so that a greater antibody concentration was obtained. Results were read according to the "sediment pattern" after standing at room temperature, and after microscopical examination of the resuspended sediment (Landsteiner and Wiener, 1941). At a later stage in the work the serum and cells were allowed to stand at room temperature for 1/2 to 1 hour and were shaken and spun at 500 to 1,000 r.p.m. for 1 to 2 minutes; the deposit was then examined for agglutinates by gently tapping the tube. The results obtained by this method agreed with those given by the "sediment pattern" method.

Table showing Distribution of the Rh Antigen in 1,122 Unselected Blood Donors

Group:	AB	A	B	O	Total
Rh-positive	27	349	90	483	949 (84.6%)
Rh-negative	3	64	14	92	173 (15.4%)

The results correspond closely with those of Wiener (1942), who found 85.6% Rh-positive out of 777 persons of all groups, and of Boorman, Dodd, and Mollison (1942), who found 85.15% Rh-positive of 1,610 persons of Groups A and O.

Erythroblastosis Foetalis

Various observations by Levine and Stetson (1939) and Levine, Katzin, and Burnham (1941) have shown that an Rh-negative mother carrying an Rh-positive foetus (by an Rh-positive father) may become immunized to the Rh factor in the foetus and produce antibodies which destroy the foetal erythrocytes. A haemolytic anaemia results in the foetus, and is manifest in the newborn infant in the condition known as erythroblastosis foetalis. Five such cases have come under my notice in the course of this investigation.

Case 1.—Child aged 19 days; jaundiced since birth; severe anaemia. R.B.C. 1.25 millions per c.mm.; Hb 24%; moderate numbers of erythroblasts and normoblasts. Despite blood transfusion the child died. Father, Group A Rh-positive; mother, Group O Rh-negative; child, Group O Rh-positive. The mother's serum, taken 3 weeks after her delivery, reacted against 2 Rh-positive Group O bloods. There was no reaction with 3 Rh-negative Group O bloods. The Rh antibodies were apparently of the cold type, and were detectable in the undiluted serum at room temperature and to a titre of 1:4 at 0° C.

Case 2.—Child aged 2½ weeks; jaundiced since birth; moderately severe hyperchromic anaemia. R.B.C. 2.02 millions per c.mm.;

* Samples of blood were kindly supplied by Dr. Drummond of the Welsh Board of Health Blood Transfusion Service.

Hb 50%; erythroblasts and normoblasts present in moderate numbers. The child was treated by blood transfusion and recovered. Father abroad; mother, Group A Rh-negative; child, Group A Rh-positive. The mother's serum, taken 3 weeks after her delivery, reacted against 3 Rh-positive Group A bloods and gave no reaction against 3 Rh-negative Group O bloods. The titre of the antibodies was not determined.

Case 3.—Child aged 2 days; jaundiced since birth; moderately severe hyperchromic anaemia. R.B.C. 2.15 millions per c.mm.; Hb 48%; moderate numbers of erythroblasts and normoblasts. Blood transfusion was given, but the child died. Father, Group O Rh-positive; mother, Group A Rh-negative; child, Group A Rh-positive. The mother's serum, tested 4 weeks after her delivery, reacted against 11 Rh-positive bloods (2 Group A, 9 Group O), but gave no reaction with 9 Rh-negative bloods (2 Group A, 7 Group O). When titrated against 3 Rh-positive Group O bloods the serum reacted in dilutions up to 1:32.

Case 4.—Child aged 3 weeks; jaundiced since birth; moderately severe anaemia. Small numbers of erythroblasts and normoblasts were present in the blood film. The child died before any treatment could be given. Father, Group A Rh-positive; mother, Group A Rh-negative; child, Group A Rh-positive. The mother's serum, 2 weeks after her delivery, reacted against 14 Rh-positive Group O bloods—to a titre of 1:32 with two of them and 1:8 with one. There was no reaction with 2 Rh-negative Group O bloods.

Case 5.—Child aged 10 days; jaundiced since birth; very severe hyperchromic anaemia. R.B.C. 830,000 per c.mm.; Hb 27%; large numbers of erythroblasts and normoblasts seen. The child received blood transfusion, but died. Father, Group O Rh-positive; mother, Group A Rh-negative; child, Group O Rh-positive. The mother's serum, 2½ weeks after delivery, reacted against 6 Rh-positive bloods (2 Group A, 4 Group O). There was no reaction with 3 Rh-negative bloods (1 Group A, 2 Group O). The titre was 1:16 when tested against 3 Rh-positive Group O bloods.

In all the five cases described above the father and child were Rh-positive while the mother was Rh-negative. In all cases the mother's serum contained Rh antibodies, and in four of the cases its titre ranged from 1:1 to 1:32. Case 4 was of interest in that the titre was 1:8 with some bloods and 1:32 with others used for test purposes. Both the "sediment pattern" and the centrifuge method were used in the determination of the titre. They gave the same reading. In one case only was the antibody of the cold type.

I should add that at the time these cases occurred the reports that Rh-negative blood often survived longer in the circulation of cases of erythroblastosis foetalis than Rh-positive blood had not appeared, and as there was no theoretical reason against the use of Rh-positive blood, the Rh grouping of the transfused blood was not determined. A-B-O grouping and careful cross-matching tests were of course done.

My thanks are due to Dr. MacCallum of the Wellcome Bureau of Scientific Research, who kindly supplied me with rhesus monkey blood.

REFERENCES

- Boorman, K. E., Dodd, B. E., and Mollison, P. L. (1942). *British Medical Journal*, 2, 535, 569.
Landsteiner, K., and Wiener, A. S. (1941). *J. exp. Med.*, 74, 309.
Levine, P., and Stetson, R. E. (1939). *J. Amer. med. Ass.*, 113, 126.
Katzin, E. M., and Burnham, L. (1941). *Ibid.*, 116, 825.
Wiener, A. S. (1942). *Amer. J. clin. Path.*, 12, 302.

A NOTE ON THE REHABILITATION OF HEART PATIENTS

BY

BASIL PARSONS-SMITH, M.D., F.R.C.P.
Physician to the National Heart Hospital

As with all other branches of medicine, the aim of rehabilitation in heart disease is restoration of function and physical capacity to the fullest possible extent. For the achievement of such an objective it is essential that the general programme of treatment in cardiac patients shall include all such remedial measures as are likely to ensure the use of their physical capacity to the best advantage.

Fortunately the trend of modern opinion entirely reverses the long-accepted teaching which doomed patients with heart affections to a life of inactivity and permanent invalidism. We recognize in broad principle the varying degrees of debility

which cardiovascular diseases involve, but equally also appreciate the fact that in such conditions the circulatory reserve may be relatively well maintained. The practical demonstration of circulatory reserve or compensation is far to seek, for it is common knowledge that organic disease is frequently recognized during the casual examination of normally active individuals, and it quite often happens that patients with well-defined heart disease continue in strenuous employments and survive long professional careers of average duration. As expected, the records of such cases have provoked considerable interest, for they show conclusively that cardiac disease need not signify total incapacity and they adduce prima facie evidence that an efficient circulation can be maintained under favourable circumstances, in patients suffering from structural heart affections.

The significance of the term "cardiac reserve" has become increasingly apparent, and it is recognized nowadays as the essential pivot on which revolves the whole process of circulatory compensation, incidentally also all the problems of rehabilitation. Suitable preparations for their ultimate rehabilitation should be included automatically when formulating schemes of treatment for patients with circulatory affections, and there is good reason to assume that under favourable circumstances they may be permitted ultimately to enjoy all the economic advantages of appropriate employment.

Accepting these principles, the wide scope of our duty in regard to the management of cardiac cases becomes amply defined. We must not only be prepared to prescribe all the essential remedies that may be required by our patients during the initial stages of their illnesses but we must also assume full responsibility for their convalescence. We must envisage the time when they will be able to resume their original employment or, alternatively, we must be prepared to recommence educational training for some suitable occupation, our assessment in this respect depending upon the extent of such physical defects as may be present, the patient's age, temperament, and social circumstances. The intervention of Nature both in the cure and in the readjustment of cardiac patients cannot be too strongly emphasized. Assuming an average level of general health, we are justified in expecting that Nature, *per se*, will limit cardiovascular disease, that it will determine adequate compensation, and that, in general terms, it will promote a favourable prognosis.

Preludes to Rehabilitation

The natural development of compensation is obviously an essential prelude to rehabilitation, and the latter depends more particularly on the physiological capabilities of the myocardium. As the result of experimental research and clinical investigation we know that the pulse rate and the stroke volume increase during exercise and that the venous return to the heart is proportionately accelerated. These changes materially improve the range of the myocardial efficiency, it being a well-established axiom that, within limits, the greater the initial length of the heart-muscle fibres at the beginning of systole the more forcible is the subsequent contraction. Such considerations are of outstanding importance in the rehabilitation of patients convalescent from heart affections, the rational deduction being that in appropriate cases exercise and occupation promote the efficiency of both the cardiac and the circulatory functions.

It may be inferred from the above that heart patients require suitable exercise to maintain their general resistance and that according to their degree of compensation, their circumstances, inclinations, etc., some form of regular employment is, in all cases, a most desirable prescription.

A further and important factor in rehabilitation therapy is reassurance, the value of which cannot be over-emphasized. All classes of heart patients, particularly children, are naturally impressionable, and if encouraged in adequate fashion during the whole course of their illness they may be relied upon to assist materially their curative treatment and future prospects. Beside discussions concerning the gravity of any particular condition, its response or otherwise to treatment, the question of prognosis, and the possibility of complications should be avoided as a general rule. The heart-disease atmosphere should be obviated so far as is possible, and frequent examinations

the heart are not desirable, there being ample evidence—e.g., the sleeping pulse rate, the blood count, the sedimentation rate, the temperature chart, the general appearance, nutrition, etc.—on which for all practical purposes the disease process can be assessed.

The therapeutic value of assurance is far-reaching; it ensures encouragement and confidence of patients—also, incidentally, that degree of co-operation which is of vital consequence to their recovery and rehabilitation later. It may imply a certain amount of legitimate deceit, but it tends to stabilize the general environment of patients and obviates the development of neurotic symptoms which may be likely to supervene with the provocation in rheumatic children, whose temperament is often characteristically nervous in type.

The rehabilitation of children suffering from heart affections has been the subject of considerable investigation in recent years, and well-standardized schemes based on institutional methods have now been formulated. A comprehensive service for the welfare of children suffering from heart disease is provided in hospitals specially adapted for the purpose, where, in addition to constant medical supervision, the young inmates enjoy all the advantages of juvenile society in their programme of games and graduated exercises, and where, at the same time, facilities for general education and vocational training are also available.

Early Stages of Rehabilitation

In many respects the rehabilitation of adults is a more complex problem than it is in children. They have naturally an inborn dread of heart disease, frequently they are apprehensive regarding their supposed limitations for exertion, and, unless vigorously persuaded to the contrary in these respects, their introspective tendencies may rapidly mature into confirmed neuroses. Such, in point of fact, is more often than not the sequence of events in the group of cases nowadays listed under the title "traumatic heart disease." Admittedly the heart may be seriously injured as the result of accidents affecting the thorax, but in a considerable number of cases the diagnosis is built up on inconclusive evidence and perpetuated by litigation, with disastrous results to any chance of the patient's re-employment subsequently.

When, on the other hand, patients are reassured in the early stages of their illness, they visualize their future with an increasing degree of confidence, and under these circumstances their rehabilitation becomes a natural process. Suitable remedies, medicinal and otherwise, having been prescribed to alleviate the initial stages of the illness, and all urgent symptoms having subsided, a course of light general massage, with passive and later resistance movements at the larger joints, should be begun at the earliest possible moment. Assuming that the patient shows no sign of intolerance to this treatment he may cautiously begin a programme of graduated exercise. Having accommodated himself to the sitting position, first in bed and later in a chair, breathing exercises should be prescribed, and he may next be allowed to test his walking capacity on his bedroom floor, then about the house, and in due course out of doors.

After a varying number of weeks, or possibly months, the circulatory reserve becomes stabilized and the patient may be regarded as having achieved the primary or ambulatory stage of his rehabilitation. Continuing with light general massage and breathing exercises, he may now be allowed to extend his walks by degrees—first on the level, later on easy gradients—and, in general terms, to ensure the maximum of sunshine and fresh air. While the patient is symptom-free the graduated-exercise scheme may proceed in uninterrupted fashion, but any suggestion of intolerance—e.g., complaints of sternal pain, breathlessness, palpitation, faintness, fatigue, etc.—will need investigation, with some revision of the daily routine and probably, for a time, additional allowances of rest. Otherwise it frequently happens that the smooth convalescence of cardiac patients is materially delayed by some degree of obesity, and this condition should always be regarded as a complication of major importance. It constitutes a grave menace to rehabilitation therapy, and in a certain number of cases may be the one outstanding factor that perpetuates incapacity in heart patients and renders them unfit for employment.

Remedial measures should be taken at the earliest possible moment. Certain forms of physiotherapy—e.g., massage, graduated exercise, electrical treatment, recreational activities, etc.—are helpful in varying degree, and in conjunction with these it is essential that dietetic modifications should be included—e.g., a restricted intake of carbohydrates and fats, with fast days at regular intervals—also thyroid medication in adequate dosage if the basal metabolism happens to be subnormal.

Exercise and Recreation

In the absence of complications patients may be expected to evince in due course a natural urge to regain, through muscular activity, their normal range of physical fitness. As a general rule the first objective should be forms of exercise to which they were accustomed before their illness, also such games and amusements as may be in keeping with their age, physique, and personal inclinations. Certain principles, as follows, are fundamental to the question of exercise and recreation in recovered heart patients:

1. They must not involve extensive muscle-group exertion, either sudden or prolonged.
2. They must not admit of undue exposure to weather extremes or tests of endurance, and, except in mild degree, they must not include contests for athletic supremacy.
3. They must be regulated according to the exercise tolerance of each individual patient, which can be ascertained partly by objective examination, partly also by the patient's own description of his effort sensations.

Suitable Occupations

Having accommodated themselves to appropriate forms of exercise and resumed in other respects their normal routine of domestic habits, patients ultimately arrive at the final stage of their rehabilitation, implying that they are again capable of employment. In general terms recovered heart patients should choose moderately light occupations which do not entail sudden or prolonged physical effort, which admit of relaxation during the working hours, and which afford opportunities for reasonable allowances of fresh air and easy exercises. It may happen that the patient's previous employment conforms to these requirements, otherwise it will be necessary for him to choose an alternative occupation that will be appropriate to his diminished circulatory reserve and, at the same time, suitable to his personal qualifications and natural instincts.

Medical Memoranda

Misadventure under Convulsant Treatment

Treatment by electrically induced convulsions (I prefer the short word "electroplexy") is such a useful and, on the whole, successful treatment for depression that its various hazards should be well publicized.

CASE HISTORY

A youth aged 19 was brought to the out-patient department suffering from adolescent depression. He also had delusions of reference and hallucinations of sound and sight. It was thought that the florid symptoms were signs of a schizoid tendency uncovered by the depression rather than the signs of a primary schizophrenia. It was therefore decided to induce a convulsion once a week in the out-patient department.

On recovering from his third treatment he complained that his two upper central incisors were missing. Two bleeding sockets could be seen, and in their depths the stumps of the two teeth. The teeth themselves could not be found. The couch, the floor, the patient's clothes, the nurse were all searched and radiographs were taken of the chest and abdomen. The x-ray sister then suggested that the teeth may have been lost upwards; she had found a tooth lately in an antrum, where it had been driven by an uppercut. The patient's face was radiographed and the complete teeth were seen lying in the maxilla. On digital examination the roots could be felt protruding immediately above the gum. What had been taken for stumps on the first examination were really the crowns. The teeth had been driven up by the force of the tonic spasm in the second stage of the fit.

It is gratifying to report that the patient has recovered from the psychosis.

West Ham Hospital for Nerves
and Mental Disorders.

E. H. LARKIN,
M.B., B.S., D.P.M.

Reviews

A SYNOPSIS OF PATHOLOGY

Synopsis of Pathology. By W. A. D. Anderson, M.D. (Pp. 661; illustrated. 30s.) London: Henry Kimpton, 1942.

It is almost traditional to subject "synopses" to severe criticism. They are said to tempt the student to memorize "lists and tables" rather than read, learn, and inwardly digest the solid stuff of his textbook. In spite of this they are usually used quite legitimately for final revision immediately before an examination, and most of them can be used in no other way. They are almost unintelligible without considerable previous knowledge of the subject, they make desperately dull reading, and very few are illustrated.

None of these criticisms can be levelled against this book. It has all the merits of a good synopsis in that it is compact and of convenient size, it is full of easily accessible and skilfully condensed information, it is beautifully and lavishly illustrated, and, above all, it is readable. Great pains have obviously been taken to bring the subject-matter up to date. There is, for instance, a short chapter devoted to virus and rickettsia diseases, another to vitamin deficiencies. The chapters on the pathology of the breast, the female genital organs, and the nervous system are full and lucid. The author has not been content simply to describe recently recognized or uncommon conditions: in most instances a brief description is accompanied by photomicrographs which would be difficult to find outside the pages of monographs and journals. Each chapter is followed by a list of well-selected references, practically all of which are to American journals.

The scope of the book is certainly wider than that of a synopsis written for undergraduates and designed for pre-examination revision. In the preface the author expresses a hope that it will prove "useful to the clinician who must maintain familiarity with the foundation sciences of medical practice." We predict that this hope will be realized.

INTRODUCTION TO PSYCHIATRY

Psychological Medicine. A Short Introduction to Psychiatry. By Desmond Curran, M.B., F.R.C.P., D.P.M., and Eric Guttmann, M.D. With an appendix, *War-Time Psychiatry*. Foreword by J. J. Conybeare, D.M., F.R.C.P. (Pp. 188. 10s. 6d., plus 6d. postage.) Edinburgh: E. and S. Livingstone, 1943.

The elementary presentation of psychiatry is a formidable task. On the whole the authors have succeeded in presenting an account of modern psychiatry which the beginner should find helpful, but the value of the book lies less perhaps in its formal descriptions, which are of necessity very brief, than in its attempt to inculcate a sound orientation to the subject-matter, and thus the word "introduction" in the title is apt. More of a book of this compass cannot be expected. In the introductory chapter the student is made aware how widespread the psychiatric net is, and he is encouraged to see psychiatric problems not in terms of the crystallized chronic forms of the mental hospital, which is too often all he is taught, but as an important domain of human study with ramifications towards all sides, not least the sociological—a view which this war should surely impress on a relatively unpsychiatrically minded profession and public. There follows an admirable chapter on the elementary principles of what is sometimes called "structural analysis" and so-called "pluri-dimensional diagnosis." Descriptions of the different reaction types follow. These are conventional but sound. The section on psychotherapy will arouse little disagreement among those with a sound psychiatric training. The chapter on schizophrenia is somewhat disappointing, but to write a brief yet satisfactory account of this strange and intangible disorder is impossible. It might have been better to attempt a description in more general terms, concentrating on the so-called basic symptoms and illustrating the odd thought disorder with examples. The obsessional reaction pattern is, strangely enough, included in the chapter on affective reactions.

Modern treatment is given prominence. By far the most valuable part of this book, however, is the section on war

psychiatry. Here the authors speak with a vigour and sureness of touch which bespeak an intimate day-to-day acquaintance with the problems involved. These chapters should also assure the book a wide circulation. They should be read by all Service doctors. The section on prophylaxis is particularly good. One of the authors has devoted special study to the neuropsychiatric aspects of head injury, so that this chapter has a special authority. It is perhaps a pity that the author did not devote the whole volume to war psychiatry. authoritative presentation of this field is needed, and someone might be expected to enjoy more than ephemeral standing since these problems will remain with us for many a year. Psychiatrists without experience in the armed Forces might well find such a book particularly helpful. There are notable omissions in this section. Thus there is no account of "effort syndrome" or of the problems of malingering and responsibility and the so-called asthenic constitution, though all of these are daily concerns of the Service psychiatrist. A few remarks on the value of the electro-encephalogram would have been useful. Local authorities lax in implementing the provisions of the Mental Deficiency Acts should digest at least to heart the section on "the moron in wartime."

Lastly, this book has an unusual distinction. It is written by men of widely different schools, it can be described as a sound eclectic filtrate of modern psychiatric knowledge, and as such can be warmly recommended to the profession.

CHRONIC EPITHELIOID GRANULOMATOSIS

Der Morbus Besnier-Boeck-Schaumann. Chronische epitheloidzellige Resikulo-endotheliose sive granulomatose. By Dr. St. J. Leitner. (Pp. 139; illustrated. Fr. 2.50.) Basle: Benno Schwabe and Co.

This is an interesting study of a pathological condition which began to be recognized in 1889 when Besnier first described the condition known as lupus pernio or chilblain lupus. Later it was acknowledged that the cases described by Boeck as sarcoids or miliary lupoids were of the same nature, and subsequently Schaumann pointed out that the disease was by no means exclusively a skin disease. Hence Dr. Leitner considers it only just that its nomenclature should be associated with the names of all three observers. Pathologically it may be described as a chronic epithelioid cell granulomatosis. In addition to the skin it typically affects the parotid glands, the uveal tract, and the lymph glands, and produces swellings of the bones of phalanges. It is extremely chronic in its course, but may start at almost any age from infancy to extreme senility, and displays no preference for either sex. The problem of its aetiology has been much studied but without success. There is much about it to suggest a tuberculous infection, but we believe we are right in stating that in no case has the tubercle bacillus been demonstrated, and the results of animal inoculation have been far from conclusive. A large proportion of the cases have been reported from Scandinavian countries at one time localities affected by leprosy, and perhaps for this reason attempts have also been made to prove that this curious disease is an attenuated form of leprosy, but there is very little real evidence that such can be the case. It remains an unsolved problem.

Dr. Leitner has collated the work of previous observers and has added to it a critical description of some fifteen cases of his own. Both dermatologists and haematologists will find his remarks very interesting.

MEDICO-RELIGIOUS POLICY OVER-SEAS

The Wholeness of Man: A Study in the History of Healing. By Phyllis L. Garlick. James Long Lectures, 1943. (Pp. 202. 10s. 6d.) London: The Highway Press.

The title of this book is derived from the unity of human personality, which implies a vital relation between the healing of body, mind, and spirit—"health is wholeness; wholeness is health." In developing her theme the author has been aided by experts on the subject. The book begins with a good historical retrospect, from 2250 B.C., when the Babylonian Code of Hammurabi clearly indicated the existence of an organized medical profession, to the foundations of modern medicine and the evolution of medical missions which began about A.D. 1800. Medical science is perhaps the greatest benefi-

hat Western peoples have brought to the Orient, where fatalism and hopelessness had too often been the chief features of the traditional medical systems handed down the ages in an empirical manner. The extension of missionary organizations has led to the establishment abroad of communities trained to a sense of responsibility and care for the soul as well as the body. Though somewhat overweighted with philosophical speculation the volume crystallizes views on medico-religious policy over-seas, and will doubtless be of great help to medical missionaries of all denominations.

Notes on Books

The Central Council for Health Education (Tavistock House, Tavistock Square, W.C.1) has issued some new material. (1) *War on Disease*. This pamphlet outlines in simple language the ways by which various types of illness may be spread, and how to prevent this happening; it deals incidentally with the spread of venereal disease, in pursuance of the policy of letting education on this subject take its place naturally with that on other infections and contagions. (2) *Right Dress for Health*. A leaflet on clothing with particular reference to war workers and rationing difficulties. (3) *Nerves*. A leaflet giving hints on how to reduce nervous tension and "jumpiness." (4) *Measles*. The continued high incidence of measles has prompted this new leaflet (Health Hints No. 14). (5) *Pasteurization of Milk*. The article by Prof. G. S. Wilson, published on Feb. 27, 1943, in these columns, was felt to be of such importance that it has been reprinted by the Central Council with our permission.

Dr. EDWARD STAUNTON WEST'S *Physical Chemistry for Students of Biochemistry and Medicine* comprises the scope of study provided for in the regular course of biochemistry at the Medical School of the University of Oregon. The fundamental principles of physical chemistry are the same for all their diverse applications, and while the discussion of them is here directed only to biological phenomena they are enunciated and described in the form which serves as a foundation for all other applications. The author has been at pains in preparing this book to help the student who has had no previous instruction, and is to be congratulated on the lucid form of presentation which he has achieved, which is explicit without being prolix. Amplification of the text is given liberally wherever it serves to enlarge the instruction. Thus it is shown that the theory of the Donnan equilibrium, which was founded originally on thermodynamics, could have been deduced independently and equally well from kinetic considerations. The book is further characterized by a liberality in illustration of the principles of physical chemistry for explanation of biological phenomena, and in this respect also it is educationally informative in the highest degree. The publishers are the Macmillan Company, and the price is 28s.

HOWARD T. KARSNER'S *Human Pathology* is a well-established American textbook, the sixth edition of which (J. B. Lippincott Company; 63s.) has been extensively revised, and reset with two columns of print to the page, which makes for easy readings. An unusual feature is the exceptionally long lists of references given to guide the student in further reading, some extending to several pages: a smaller selection might be more helpful, or some indication of which papers are the most important. The teaching throughout the book is clear and orthodox, and the illustrations, many of them new, are excellent.

Surgeon Rear-Admiral C. M. BEADNELL has produced another book of reference—*An Encyclopaedic Dictionary of Science and War* (London, C. A. Watts and Co.; 25s.). The volume contains a mass of data concerning the adaptation of science to warfare, but for the most part the latest and therefore the most interesting information will of necessity not be available until the end of the war. Those who expect to find, for instance, the most recent developments in aero-engines, tanks, and radio as adapted to war uses may feel disappointment. The dictionary, however, is otherwise comprehensive, and its value is increased by the inclusion of many tables. Incidentally the last column of figures in the table on page 30 needs correction for the next edition. This is a book of reference that will prove of service to many.

As there is good reason to believe that the majority of medical men and women are in favour of individualism and against bureaucratic control, some of them may like to know of a 6d. pamphlet published by the Individualist Bookshop Ltd., 154, Fleet Street, E.C.4. It is entitled *The New Authoritarianism in Education*, and the three contributors are Dr. L. P. Jacks on "Home Rule for

Education," Mr. Stanley Maxwell on "Freedom in Education," and Dr. John Murray, Principal of the University College of the South-West of England, Exeter, whose chapter is headed "On Copying the Nazis."

Under the title *Plan for Clean Air* the National Smoke Abatement Society has published an outline of the case for smoke prevention in the popular form of a "quiz" of twenty questions and answers. The pamphlet may be obtained direct from the Society at its temporary wartime address, 94, Manor Green Road, Epsom, Surrey, single copies 2d. each, post free.

Preparations and Appliances

A DIATHERMY AND SUCTION HOLDER

Dr. RALPH FRIEDMAN writes from the West End Hospital for Nervous Diseases, Regent's Park:

Those who have to use a diathermy knife and suction apparatus have often been annoyed, or possibly angry, when at the critical moment neither was to be found at hand. Inadvertently they have fallen from their precarious positions on to the floor and have become unsterile, precious minutes thus being lost in substituting new sterile appliances.

After much thought I have devised a very simple and inexpensive instrument which would end the unnecessary headaches that bothered us and help our brain operations to proceed smoothly and harmoniously. The apparatus, as can be seen

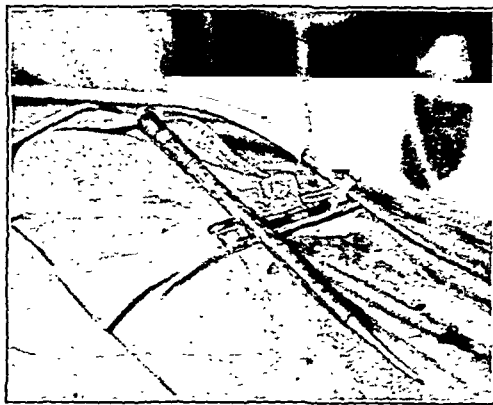


FIG. 1



FIG. 2

(The above photographs were taken by Mr. Jean Straker)

from the two photographs reproduced here, is clipped on to the sterile sheet; the diathermy and glass sucker fit neatly into a spring clip at either end.

My chief and I have tried this dual instrument-holding clip and have found it most useful and satisfactory. Whenever the diathermy knife or suction apparatus was wanted it was exactly where we had placed it. I have named this instrument Mr. G. C. Knight's diathermy and suction holder as a token of respect and esteem to my neurosurgical chief. I hope that others too will find the same satisfaction in using it.

Messrs. Down Bros. have been most helpful and have done their best to make the instrument as rust-proof as it is possible.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY SEPTEMBER 4 1943

MEDICINE IN TRANSITION

At this moment the medical profession is at a critical turning-point in its long history. The war and the Beveridge report have quickened the evolutionary change through which the practice of medicine is going, and in the view of some at such a speed as to threaten us with a revolution in our professional affairs. The remarkable developments in medical knowledge and technique during the past two or three decades and the growth of the social services have both gone to mould the new ideas in the world of medicine on the form and content of the health services. As more social services are supplied, so are more demanded, and demanded as a right. The medical services—or, as it has become fashionable to call them, the health services—are essential to the nation's life; and that they should be available to everyone without fear or favour is undeniable. But just as the public has a right to demand that these services should be at its disposal, so should it recognize its obligations to those who give the services and also take into account the demands of the medical profession. Many publicists these days talk and write as if the public, being the paymaster, must have the loudest, and indeed the only, voice in deciding what health services should be rendered, and how. The medical profession is justly proud of its tradition, and of the service it has rendered to this country. While, therefore, it must take full account of the actual position of medicine in the world of to-day, it needs to be conscious of its strength and position if it is to meet tomorrow the sudden introduction of changes which the bulk of doctors may regard as inimical to the practice of the art of medicine.

We were told earlier this year in a published letter from the Secretary of the Ministry of Health that the Government's projected scheme "will of necessity affect deeply the structure of the medical profession." We were told also in the same letter that at some stage a statement would be published, "indicating in general terms the kind of measures which the Minister would have in mind to submit to Parliament on behalf of the Government." "This," it was added, "will afford your group ample opportunity for further deliberation and reference back to the constituent bodies; and in framing any time-table we shall not lose sight of the fact that so many of the profession are serving over-seas." This statement is now awaited in the form of a White Paper, expected to appear within the next six weeks. That it shall be couched "in general terms" and not embody any cut-and-dried plan has been urged upon the Government by the Representative Committee. That, in fact, the Ministry of Health has considered specific plans became clear in May, and doctors in this country caught a glimpse of how deeply the proposed changes—if they became actual—would affect the structure of the medical profession.

The course of events is clearly outlined in an address in this week's *Supplement* by Dr. G. C. Anderson, the Secretary of the B.M.A., who from his great experience puts forward the Association's general policy and argues that the changes which it has long advocated would go far to implement Assumption B of the Beveridge plan. We endorse his view that the White Paper should not be prejudged, and that when it does appear it should be sub-

mitted to calm, dispassionate examination and criticism. The man who loses his temper in an argument usually gets the worst of it, and it is evident that in subsequent negotiations with the Ministry of Health any professional negotiating body will have to be very clear-headed. At the same time, if the medical profession is to be asked to give up its freedom of individual action through conversion into a whole-time State salaried service, emotion cannot be kept out of the argument. No man can view the surrender of personal liberty with dispassion. We suggest, therefore, that the emotions that may be aroused should not be wasted on side-issues, but should be controlled and used as a driving force behind the reasoned argument that our negotiating body will place before the Government's representatives. There is, indeed, one emotional attitude prevalent at the moment that should be dissipated—an attitude of defeatism represented by the statement, "A whole-time State salaried medical service is inevitable, therefore why resist?"

In about two weeks from now the Representative Body will have placed before it certain general principles agreed upon by the Council at its meeting in July.¹ We would draw attention here to Recommendation K—on the need for reform of central and local health administration. As Dr. Anderson with proper emphasis states: "We must insist that until the administrative foundation is clearly laid no other changes will be initiated"; and again, "One thing we are all agreed on is that we shall not accept a medical service which is administered by local authorities in their present form." In the reformed central and local administration there must be statutory medical advisory committees to be consulted on all matters of major health policy. In the next two weeks representatives, therefore, may well give close attention to the present administrative structure of central and local health government, so that they may be clear about the reforms they must insist upon before any kind of new medical service is even contemplated. The present framework is unacceptable to the medical profession. But whatever the framework, and whatever kind of service is fitted in it, what will determine the quality of the medical services in this country will be, as always, the quality of intellect and character of the individual doctor in that service. This in turn will depend upon the interaction between the natural equipment of medical students and the kind of education they receive. This education, so far, has been given by the voluntary teaching hospitals of this country and the schools associated with them. If the character of these hospitals is changed, then it is not impossible that the character of medical men will change too. This is not to say that medical education does not need revision, and repeated revision. The training of the medical student and the provision of facilities for medical research are more important to the health of this country than any one of a multitude of plans.

Until the Ministry of Health and the local authorities have reformed themselves, before starting to try to reform the medical profession, there will be little likelihood of administrative progress. In the meanwhile the Council of the B.M.A. proposes that the National Health Insurance Scheme should be extended to include dependants of insured persons and others of like economic status, and to cover consultant and specialist services and laboratory and hospital facilities. One of the real medical needs of this country is a clinical pathological service such as is afforded now by the Emergency Public Health Laboratory Service. In the absence in peacetime of such provision the practising doctor was working with one hand tied behind his back. The other immediate step recommended

¹ See *Supplement to the British Medical Journal*, Aug. 7, 1943.

s to experiment in group practice. Here, clearly, prolonged esting must be undertaken. But what is needed above all else is to bring the general practitioner back to his full status as a responsible clinician, having the complete care of the individual health of the members of the families who seek his advice. The rate of change of medical science suggests that the general practitioner of the future will do his work better in closer co-operation with professional colleagues, but whether in a health centre or not remains to be decided.

Changes are bound to come, and indeed have been urged for years past by the B.M.A. The direction these changes will take is as much the concern of the medical profession as of the public, and a harmonious agreement will be reached only if both take into full account the obligations and the rights of each other: to insist on all right on one side and all obligation on the other will lead to an impasse. A broad and sober outlook is now required of the profession, and Dr. Anderson's address gives a statesmanlike lead. His exposition is so clear, and it will be read so widely, that no embroidery here can be needed.

Rh IN PROGNOSIS AND TREATMENT OF HAEMOLYTIC DISEASE OF THE NEWBORN

It can hardly be doubted that Levine and his collaborators are right in stating that iso-immunization of the mother plays an important part in the causation of erythroblastosis foetalis, more properly called haemolytic disease of the newborn. Levine says the disease results from the mother making or having an antibody to a foetal red-blood-cell antigen, inherited from the father but lacking in the mother herself, and the subsequent passage of this antibody through the placenta to act on the child's susceptible blood. The Rh factor is the antigen most commonly involved. Tested with human sera containing anti-Rh agglutinins, the red cells of 85% of people in this country are found to contain Rh (Rh-positive); 15% (Rh-negative) lack it. Hoare, whose results are recorded elsewhere in this issue, has found the same frequencies, testing with the sera of guinea-pigs injected with the red cells of the rhesus monkey; similar results have been reported for the white people in the U.S.A. In one pregnancy in ten the mother is Rh-negative and the foetus Rh-positive; and in one in five the mother has in her serum an agglutinin for an antigen of the A-B-O groups present in her foetus. Haemolytic disease seems to occur once in about 400 pregnancies: that is, in only a few where the blood groups make it possible, so other factors not yet understood must be concerned. Race, Taylor, Cappell, and McFarlane, in an article at p. 289, record their investigations of 50 families in which the disease was diagnosed, and have confirmed previous findings that about 90% of mothers of erythroblastic babies are Rh-negative and that anti-Rh agglutinins occur in the sera of most of these mothers, sometimes years after the last pregnancy—a fact of importance in blood transfusion. Where the mother is Rh-positive it seems that another antigen must be responsible, such as those of the A-B-O groups and subgroups, and the M, N, and P factors. Even when a mother is Rh-positive it is not certain that trouble due to Rh will not arise: she may make a sort of anti-Rh which acts on the red cells of all Rh-negative and of many Rh-positive persons, including her child's. This unusual type of agglutinin, because it works, as it were, the other way round from anti-Rh, has been called anti-Hr; it appears to be an antibody to the Rh-negative factor, which, like the O of the A-B-O groups, must be more than merely an absence of Rh. Some workers have noted a surprisingly high proportion of Rh-negative men among the husbands

of Rh-positive mothers of affected children, and it may be that many cases with Rh-positive mothers are due to anti-Hr; but to produce anti-Hr the father need not necessarily be Rh-negative; it has arisen when both father and foetus were Rh-positive.

A question asked with increasing frequency at the present time concerns the chances of an unaffected child being borne by an Rh-negative mother who has had an affected child or children. If the Rh-positive husband is homozygous (RhRh) all subsequent children will be almost certainly affected, for they will be Rh-positive; if he is heterozygous (RhRh) each child will have an even chance of being Rh-negative and of escaping the disease. But in such families there appears to be a marked scarcity of negative children, due to the majority of the fathers being homozygous. The mother is much more likely to be immunized when every pregnancy produces the antigenic stimulus, as it does with a homozygous husband, than when he is heterozygous and some children are positive and others negative. If the father has declared himself heterozygous by producing an Rh-negative child, the chance of the next child being negative and unaffected is one in two; but in the absence of this indication the prognosis is unfavourable.

Although knowledge of the part played by the Rh factor leads to a gloomy view of the chances of a normal child being born in a family in which the disease due to Rh has occurred in an earlier pregnancy, it has suggested a line of treatment which has given very good results in children who have lived long enough to receive it. In the past, attempts to replace by transfusion the blood destroyed by lysis have not been very successful. The lysis is due to the child's Rh-positive blood cells reacting with the antibody made by its Rh-negative mother, and as six out of seven donors are Rh-positive and untested blood was used, mostly positive blood was given, and this, like the child's own, was liable to be destroyed. As soon as erythroblastosis foetalis is diagnosed—and where there is a previous history cord blood should be examined—the child should be transfused with O Rh-negative blood, injected into the veins, not into the muscles. The mother's whole blood, although Rh-negative, should not be used, as the plasma will almost certainly contain the harmful antibody. If no other negative blood is available, and the A-B-O groups permit, the mother's cells washed free from plasma may be given. If Rh-negative blood is not available from any source blood from an O donor taken at random may be used, but it will usually be Rh-positive and may cause a transient jaundice. The father should not be the donor, and Rh-negative blood is more likely to be found among the wife's than among the husband's relatives.

The practical application of this work is exemplified by Janet Gimson's article at p. 293, in which she describes a series of 18 affected babies treated by transfusion with Rh-negative blood. All the babies were Rh-positive and their mothers negative, and in the sera of all but one of the mothers anti-Rh was found. Whilst all the infants received Rh-negative blood, some of the earlier cases were given Rh-positive blood as well; but, although with Rh-positive blood there was an initial rise in haemoglobin and red cells, haemolysis continued, and within a few days further transfusion was needed. Rh-negative blood does not prevent haemolysis of the child's own cells: it merely provides cells which will not be destroyed more rapidly than normal and on which the child may live until the haemolytic process ends. When a mixture of Rh-positive and Rh-negative blood was given the negative cells survived normally while the positive were often destroyed within a few days. In 14 of the 18 cases given Rh-negative blood the results are described as "perfect"; the other four regained and main-

tained normal blood pictures. No more than two transfusions of negative blood were needed in any case. How encouraging are the results of the treatment given to these 18 babies is seen when they are compared with a series of 17 consecutive infants treated at the same hospital by transfusion of blood which would nearly always be Rh-positive, as it was not examined for the factor. Six of the 17 died from the disease or transfusion; four were kept alive but without any improvement in the blood condition; and only seven did satisfactorily, although much more blood was given to them—up to six transfusions to some—than to the 18 cases treated so satisfactorily with Rh-negative blood. Moreover, no reactions followed transfusion of Rh-negative blood, but in the other series, where untyped blood was given, more often than not there was a rise of temperature and some constitutional disturbance with increase of jaundice and size of liver and spleen. On admission to hospital the ages of the 18 babies varied between three days and six weeks, and, although it is well known that some cases even of icterus gravis will recover without treatment, the mortality is very high. There can be little doubt that treatment with Rh-negative blood is full of promise, and if a child lives long enough to receive it there is an excellent chance of its survival. Gimson thinks there is little hope of transfusion influencing kernicterus—the suggested incidence is 10% of affected children—with the dreaded mental and other conditions which may possibly follow it.

MEASLES VACCINE

Passive immunization with convalescent serum, adult serum, and placental globulins is not entirely satisfactory in the control of measles, and there is need for a virus vaccine which will confer a solid and lasting active immunity in interepidemic periods. One difficulty in the research work on the virus of measles has been the lack of a convenient laboratory animal susceptible to the disease. Although several Japanese workers have claimed transmission to guinea-pigs and rabbits by testicular passage, Mayer¹ could not confirm their results, and suggested that activation of latent virus III infection had led to false interpretation. The monkey *Macaca mulatta* is susceptible, but obviously cannot be used in large numbers. Monkeys have been infected with blood and filtrates of nasopharyngeal secretion collected in the pre-eruptive and early eruptive stages of infection. The incubation period is the same in the monkey as in the susceptible child, and signs and symptoms are also similar in both, although somewhat milder in the monkey. After the animal recovers from a mild infection it is immune to a second attack.

Stokes and his collaborators² have recently made a careful preliminary study of a virus vaccine attenuated through repeated passage on the chorio-allantoic membrane of the developing hen's egg. The living virus was then either kept frozen or desiccated from the frozen state, and, where possible, tested for infectivity in the monkey. Two hundred and fifty-five children, most of whom had reliable medical histories which excluded previous measles, were vaccinated in various institutions in New Jersey and Philadelphia, and there were 37 unvaccinated controls who were exposed to the inoculated children. Inoculation was by inhalation or by the intranasal, subcutaneous, or intradermal route. An attenuated disease was produced in the great majority of vaccinated children, signs and symptoms including Koplik's spots, exanthem, conjunctivitis, coryza, and fever, but there was only mild malaise and almost complete absence of cough. The fever was not sustained, and the children were "brighter, more active, and far less toxic than is usual in

measles." The reactions described, however, were far from negligible and would prejudice any scheme of mass immunization. The disease in the 37 unvaccinated "contact controls" differed in no respect from that observed in inoculated; there was thus no evidence that one passage of the attenuated virus from one human being to another produced any increase in virulence. The authors realize that in planning further research there are many factors still to be assessed, including the selection of virus strain, the potency and dosage of the virus inoculum, and the method of inoculation. Before a method can be generally applied it must be shown to be safe; the use of modified living virus in the control of certain other diseases has proved not to be devoid of risk. In a second report³ the same workers state that 22 vaccinated children were exposed to chance infection in an epidemic, and 7 developed the disease (3 attacks typical, 1 mild, 3 extremely mild). As a control to this group 7 vaccinated children in one school were intimately exposed to infection; none contracted measles, compared with 25 cases of measles among 36 susceptible children. Of 24 vaccinated children who received challenging injections of blood from active cases of measles during the early stages of the disease, developed measles (3 typical attacks, 2 mild, 5 extremely mild, 1 "slight nasopharyngitis" without other symptoms). Six suitable control children received injections of the challenge material and all six developed typical measles. In short, 40 of 46 vaccinated children appeared to have considerable protection against measles—results sufficiently encouraging to demand further clinical trial.

A reliable serological method for the estimation of antibody is urgently needed. While no such method is yet available, the developing chick embryo appears to provide a source of antigen in sufficiently high concentration. Results are awaited of further laboratory investigations carried out possibly in conjunction with clinical trials of virus vaccine.

MEDICAL CARE OF SCHOOL CHILDREN

The Government's proposals for educational reconstruction, so far as the medical inspection and treatment of school children are concerned, are obviously limited by the uncertainty about the place, if any, of the school medical service in the health services of the future. The White Paper (Cmd. 6458, price 6d.) which has been presented to Parliament by the President of the Board of Education, does, however, contemplate that when a "comprehensive national health service" is in operation "it will no longer be necessary for local education authorities to provide medical inspection and seeing that children and parents are properly advised and encouraged to seek treatment through the new health channels any treatment the children need." This is good so far as it goes; it is to be hoped that the "new health channels" will be the family doctor, as is the work of the school clinic, it does stand in the same relationship to the child and the community as does the family doctor, who knows the family's history and environment, and who, more often than not, has brought the child into the world. In the meantime it is to be a duty of education authorities to see that all children at grant-aided schools who need treatment (except domiciliary treatment) receive it; and no action is to be made for this. Hitherto the obligation of education authorities as regards treatment extended only to children in a public elementary school, and the requirement by statute to recover the cost, except where it was manifestly unreasonable to do so. It will also be a duty of education authorities in future to provide

¹ Arch. Hyg. Bakt., 1941, 126, 285.
² J. Pediatr., 1943, 22, 1.

meals and milk; previously they had power to do so only where the child through insufficient feeding would not profit from its education. The school meals service and the milk-in-schools scheme have already been greatly expanded since food rationing began, but the new duties laid on education authorities will mean still further extension of both these services.

Part-time education is to be compulsory for all adolescents between the ages of 15 and 18 who are not already attending full-time at school or otherwise under suitable part-time instruction. The curriculum will include physical training and instruction in health and hygiene, and the medical care of these persons will be provided by the school medical service. Finally, it is to be a duty of education authorities—not merely a power as hitherto—to establish nursery schools for children under 5 wherever the Board of Education thinks them necessary. These are especially needed, the White Paper states, in the poorer parts of large cities. Medical opinion, if one may judge from the discussion at a recent meeting of the London Association of the Medical Women's Federation (*Journal*, July 17, 1942, p. 84), does not favour the communal nursery for children under 2, nor the provision of nurseries for those from 2 to 5 as part of our educational system. Some training and instruction of the mother at a communal centre, like the Peckham Health Centre, to which the nurseries could be attached would, it is held, more suitably provide for the health and well-being of the "under fives."

HYPERTENSION AND HEIGHT

The work of Kretschmer and of Draper has put many a clinical observer on to the fascinating trail of correlating disease conditions with physical types. It has, for example, been stated that high blood pressure is most common among short persons, but statistical inquiry has failed to establish any clear association between height and hypertension. This question has been examined again by Robinson,¹ who gives data relating to 7,478 adult males and 3,405 adult females. Taking the two groups together, the short men and short women have very slightly higher systolic pressures than the tall groups, which is in agreement with the general findings. The author proceeded to classify the heights into three arbitrary groups: short, medium, and tall. The short men were under 66 inches and the tall men 71 inches and over; the short women were less than 63 inches and the tall women 66 inches and over. Each of these groups were further subdivided according to build into slender, intermediate, and broad. The criterion of a slender build was that the chest/height ratio was less than 0.5, and for a broad build it was 0.59 and over. Among the men within each of the three build groups there was only slight variation in the mean systolic and mean diastolic pressures between the three height groups. But there were larger, though insignificant, differences among the women. A considerable rise in both systolic and diastolic blood pressures was shown within each height category as body build progressed from slender to broad, this increase being greater for females than for males. The difference in the mean systolic pressure of the slender and broad build groups was 13.7 for short men and 13.8 for tall men, and for the corresponding female groups it was 18.3 and 24.9; for diastolic pressure the differences were for short men 9.1, tall men 10.4, short women 9.1, tall women 17.6.

Robinson compared the incidence of low and high systolic and diastolic pressures among the short and tall men

and women. Low pressure was taken as under 110 mm. for systolic and under 70 mm. for diastolic, with high pressures 140 and over and 90 and over. He found that for both male and female the tall groups had a greater incidence of hypertension, both systolic and diastolic, than the group of short stature, and less low pressure. This was most marked in the broad build groups: 16% of the short broad men and 13% of the tall broad men had low systolic and diastolic pressures. Systolic hypertension occurred in 18% of the short broad men and 29% of the tall broad men, and diastolic hypertension in 16% of the short broad men compared with 23% among the tall broad men. The explanation of this finding, which is apparently a contradiction of the results from all observations combined, is that there are many more short broad persons than tall broad persons in the general population, and, although the tall broad person is more susceptible to hypertension than the short broad person, this increased susceptibility is more than offset by the greater number of short broad persons. Hence all short men together will show a higher mean pressure than all tall men.

The author concludes that the tall person has a greater risk of hypertension than any other individual, and that the difference in blood pressure between tall and short persons in specific build groups is due solely to a height difference.

THE RESEARCH DEFENCE SOCIETY

While the six anti-vivisection societies reported an income of over £50,000 in the last pre-war year (a sum probably much exceeded by now, especially in view of some recent legacies), the Research Defence Society manages to be alive and to "kick" with some vigour on a modest income of only about £500. No doubt if the R.D.S. adopted popular and pictorial (and one might add misleading) methods of propaganda, its support would be multiplied, though a body which makes a sober scientific appeal can hardly ever hope to rival another which makes a highly coloured sentimental one. Nevertheless, on an income of about £10 a week the R.D.S., as its latest annual report proves, manages to carry on a great deal of excellent work. Its principal concern during the past year has been to combat the anti-inoculationists in the field of diphtheria and of small-pox. Sir Leonard Rogers, whose pen is unwearied in the Society's behalf, has assembled in a paper the information up to date concerning the results of preventive immunization against diphtheria, with some telling facts and figures, especially in relation to the recent campaign in Scotland, and this has found a wide distribution among local councillors and members of health committees, where it should prove most serviceable. The fatal outbreaks of the virulent Indian type of small-pox, following the arrival of a ship at Glasgow in the summer of 1942, afforded the R.D.S. another opportunity to point the moral. After the vaccination of known contacts had failed to stop the occurrence of cases, mass vaccination was carried out in each of the infected areas, and the calamity of a widespread epidemic was averted. Sir Leonard Rogers took advantage of the occasion to publish a paper, in the form of an address to a ratepayers' association, on the efficacy of vaccination against smallpox, and this also has been circulated in quarters where such enlightenment is most needed.

We much regret to announce the sudden death of Sir Francis Fremantle, M.P. for the St. Albans Division since 1919, chairman of the Parliamentary Medical Committee since 1923, and a past-president of the Society of Medical Officers of Health.

¹ *J. Lab. clin. Med.*, 1941, 26, 930.

THE EDUCATIONAL BACKGROUND FOR THE PROFESSION OF MEDICINE*

BY

A. E. CLARK-KENNEDY, M.D., F.R.C.P.

Physician to the London Hospital and Dean of the Medical School

The rapid advance of medical knowledge in recent years which has made such great contributions to the prevention of disease and the relief of human suffering has, at the same time, had two inevitable and rather unfortunate consequences. On the one hand, it has resulted in an increasing degree of specialization in medical practice. On the other, it has enormously increased the requirements of medical education. The former is undermining the position of the general practitioner in the country. The latter has resulted in technical education in the universities and schools, and the general education of many medical students is now an altogether inadequate background for their future position in the community. Let me therefore give you a brief account of medical practice in order that we may see the attributes of character which the profession of medicine demands and that you may form some opinion of the educational requirements of future medical practitioners. Then, being myself uneducated in the classics, I must leave it largely to you to decide for yourselves whether these requirements can or cannot be met by a classical education.

Empiricism in Medical Practice

The general public usually have a misconception of the real nature of medical practice. Medicine deals with human life, and they forget that life of every kind from the scientific point of view still remains completely unexplained and utterly mysterious. We have advanced a long way recently, particularly in the prevention of epidemic disease, in our knowledge of dietetics, in our surgical technique, in the use of drugs, but most, if not all, of our knowledge, in view of our complete ignorance of the nature of life, is still really empirical. The doctor cannot limit his work to forces under his control. He is compelled to use physical and chemical agents in the treatment of diseases of a body which as yet we understand but little and in disorders of the human mind which so far we comprehend still less. We really know very little about medicine. The general practitioner, however, struggling with one insoluble problem after another, is faced with practical situations and is expected to produce results. Most patients demand miracles. Nature may work the miracle, or science succeed when Nature fails, but he is confronted repeatedly with slowly progressive conditions of unknown origin for which there is no certain treatment. These patients demand cures, and again and again he finds himself in an almost impossible position.

In addition the general practitioner has to contend with the defects of human character and the peculiarities of the human mind; with patients in whom fear upsets the working of the body and with people who use ill-health to escape the responsibilities of life. Many of his patients are children, and children constitute a problem in themselves. He lives in the society which constitutes his practice, and is compelled to compete with his fellow practitioners to earn his living. The practitioner must keep up to date with a rapidly advancing subject. He is, or should be, guide, philosopher, and friend to all sorts and conditions of men, and among rich and poor he must be prepared for all degrees of intelligence, every variety of religious belief, any moral standard. When young he has to deal with older men, and must imagine for himself what it is like to be old. When getting on in years himself, if he would be successful with his younger patients, he must recollect the point of view of youth. Lastly, he has to deal with incurable and dying people. He must know how to handle death: when to cease to "strive officiously to keep alive." What a life! I am not saying that general practice is always well done, but in this country we are still fortunate in the high standard of general practice, far the most difficult and in a way much the most important branch of the profession. Anything which

undermines the position of the general practitioner will be a disservice to the whole community.

Attributes of the Doctor

What, then, are the attributes of character required for profession of medicine? First, common sense, wisdom, sound judgment, which are always so much required on borderline of scientific knowledge. Then an equal interest in science and the humanities; a capability for sympathy with the misfortunes of man, imagination so as to visualize processes going on inside the body, and human understanding to perceive the thoughts passing through the mind; lack of prejudice; intellectual honesty and a capacity for criticism in relation to alleged discoveries and new methods; a sense of values and a philosophical attitude towards life and death; the personal character to command respect and maintain discipline; an interest in the organization of society, a reasonable degree of manual dexterity, and a capacity for accurate observation.

This is demanding a great deal; and how, then, do we select for the medical profession? In the first instance on the school certificate! After this, general education for the boy or girl who wishes to take up medicine usually ceases altogether, or is continued in a half-hearted kind of way, because, unfortunately, an examination in chemistry, physics, and biology now remains the only requirement for the next rung of the ladder of medical education! Not only is general education therefore neglected but this has created the unfortunate impression that a school aptitude for these subjects is the main indication of the quality required for the profession. Of course we want some boys with these tastes, but too many with tastes exclusively of this kind wish to become doctors. The universities endeavour to exercise a judicious selection on grounds of personality, character, educational background. But the main problem is how to encourage more of those boys and girls with wider interests to take up medicine, and, after they have started, how to see that for all medical students their professional training does not crowd all other education out of the curriculum.

A Classical Short Cut

In the first place, the universities must reconsider their policy and see that their examination systems do not necessitate specialization in science at school and that some opportunity is afforded at the university for medical students to continue their general education. In the second place, the schools must encourage boys with personality, character, and human interest to take up medicine, as well as those with an exclusive interest in the admitted beauty of modern science or an understanding and fascination for laboratory technique. The boy who decides to take up medicine, however great his interest in laboratory work may be, must realize from the start that medicine is merely an affair of science. The humanities do matter. There must be taught that a study of literature can be made a short cut to that understanding of human beings which will require so much in general practice, and that modern languages will also provide him in adult life with access to the wider field of the medical and general literature of other countries. He must learn to think in terms of scientific progress and social evolution. He must be made interested in the general outline of history, and taught to see how the main streams of human thought have converged to produce our present outlook. His education must not be exclusively classical, but all that is surely quite impossible without some knowledge of Greece and Rome. Moreover, the classics should be able, if properly taught, to provide in a peculiar way that cultural background which the medical student should have for his technical education and which the average doctor requires for his professional life.

The Greeks were particularly interested, as the doctor is, in man. They puzzled over the meaning of life and tried to interpret the tragedies of human existence in which the doctor becomes so familiar. They struggled with the moral law, and in all their inquiries maintained that balance between the study of things and an interest in people which is so important in medical practice. Hippocrates started accurate observation of disease, and Plato foreshadowed the modern attempt at the understanding of the mind. The Greeks

* A contribution to a symposium on the value of the classics in education for various walks of life at a meeting of the Classical Association in Cambridge.

act, struggled with the same political, moral, medical, and social questions as we face to-day, and the history and thought of Greece epitomize all the problems of the twentieth century. A study of the classics is therefore a short cut to that knowledge of human life which is so essential in a young doctor when starting in medical practice.

History before Syntax

But can this aspect of the classics really be "put across" to the adolescent mind at school? I ask for information. Are the classics at present really taught with this intent, or is he object of teaching classics mainly to encourage accuracy and inculcate mental discipline? If so, science and mathematics can do this just as well. Or are the classics taught from the point of view of the structure of language, or merely to provide the technical basis for a real but rather improbable classical education at the university? I doubt, personally, if it is possible to teach the classics at school as a background for medicine in the original dead languages. If a classical education is to provide the background that medicine requires (which I believe it can), and if boys so educated are to be stimulated to take up medicine (which is what we want), then boys must be taught less Greek and more about the Greeks. Translations of the classics must not be despised. Greece and Rome must be brought into relation with the modern world. A study of the past must be made a stimulus and guide both to the handling of the present and to the planning of that post-war world in which medical men will be called upon to play such a particularly important part.

A real appreciation of Greek medicine only comes with experience. But let us never forget that Hippocrates set for all doctors and for all time the ethical standard of medical practice:

"I swear by Apollo, Physician, by Asclepius, and by all the Gods, to hold my teacher in this Art equal to my own parents, to teach his family this Art, if they want to learn it, without a fee: . . . I will use my treatment to help the sick according to my ability and judgment: . . . I will not administer poison or procure abortion: . . . I will keep pure and holy my life and my Art: . . . I will not use the knife, but give place to such as are craftsmen therein: . . . and whatsoever I shall see or hear in the course of my profession I will never divulge, holding such things to be holy secrets."[†]

In education translations of the classics are, in my opinion, of some value!

THE COMPRESSED CURRICULUM

ARRANGEMENTS FOR NEW SESSION AT MEDICAL SCHOOLS

It will be recalled that early last year the Minister of Health, in view of the demand for medical man-power, brought to the notice of the General Medical Council a recommendation from the Medical Personnel (Priority) Committee in favour of some curtailment of medical study. The modification suggested by the Priority Committee was that students who produced evidence of having completed the whole of the curriculum after not less than 30 months of certified clinical studies should be admitted to the qualifying examinations. The General Medical Council was satisfied that under war conditions no objection should be taken to a departure to this extent by licensing bodies and examining boards, but it instituted an inspection of examinations where this proposal had been adopted.

Of the 22 licensing bodies in the United Kingdom 19 have adopted the recommendation of the Priority Committee; the other three had taken anticipatory action which had the same effect of accelerating admission of students to the qualifying examinations.

The Schools in London

The various medical schools seem to have adjusted themselves without any formidable difficulty to the new requirement whereby 36 or 32 months of study are compressed into 30. The Dean of the London Hospital Medical College states that the shortening of the Conjoint curriculum by three months has had no appreciable effect on the organization of the

teaching, and the Dean of St. Bartholomew's says that it has proved quite possible to fit the courses hitherto taken into a period of 30 months. From St. Thomas's Hospital comes the remark: "While we necessarily accept the ruling [condensing the clinical curriculum into 30 months] we look forward to the time when this unfortunate cut will be again readjusted." The Dean of St. George's Hospital Medical School states that there has been little or no shortening of the various courses, but that as students take only very short holidays nowadays they find it possible to meet the requirements of the examining bodies in a shorter time than in the pre-war era. At University College Hospital the course has been compressed in one or two respects so that students may—and for the most part do—enter for the finals after completing 30 months of clinical study. The London (Royal Free Hospital) School of Medicine for Women has found that the reduction to 30 months necessitates a certain amount of dovetailing of clinical work, but no changes have been made in the details of the course. That seems to be the position, more or less, in all the London schools. The Dean of one of them writes: "My college is just as it was, without any alarming or extensive reconstruction, and is doing very well, thank you."

Provincial Schools

At Manchester clinical teaching is to begin only in April and October of each year, when an introductory six-months course will be given. The curriculum here has been revised in order to leave the sixth year free from university classes, to enable students to concentrate on hospital work, and to give them a chance to hold resident appointments with a view to accelerating qualification and accustoming them to a certain amount of responsibility. Systematic teaching in pathology is to begin immediately after the examination in anatomy and physiology. The teaching of pharmacology is to include anaesthetics and therapeutics, and the course is to run concurrently for five terms with that of pathology and bacteriology, examination in all three subjects—that is, pharmacology, pathology, and bacteriology—to be taken at the same time.

Durham students, at the medical school at Newcastle-upon-Tyne, are being allowed to sit for their final examinations six months before the normal date. Certain courses and examinations are therefore being expedited; otherwise there is no special alteration in the curriculum as a whole. At Birmingham the curriculum has been shortened by six months, thereby giving students the option of taking their final examinations in December instead of the following June.

Until the present session no curtailment of the curriculum had been made at Sheffield, as it was felt that the standard of medical education should be maintained if possible, and that in a small school the number of students qualifying each year is so insignificant that the speeding up of the date of qualification would not assist the national effort to any material extent. But now, to conform with the practice generally adopted by the medical schools, a revised time-table for fifth- and sixth-year students has been drawn up under which the students due to qualify in March, 1944, will do so in December, 1943. Next year those who would have qualified in the ordinary way in March, 1945, will do so six months earlier. The first gain of three months has been made possible by telescoping the lectures of the last half-year of the usual course and by depriving the students of the final three-months revision period. The eventual gain of six months is brought about by the introduction of a summer vacation term for fifth-year students, beginning only a few weeks after the completion of their fourth-year course, and by curtailing the final medical and surgical clinical appointments and the final revision period.

Leeds, in complying with the request to reduce the clinical period to 30 months, made the reduction applicable to the group of students who are due to complete their final examination in March next, thus allowing successful candidates to take their degrees this September. The Dean states that it has not been easy to compress the last 18 months of the curriculum into 12, but the compression has been spread as evenly as possible over the whole of the clinical period, and thus the strain on the student has been lessened. But he mentions also the heavy strain on the teaching staffs caused by the exigencies

[†] Leeb's Classical Library. *Hippocrates*, Vol. I, p. 299. Translated by W. H. S. Jones. William Heinemann, 1923.

of war—a strain which the shortening of the clinical period has done nothing to ease.

The final part of the curriculum at Bristol has been compressed to enable those students who would normally qualify in June, 1944, to take their final examination in December, 1943, if they wish to do so. A similar arrangement at Bristol last year enabled a small number of students, who would normally have qualified in December next, to take their final examination last June. The Welsh National School of Medicine at Cardiff has also shortened the clinical period to 30 months while making every endeavour to maintain quality and content. A third degree examination is now held each year in addition to the usual two.

Arrangements at Oxford and Cambridge

Special arrangements at Oxford and Cambridge have resulted in considerable saving of time. At Oxford most of the students, having taken physics, chemistry, and biology before coming to the university, begin work on anatomy and physiology during their first university year. At the end of their first term they are able to take organic chemistry, and thereafter to prepare for the examinations in human anatomy and physiology for the first B.M.; these they take in their sixth term. Hitherto, in peacetime, they have obtained their B.A. degree (without which they cannot take the B.M., B.Ch.) by specializing for a year in work for the Final Honour School of Animal Physiology, but during the war a pass B.A. degree is being awarded on the results of the first B.M., and the Honours examination is taken only by specially recommended candidates. After passing the first B.M., usually at the end of the second year, the student immediately begins to prepare for the second B.M., with examinations in seven subjects, the last three of which—medicine, surgery, and midwifery—must be passed simultaneously. These are now taken in the fourteenth term from university matriculation instead of the eighteenth term as in peacetime, thanks to the saving of the year aforesaid.

Another wartime departure at Oxford is that whereas, after passing the first B.M., the students continued their training at one of the London or Provincial teaching hospitals, they now, to the number of about fifty a year, are given the opportunity of taking the whole medical course at Oxford. The advantages of this, in the particular field of ophthalmology, were mentioned in an annotation in the *Journal* of July 31 (p. 144). The standing committee allows hospital practice of less than the peacetime 33 months wherever reasonable; most people do 30 months, but some less.

One of the bodies which anticipated the Government's requirements was Cambridge. When it was foreseen that the need for doctors would become acute as the war went on, changes were made which had the effect of reducing the compulsory period of pre-clinical study from three years to two years, and in consequence of reducing the total period of medical study from six years to five. As a result there went down from Cambridge in the autumn of 1939 very nearly double the usual number of medical students, for in addition to the men who had completed the normal period of three years' pre-clinical study, a large number of students at the end of their second year were able to pass examinations in anatomy and physiology in October and to begin clinical work. The long result of this action matured in 1942, at just about the time when the Army increased its demands for medical practitioners, and during that year approximately double the number of candidates sat for the final examinations. This figure, of course, will be only temporary, and the number of candidates who present themselves for the final examination in this and subsequent years will not exceed the normal.

One other war change at Cambridge has been the putting in abeyance of the regulation which requires medical students to read for honours. In times of peace students have to reside in Cambridge for three years and to obtain an honours standard in a tripos. Almost all Cambridge medical students have taken the Natural Sciences Tripos, and it is probably true to say that the courses of instruction for this tripos constitute the greatest contribution which the university makes to medical education. But while this regulation has been put in abeyance it has been a source of great satisfaction that a large number of men have voluntarily taken the tripos courses and many

have succeeded in reaching a good standard in Part I of Natural Sciences Tripos at the end of their second year.

The Scottish Schools

At Edinburgh there has been no general shortening of five-years period of study which normally has to be at the university, but in order to release a number of 1 year students for hospital work and service in the Fore early as possible a group of 30 selected students have their course expedited so that they may qualify six months earlier than the normal date. This plan was introduced in 1942 and has been continued this year. It is brought about by utilizing the summer vacation for regular teaching number of final-year subjects.

To accelerate the qualification of students at Glasgow final professional examinations for the session 1943-4 have advanced by three months and will be held in December June next, when the clinical examination for the degree M.D. will also be held. At Aberdeen there has been shortening of the curriculum for the M.B., B.Ch. St before the war it was decided to lengthen the curriculum five years to five years and two terms—that is, 17 terms all—which would have meant, had this original proposal adhered to, that during the current year 1943 there would have been no medical graduates. To avoid this the university instituted a fourth term in the fourth and fifth years of study with the result that graduates in normal numbers are coming from this university this September, having completed 16 terms. No other wartime changes have taken place in curriculum, except that tropical medicine, hitherto optional, has been made compulsory. At St. Andrews a full teaching was instituted this summer for senior students with a view to expediting the date of the final examination from June of year to March.

Concentration of Teaching

For the fifth year some of the London schools remain part dispersed, but such dispersion as continues is due much to the emergency as to the fact that the new arrangements have been found, on the whole, more advantageous from teaching point of view. But there is a tendency to return to London. The departments of anatomy and physiology at the London Hospital, which had been temporarily transferred to Cambridge, have come back. Charing Cross students except for the first six months of the clinical period, they reside at Ashridge Hospital, now pursue the whole of their studies in London. The pre-clinical departments of the London School of Medicine for Women, after three years' exile at Exeter, are returning to London for this next session. The whole of University College Hospital Medical School has returned to its old premises in London, where the teaching clinical training are carried on much as before the war.

On the other hand, the pre-clinical school at Guy's is remaining at Tunbridge Wells, the clinical work being carried out at Guy's itself and at the sector hospitals in Kent. Thomas's still has its pre-medical and pre-clinical schools at Godalming, but the governing body of the school is making all provisional arrangements for the return of these departments to London by October, 1944. Incidentally its department of chemistry has become the department of biochemistry, the teaching of all the introductory subjects is being closely correlated with clinical teaching, so that the pre-medical and pre-clinical work is no longer a preliminary "nuisance" to fade into the limbo of things to be forgotten after the first and Second M.B. The early and late clinical periods are taken in London, where St. Thomas's has 170 beds, with patient and casualty departments on practically a permanent basis, and the periods of in-patient medical clerking, surgery, and midwifery are spent at the new hospital which has been opened at Hydestile close to the school premises at Godalming. St. George's undertakes all the clinical work except midwifery, at its old home at Hyde Park Corner it has a branch at Wimbledon with some 120 beds, and teaching facilities in specialized aspects of medicine and surgery are available. The clinical students of the London School of Medicine for Women continue to work at the Royal Free and at a number of hospitals in the sector in Hertfordshire. Incidentally, many more women seem to be taking to medicine. The West London Hospital Medical School now admits

omen students annually. The new quota at Oxford is seven omen students per annum—though this figure may be slightly increased for the year 1943-4—as against 64 men. A real difficulty which women students are up against concerns the London polytechnics, which train students up to their First M.B., but the students have to go elsewhere for their subsequent training. A number of women students, having passed their First M.B. at a polytechnic, find difficulty in securing places at Second M.B. schools. Numbers have been quoted—but are admittedly incomplete—which suggest that about half the women fail to get in anywhere.

The Importance of Paediatrics

The new importance of paediatrics is reflected in the arrangements at many schools. Manchester is considerably extending its instruction in this subject, which is now given throughout the whole of the clinical period. Birmingham has introduced paediatrics as a separate subject in the final examination. At Sheffield arrangements have been made for students to be in residence at the Children's Hospital for at least three weeks during their children's diseases appointment, this in addition to the usual residence of one month during each of the final medical and final surgical appointments and of two months during the midwifery appointment.

The Edinburgh Medical School continues to make a feature of child life and health. During the last three years clinical teaching in infant health has been given in the maternity pavilion at the Royal Infirmary, using as clinical material the newborn babies and the babies attending the hospital infant clinic, and this course has now been extended by the Faculty of Medicine to 20 meetings given to all students in the final year. The full programme of teaching in child life and health will now consist of 20 systematic lectures, a clinical course of three months (50 meetings) in diseases of children, given at the Royal Hospital for Sick Children, and the new clinical course in infant health (20 meetings) at the Royal Infirmary. The Faculty has also recommended that the subject be given a separate place in the final examination. These new arrangements give effect to the recommendation of the General Medical Council that in the final examination there should be a test of the candidate's knowledge of infant hygiene and of diseases in children.

Other Innovations

A feature of many of the reports from the schools is the new solicitude for student health. Thus, at Charing Cross a scheme already in existence for safeguarding students' health has been enlarged, and it is hoped by a reciprocal arrangement with the Royal Dental Hospital to make a further extension which will cover dental as well as medical examination and treatment. In this connexion some remarkable developments at Birmingham should be noted. The University of Birmingham recently made physical education compulsory for all students in their first year. This not only has familiarized the men themselves with regular and organized physical education but has provided the university with a means of giving the preliminary training which is essential if a reasonable proportion of the undergraduates are to pass the physical military efficiency tests for the Senior Training Corps. Medical examination is a prerequisite to the introduction of the tests, and for this purpose a university medical officer has been appointed, an appointment unique in British university experience. His chief care will be the routine examination of the men students, but he is to be concerned also with research into health standards at the university and with inspection of the physical education programme from the health point of view. A change which has affected medical students only is the university requirement, following an intimation from the War Office emphasizing the necessity for basic military training for candidates for commissioned rank in the R.A.M.C., that every medical student shall undergo two years' medical military training. Fifth- and sixth-year students will still normally be exempt, but courses of lectures are arranged for the men of the present senior years who under previous rules have escaped service in the Senior Training Corps.

Several of the schools report a considerable increase in the number of applicants for admission—Leeds and Cardiff in particular, the latter stating that the number is far greater

than the school can receive, and that the selection is in the hands of a special committee consisting of academic representatives from all the constituent organizations of the university. The unusual numbers, however, are a minor difficulty compared with other wartime urgencies and changes, and the schools are to be congratulated on the way in which they have dealt with the situation, meeting the national requirements without any real betrayal of educational ideals.

Postgraduate Facilities

The British Postgraduate Medical School at Hammersmith Hospital is carrying on its work as usual. All departments are active, but some modifications have to be made owing to reduced staff. Postgraduate students are accepted in the departments of medicine, surgery, obstetrics and gynaecology, pathology, and radiology. Intensive war courses are held every week, each lasting five days, and are attended by a large number of officers of the British and Allied Services. The School is also prepared, as a temporary measure, to accept undergraduate students who desire to fulfil the university requirements in obstetrics and gynaecology, hospital practice, and pathology. No undergraduate student is admitted direct; he is admitted only at the request of the dean of his school, and because of wartime difficulties arising therein. A considerable amount of research work is in progress at Hammersmith on shock problems, on hepatitis and jaundice, on silicosis, and on questions arising in connexion with haemoglobin estimation. The Medical Research Council Radium Beam Research Unit has been transferred to Hammersmith and the deep-therapy department of the hospital has been considerably enlarged. Students are accepted for the Part II requirements of the Diploma in Medical Radiology. The number of patients and the work of the hospital itself are probably greater than in pre-war days, more especially in the out-patient departments, which have expanded very rapidly.

MEDICAL STUDENTS ORGANIZE

FIRST YEAR'S WORK OF THE B.M.S.A.

The appearance above the horizon, a little more than a year ago, of the British Medical Students Association was an event of some importance to the future organization of medicine. Students of the universities have expressed their views through the National Union of Students, of which the medical schools have been active constituents. But the special problems around and ahead of the medical student seemed to call for a separate organization, and this was set up in a spirit of the utmost friendliness with the National Union, with which the B.M.S.A. remains in the closest and, to the new body, most helpful relations.

The circumstances which precipitated the formation of the new Association was an endeavour on the part of some London medical students, at University College Hospital, to formulate a memorandum on medical education with a view to its presentation to the Goodenough Committee. They began to feel themselves at a loss because at no point could they speak representatively and say that medical students held this opinion or that.

At the inaugural meeting in the summer of 1942 as many as 17 schools were represented by delegates, and the organization has since grown until now all the medical schools (except three in London) are constituent members. Nominally, therefore, it can be said to represent 90% of the medical student population in England and Wales, Scotland, and Northern Ireland—altogether 8,250 members. But this, of course, is far too flattering a picture, for among students as among their seniors there are large numbers who take their own individualistic line or are indifferent or hostile to collective counsel and action. The active spirits in the B.M.S.A. are not, in the main, the final-year men, who, quite understandably, are already beginning to detach themselves from student life, but are the students in the earlier clinical years. They include a larger number of women students than would be expected from the total proportion of women to men in the schools, and two students from the London School of Medicine for Women are members of the small executive committee. An obvious

disadvantage is that, apart from London, with its thirteen medical schools in close juxtaposition, and Glasgow, medical students are in small widely separated communities. At present the Paper Control prevents the establishment of a regular bulletin, and for Association news the good will of editors of school gazettes has to be solicited. The British Medical Association has acted as a kindly sponsor, assisting financially and as host.

Students in Conference

The inaugural meeting was followed by a congress last December, attended by 500 medical students, when the Minister of Health, Lord Moran, P.R.C.P., and Prof. J. A. Ryle (who is the honorary president) came to bless the undertaking. A visitor to that congress and to the first annual general meeting, which was held in July of this year, would have revised any former notion he might have held about medical students as irresponsible and rather "hard-boiled" persons. The students who took part showed themselves to be not only highly intelligent, which was only to be expected, but familiar with the implications of present-day movements in medicine and able to express their point of view well and succinctly. Incidentally the quality of the speaking and the capacity of the chairmanship set a good example to older assemblies. But it was the modesty of the students that made the chief impression. They made no claim to know better than, or as well as, their elders. They might well have asserted that as they were more affected than all but the newest qualified men by the shape of things to come they had a right to discuss these matters, but they preferred to regard it as a duty rather than as a right, recognizing that there are no rights where there are no responsibilities. On the other hand, having as yet no responsibilities, they felt that they could at least discuss the matters without the prejudice which arises as the result of experience. As one of them said, "We are still young enough and daft enough to work for a future that will be better than the present."

It must not be thought that the Association is a political body, at all events in the narrow sense of that word. As its president, Mr. David Pyke of University College Hospital Medical School, put it, it is faced with long-term and short-term issues. The long-term issues, like the Beveridge plan and certain aspects of student health, have inevitably a political tinge. But the B.M.S.A. also stands for immediate things over which there can be no controversy: objects designed to improve the efficiency and ameliorate the lot of students, suggestions for new instruction—the recent annual meeting passed a resolution asking for the inclusion in the medical curriculum of a compulsory course in normal psychology—and the encouragement of staff-student committees such as have already been set up at Leeds and other schools.

One enterprise upon which those concerned are to be congratulated is the arrangement of a series of lectures on war surgery, which are being given weekly this late summer in London by leading surgeons of Great Britain and friendly nations. The question of coeducation excites some controversy, though it is limited practically to London; but on another matter affecting their women colleagues the Association is asking what action it can—namely, the inability of many women who have taken their First M.B. at a polytechnic to obtain a place in a medical school for their Second M.B.

Student Health

Certain aspects of student health (concerning all students, not medical ones only) belong also to the short-term range of activity. These include propaganda directed towards making the general student body "health-conscious"; the extension of National Health Insurance to students (students are at present uninsured persons, and being members of a non-earning community they sometimes have difficulty in affording medical fees, though for medical students medical attention is usually freely available); the application to students of the mass miniature radiography scheme; and an immediate review and improvement where necessary of social conditions—including canteens, students' lodgings, and so on—within the universities by the students' organization in conjunction with the authorities. Other suggestions like the appointment by every university of a medical officer of health—following the recent example of Birmingham—come later.

The two outstanding achievements of the first year of new association were the memorandum on medical education and its own "Beveridge report." The memorandum was summarized in our *Supplement* of Jan. 9, 1943. It was presented later to the Goodenough Committee, which had a three-hour interview with the students' representatives, who explained the proposals. The committee was interested to find the student in favour of compulsory house appointments after qualification, provided adequate payment was made by the hospital. Other points stressed included the greater use of bed-municipal hospitals for teaching purposes and the advancement of student residences, not in the final but in the earlier years.

Discussions on the Beveridge plan have taken place in nearly all the schools, and the subcommittee has collated the opinions. The students have not restricted themselves to the consideration of Assumption B, but have had the whole report under review bearing in mind the increasing emphasis on preventive medicine and positive health. All the schools gave support to the plan as a whole and to the conception of the national minimum. But on the question of the comprehensive medical service there was a wide and healthy disagreement. A lively discussion at the recent annual meeting was crystallized into a long rather colourless resolution, but the lack of colour in the resolution was due to an attempt to assimilate the many contrasting hues. They agreed that a comprehensive medical service would be more effective only in conjunction with the Beveridge report as a whole, but that there was no need to await such completion, and that the comprehensive service would be of the greatest possible value to the community giving real financial security to the doctor and ensuring maximum democracy in the profession. Such a service would need to be under the control of the Minister of Health, a central council consisting mainly of professional workers. The students favoured health centres, and on the subject of payment the majority opinion appeared to be in favour of a combination of fixed salary and capitation fee with an upper limit to the number of patients under any one doctor.

Vaguely worded, of course, but the important thing is that these questions should be under continuing discussion. At the moment the fact of discussion which is important, and not, for the moment, the conclusions.

Correspondence

X Rays and the Colon

SIR,—I refrained from replying to Dr. E. Millington's letter (July 24, p. 117) as I did not think that many would interpret your short report of my address on functional disorders of the colon at the Proctological Section by thinning me guilty of stating that the radiological examination of the colon was of no value. But as Dr. Norman P. Hendle (Aug. 21, p. 247) has now made the same mistake I perhaps be forgiven for pointing out that I am hardly likely to hold such an opinion in view of the fact that I wrote my earliest paper on the x-ray diagnosis of a functional disorder of the colon in 1906, that I was the first in this country to describe the use of an opaque enema in 1909, and that the table still used as the standard for the normal rate of passage through the alimentary canal is founded on the observation of a group of Guy's students working with me in 1906.

It is none the less true that in the last six weeks I have seen two cases of carcinoma of the stomach clearly indicated by beautiful radiographs but missed by the radiologist who took them, one as long ago as last March, when the patient, a practitioner, was persuaded against his better judgment to accept his clinical diagnosis of malignant disease by the negative x-ray report. I have also seen a case of carcinoma of the plicocolon clearly visible but wrongly interpreted, and another in which pain in the right iliac fossa was ascribed to diverticulitis of the iliac colon when an obvious filling defect was present in the caecum. These diagnoses were made by four different radiologists, all of whom were on the staffs of large hospitals.

During the same period I have seen radiological reports ascribing symptoms to dropped stomach, dropped colon, c

pockets," cup-and-spill stomach, duodenal diverticula, and ucos colitis. Such diagnoses do great harm by helping to convert a patient with a mild functional disorder, who could be cured by the simplest psychotherapy, into a confirmed psychochondriac, nursing his mysterious but mythical malady, though, fortunately, surgeons are less easily persuaded nowadays than formerly to raise a "dropped" viscus, fix a movable one, and unfix a fixed one.

X-ray diagnosis will never be satisfactory until the clinical and pathological training of the radiologist is improved by insisting that no diploma should be awarded to a man who is not personally studied the anatomy and physiology of the normal subject, as I had the good fortune to do whilst demonstrator of physiology at Guy's in 1906-7 and that great pioneer of radiology Dr. A. E. Barclay did during the same period, and who has not held the appointment of house-physician in general hospital for six months.—I am, etc.,

Oxford

ARTHUR HURST.

Conditions for Good Work

SIR.—Dr. C. C. Cobb (July 24, p. 121) agrees that our great lack in general practice is "conditions that make good work possible," but emphasizes that money is one of the means to our end—a first-class medical service for all. I acknowledge his comment gratefully. Certainly the Ministry of Health will not expect first-class service for a third-class fare! Our main contention is that calm, thoughtful, and considerate handling of the sufferer demands time; and when the services of a highly trained professional man are concerned "time is money." Owing to the present meagre pay in vogue the panel doctor is often conscious of an unseemly rush in his interviews.

There has been ample airing of views on medical needs, and definite proposals from the profession are now due on reorganization of the bulkiest item—general practice. Does not private practice provide us with the working model of the first-class service ordained by Parliament? Of course, it needs adjustments with the growth of medical science and varying needs of the community, but, *in the main*, it has well stood the test of time and proves satisfactory to both doctor and patient. Unfortunately, the ideal of payment for service cannot be incorporated in the new national service as the masses could not afford it, so the capitation basis with Government assistance is necessary.

The average rate of pay per patient in private corresponds to about treble that of the National Health Insurance, and so the doctor gives the time and decorum required for a satisfactory interview. Nothing less can give the patients their due, and to get this the new national service must reduce the ration of patients accordingly and raise the capitation fee proportionately in order to maintain the doctor's income. The yearly remuneration per doctor may be little affected, but double the present total of doctors would be used and hence a doubled total expenditure by the Government will be necessary. Until this reform comes, the mere extension of the existing National Health Insurance standard of service, coupled with hospital services, to all below incomes of £420 does not satisfy the Beveridge plan, which stands for first-class service. In the remote rural districts the doctor is at a great disadvantage owing to professional isolation. All the more necessary is a man of ability above the average, and to attract him added remuneration is the just reward of the sacrifice involved.

The Government slogan repays reflection. "A first-class medical service for all unaffected by economic status" heralds the dawn of a new era in which our services will be regulated by the patient's pathology instead of his purse. This will satisfy one of the longings of the ardent spirits of medicine, many of whom are at present away with the Forces. After all, viewed down the microscope, cancer appears the same whether derived from one station of society or another. The pain from acute retention of urine is much the same in a peer or a porter. Again, granted decent remuneration, there will be time for the family doctor to pursue pathology to the end, whether it be at home, in the hospital, or the post-mortem room. By collaborative visits to hospitals, as at present in private cases at the nursing homes, there is ensured vital continuity of care for the patient and for study of the case. Such official association with hospital life guards against professional sequestration, of which the doctor so often complains at present, and keeps his knowledge up to date naturally, which is vastly superior to occasional artificial feeding by refresher courses. The latter may be inevitable for the rural practitioner.

The Government calls for a first-class tune and will pay the piper accordingly.—I am, etc.,

A. WILFRID ADAMS.

Service Doctors and State Medicine

SIR.—On several occasions recently supporters of a State Medical Service have told me that serving M.O.s as a body are whole-heartedly in favour of a State service. As I was in the R.A.M.C. myself at the beginning of the war and met many other M.O.s with whom I exchanged views, I thought this very doubtful.

I have lately received a series of letters from abroad, among them some from a friend of mine—Lieut.-Col. A. B., R.A.M.C. He tells me that after nearly four years' experience of a State service he and his officers are so tired of it and dissatisfied with it that they hope and pray the B.M.A. will oppose the establishment of a whole-time State Medical Service in England tooth and nail. He further voices a very common grouse of Service M.O.s, particularly of senior officers who are increasingly concerned with administration, when he says: "During nearly four years of war I have done perhaps two months of real medicine, and I feel that I am beginning to forget what I once knew. What is to become of us—and our patients—when this is all over?" What indeed? I would like to suggest that the B.M.A. should press, with all the strength of which it is capable, for the establishment of a three-months refresher course, on full pay and allowances, for any Service M.O. who wishes to take advantage of such a facility when hostilities are over.

In his latest letter Col. A. B. says that he and his officers have discussed again Assumption B of the Beveridge report, and all, without exception, are utterly opposed to its implementation unless all the other sections of the report are also implemented. They further wonder how "positive health" can be achieved by a full-time State Medical Service unless housing, nutrition, and education are first dealt with and placed beyond reproach. One of his officers declared that if a State service were established in England he would prefer to stay in India and bring his wife and children out to join him. The youngest of his officers, who joined the R.A.M.C. directly from hospital, was perhaps more opposed to State service, with its strangling red tape, than any of them, and reported that on board ship on the way to India his medical draft held a meeting to discuss the threatened changes in practice, and on a free vote unanimously passed a resolution rejecting the idea of a full-time State Medical Service.

Col. A. B. ends by saying that in his experience serving doctors feel that no such fundamental change in methods of practice should even be discussed until they have returned home, and they completely fail to see why there should be this sudden urgency about the matter.

This is also the general sense of my correspondence with other doctors in the Forces, and I feel that I am not far wrong in stating that there is as large a percentage of them opposed to State Medical Service as there is among those of us in civilian practice, and that means a definite majority in favour of the retention of professional freedom.—I am, etc.,

VICTOR RUSSELL.

The Future Health Services

SIR.—It is rather confusing to find some of your correspondents still decrying the Beveridge report, which is more or less common ground, without suggesting convincing alternatives to "State" service. What has become of the scheme which last September the Representatives thought to have well and truly launched for suitable working out by the Planning Commission? If it has been stillborn, the term is not "evolution" but "decay." For the B.M.A. to finish up, as seems possible, with simple extension of N.H.I., and no more, would be, I submit with all respect, a poor result for everyone.—I am, etc.,

Atherton.

A. PATTON.

Public Opinion on Health Services

SIR.—Your correspondent Dr. W. N. Leak (Aug. 21, p. 243) expresses his disagreement with my letter of Aug. 7 in a manner that amply justifies your having printed it. He says: "The doctor's duty is to speak and act as he thinks right without fear or favour." Of course it is desirable "to ensure that his opinion should be free from outside pressure." Surely

we all agree most heartily so far as these remarks apply to our professional relationships with patients; although, personally, I fail to see how this ideal can be achieved in any system where the doctor's remuneration is directly proportional to the extent to which he pleases each individual patient. Far too often the doctor is pressed to bow to what in relation to his professional opinion might legitimately be termed "ill-instructed popular clamour." But that is not a legitimate description of public opinion in relation to the Beveridge report. Moreover, in that connexion the doctor is not in "his privileged position," being at most no more than an experienced adviser, while as an interested party he is certainly not in a favourable position to sneer at public opinion in the contemptuous manner adopted by Dr. Leak.

We may be entitled to hold our own opinions about democratic government, but no one can positively refuse to recognize its reality or any of the other fundamental facts of the situation. May I, therefore, be permitted to repeat that it is the people's representatives in the House of Commons and not members of the medical profession who are 'shortly going to recommend and carry out reforms. Also they are doing this in response to what Dr. Leak calls "ill-instructed popular clamour" and not in order to quell any spontaneous revolt of the medical or even insurance circles against their present lot. How can any arguments be expected to hold water where the actual facts of a situation are being dismissed as "pseudo-realistic"?—I am, etc.,

Eye, Suffolk.

J. SHACKLETON BAILEY.

Diabetic Retinitis

SIR.—Mr. J. H. Doggart asks (Aug. 14, p. 212) if any of your other readers have had the happy experience of Dr. George Graham (July 24, p. 115), who has seen *retinitis* improve under diabetic control, whereas Mr. Doggart has seen no improvement in *vision* from good treatment. Our experience supports both their views, because they are probably referring to different phases of the same disease. By the time a case reaches an ophthalmologist for *defective vision* the disease is already well advanced, and usually shows extensive exudates which can rarely be affected or removed by treatment. But physicians who examine their diabetics' eyes carefully as a routine see much earlier stages of retinitis, as haemorrhages and small exudates may be seen for 5 years or longer without appreciably affecting the vision. The earliest stages of small haemorrhages, in very numerous ones, may completely disappear under vigorous treatment with insulin—whether they may disappear without treatment we do not know.

We have not worked out any accurate figures in our patients, but of some 1,500 cases with diabetic retinal lesions some 50 have lost all haemorrhages or show an occasional small one from year to year with unaffected vision. The vast majority, many with large exudates when first diagnosed, become slowly but progressively worse, total blindness being, however, rare; but an unfortunate small minority, often fairly young and well controlled, mysteriously develop retinitis proliferans with rapid loss of vision. It is significant, we think, that the comparatively few adolescents we have seen with retinitis have been most wildly uncontrolled cases, the retinal lesions having usually developed during their worst phase and been checked by better control of their diabetes. We think, therefore, at present that careful diabetic treatment is most important, may even remove the condition, but more often checks its progress.—We are, etc.,

Diabetic Clinic,
King's College Hospital

R. D. LAWRENCE.
WILFRID OAKLEY.

Anaesthesia for Laryngofissure

SIR.—In view of the recent correspondence on anaesthesia in laryngofissure I think it worth recording my experience in one case quite recently.

The patient was a man aged 68 years with a small localized squamous-celled carcinoma on the right vocal cord. Laryngofissure was decided upon and I was asked to give the anaesthetic. The following is the procedure I worked out and adopted. For pre-medication the patient was given 1/100 gr. atropine one hour before operation, together with pot. brom. 40 gr. orally. In the theatre the patient was made to gargle with 5 c.cm. 2% anethaine solution (Glaxo), which was subsequently swallowed. Three c.cm. of 2%

anethaine was then injected intratracheally through the cricothyroid membrane, and two more injections were then made into the region of the superior laryngeal nerve; these extended from the cricothyroid membrane upwards and laterally for about 3 in., and were made up of about 5 c.cm. of 1% novocain and adrenaline (strength: adrenaline mv and 1% novocain 1 oz.). I stress the fact that adrenaline was used and will refer to this later.

Anaesthesia was then induced with 1/2 g. intravenous sodium pentothal, which I then followed by introducing a No. 5 Magill's rubber endotracheal tube through the nose, passing it into the trachea with a Magill's direct-vision laryngoscope. Inhalation anaesthesia was then continued using gas, oxygen, and trilene as anaesthetic agents.

The operation then commenced and throughout I experienced no trouble whatsoever. Tracheotomy was not performed, as, in the opinion of the surgeon, it is an undesirable measure if it can be avoided from the point of view of subsequent sepsis and distress to the patient. The thyroid cartilage was split and the trachea packed off round the endotracheal tube with gauze. During the whole of these proceedings no spasm occurred, and after the operation there was a minimum of bleeding. The wound was closed without drainage. The patient was conscious on the table within a few minutes of stopping the anaesthetic; the tube was removed and an airway inserted. On returning to bed the patient was immediately put in a sitting posture, showing no ill effects. There was no vomiting and he has made remarkable progress.

I stressed the use of adrenaline as it may be used in the presence of trilene, unlike chloroform; also another important fact is that diathermy may be used with safety in the presence of trilene as an anaesthetic agent.

In my opinion the above method seemed eminently satisfactory both from my point of view and also from the point of view of the surgeon. I would like to express my thanks to Mr. W. H. B. Magauran, who performed the operation, for allowing me to record this case.—I am, etc.,

Cheam, Surrey.

A. M. B. TOMPKIN.

Artificial Insemination

SIR.—The interest of medical men and women cannot fail to have been stirred by the recent discussion in the House of Lords on the problem of breeding by artificial methods, particularly as applied to human beings. As a worker in this specific branch of sterility and infertility I beg a small space in your paper in order to place a few thoughts on this extremely important and far-reaching subject before some of my fellows.

First we must note that, whatever knowledge the various speakers may or may not have had, on this occasion not one had thought of, or even heard of, any serious argument in favour of artificial insemination. Such a one-sided discussion savours if not of ignorance at least of prejudice. The medical profession must be armed and on guard against any premature attempts by the lay public to interfere with methods of treatment which are in their infancy and might if unreasonably suppressed postpone the alleviation and happiness of many thousands of individuals, and even in this case have ultimate serious effects upon the nation as a whole.

The facts I offer are these. First, actual individual sterility and subfecundity, both male and female, are on the increase. The urgency of the problem of combating the falling birth rate should always be present in our thoughts when weighing this question from any angle. Secondly, in this country the vast proportion of inseminations are carried out upon the wife with the semen of her own husband. The rare cases where a semen donor is used are those in which the sterility of her husband is absolute and incurable, free consent of both husband and wife being given. Thirdly, the method, especially in the non-donated cases, is not so artificial as the ignorant suppose. The female function must be normal to achieve success, and wherever possible the method of choice used by my colleagues and myself is that of insemination of the cervix from the vaginal pool following normal intercourse.

The Bishop of Chichester is reported to have said that the relationship in regard to the home and family between the sterile husband and the wife inseminated with donated semen would be extremely anxious and extremely unhappy. Why? Does the good and affectionate husband with a happy home to offer to a child wish to bring into such a home the shadow of his deliberate and intentional frustration of his wife's best and most powerful instinct? It is useless to answer this question by suggesting that adoption meets her case. No woman who has chosen to bear her own child would exchange this greater joy for anything less. The greatest psychological obstacle that the married couple has to surmount in such cases is the knowledge backed by medical evidence of the husband's sterility. If their mutual respect and regard can surmount this, is there any-

ing more likely to cement their relationship than the mutual responsibility for the wife's child granted her by her husband's generosity?

For centuries woman has borne the blame and burden of the barren marriage, and surely it is time man accepted his part of the responsibility. Only by suppressing the true facts behind a barren marriage can one avoid the inevitable desire of the wife to seek a way out of an intolerable situation. If we deny her a good one she is often tempted to a bad one.

I am not really writing purely in defence of what I have just described as "a good way out," but I earnestly desire that the medical profession will weigh all evidence—medical, social, and ethical—and decide the question for themselves, resisting at the meanwhile all efforts, threats, persuasions, propaganda, and the like calculated to frighten or cajole them into a premature retreat.—I am, etc.,

London, W.1.

MARY BARTON.

Artificial Vitreous Body

SIR.—Recently I was asked to see a patient, a dockyard worker, with a discharging eye socket. On examination I found the conjunctiva was deeply pigmented and there were black bands visible through gaps in the conjunctiva, which at first I took to be fossilized stitches. Then it occurred to me that it might be a silver-wire artificial vitreous body. X-ray examination confirmed this. With great difficulty I removed the wire cage. The interest is historical. Personally I have never seen one of these objects before. In this case the cage was inserted by Dr. Rolston at the Royal Albert Hospital, Devonport, on May 6, 1908, following enucleation for a perforating injury of the eye. The instrument—Landmann's artificial vitreous body—is illustrated in the 1930 instrument catalogue of Messrs. Allen and Hanburys, No. 6283.

In this connexion Mr. C. B. F. Tivy of Plymouth gave me a very interesting note. He was asked to see a patient in consultation some years ago. The conjunctiva lining the empty socket was stained a deep black from argyrosis and the patient was complaining of failing vision in the remaining eye. Mr. Tivy came to the conclusion that the failing vision was due to toxic amblyopia following absorption of silver. The silver cage was removed from the socket and the vision in the remaining eye then returned to normal within a short while.—I am, etc.,

Gloucester.

J. D. J. FREEMAN.

Skin Sensitivity to Sulphonamides

SIR.—I read with interest the medical memorandum (April 3, p. 414) on the subject of dermatitis following local sulphanilamide therapy. I have had experience of two cases of quite severe dermatitis following local and oral administration of sulphanilamide. In both the reaction followed within 48 hours of changing from local to oral administration of the drug. The notes below may be of interest to some of your readers.

Case 1.—The patient had been under treatment for some 10 days with ung. sulphanilamide for facial impetigo with little or no improvement in the condition. Having obtained good results previously with oral treatment I decided to stop the local application and give the drug by mouth. The following morning the patient reported with a very severe skin reaction. The eruption was like a mixed morbilliform and scarlatiniform rash covering the whole body surface, but most marked on the face, neck, upper portion of the back, the extensor surfaces of the legs and forearms, and the palms and soles. There was a considerable amount of irritation associated with the rash, but no general systemic reaction. The sulphanilamide was stopped and calamine lotion applied. The rash disappeared in 3 to 4 days, and after about 10 days the skin of the palms and soles peeled off completely.

Case 2.—The patient was under treatment for facial impetigo with a local application of 10% ung. sulphanilamide, and after 12 days' treatment without improvement I decided to adopt the oral route. A total of 8 g. was given in 48 hours, and before the end of the second day an irritating erythematous rash had appeared, in this case confined mainly to the back of the neck and the extensor surfaces of the forearms. In this instance, however, papulae developed in addition to the rash, and these subsequently became pustular; 5 to 6 days later bullae appeared on the right index finger and left thumb on the extensor surfaces. The sulphanilamide, of course, had been stopped when the skin reaction

occurred, and treatment with saline and calamine lotion eventually cleared the condition up. Again the skin on the palms peeled off.

Both these patients had fair hair and a fair complexion and therefore, probably, a rather sensitive skin. The first case was severe in the extent of the eruption; the second, although less extensive, was more severe locally. I wonder if any of your readers have had similar experiences of dermatitis following a change from local to oral administration of sulphanilamide.—I am, etc.,

L. G. TULLOCH.
Flight Lieut.

M.E.F.

SIR.—Fowlkes, Pepple, and Vaughan (*South. med. J.*, 1942, 5, No. 11, 1015), describing a case of fixed erythematous eruption following the administration of sulphanilamide, state that only two other cases have been noted. Hence the following personal experience is worth recording.

I used sulphanilamide and sulphapyridine before either were generally marketed, and administered normal doses to myself at various times for "sore throat." On taking some sulphapyridine in the autumn of 1941 (a lapse of about 9 months since the previous dose) a curious skin eruption was noticed. This occurred in four separate and distant places on the body. The areas concerned were each approximately 3/4 in. by 3/4 in. in extent and raised about 3/8 in., red and intensely irritating. The drug was stopped, and in about 5 days the areas had subsided, leaving a brownish discoloration of the skin which eventually took over 12 months entirely to disappear. An identical result was obtained when a repeat of the treatment was attempted some weeks later.

As a matter of interest trials were made during the following six months both with very small desensitizing doses of the drugs and with alternative makes and types such as streptocid, protosil, and sulphapyridine. Nothing made any difference. One-sixth of a tablet of protosil caused the eruption. Injections of adrenaline up to heroic doses had no apparent effect on the areas, which were exactly the same in each case, as were the symptoms.

The cause of this phenomenon remains unexplained, though it is possible that treatment for tetanus with large quantities of serum (which, among other things, caused acute oedema of the glottis) 20 years before may have some connexion. Fortunately my infrequent sore throats are even more rapidly, if more prosaically, cured by sodium salicylate.—I am, etc.,

London, W.1.

NEVIL LEXTON.

Early Recognition of Cancer

SIR.—The new Cancer Act will mean a great step forward in the treatment of cancer. But is there not something we can do towards earlier recognition of the most sinister and probably the most important of all diseases by education of the public? Adequate periodic medical examination, now happily receiving attention, would do much, but there is something simpler that can be done here and now—or at least as soon as war ceases. Is it not time that there existed an authoritative popular booklet on the earliest recognizable symptoms of cancer in various organs—"put across" to the public by expert propaganda of the right type? If we can spend millions on elaborate treatment of established cancer would it not be a sound investment to spend a few thousands on catching it in the early curable stage? Curable cancers, speaking generally, are those in accessible organs—skin, genitalia, breast, uterus, mouth. They can and should be caught young; and the public can and should be systematically taught to be on the look-out for them. If treated in time they yield most satisfying 5-year-cure figures of the order of 75 to 95%.

I know it will be objected that an educational campaign might cause cancer neurosis. I believe this argument to be at best irrelevant and at worst positively dangerous. I think it was Ewing who said that cancer-consciousness ought to be part of civilized living, and that any such neurosis would apply only to those already neurotically disposed. Why should we sacrifice the greater good to the lesser?

An educational campaign would reach first the more intelligent classes of the population, but the gradual improvement in the general educational level that we are entitled to expect would make the campaign yield ever-increasing rich dividends.

I think, therefore, that the time is over-ripe for taking this elementary but fundamental step, and that such bodies as the Ministry of Health and the British Empire Cancer Campaign should give it their urgent attention.—I am, etc.,

JOSEPH WALTER.

Assistant Medical Director, Sheffield Radium Centre.

Specific Gravity of Cerebrospinal Fluid

SIR,—Mr. Etherington-Wilson (Aug. 7, p. 165) has reminded us that the cerebrospinal fluid when examined at body heat has a lower specific gravity than at room temperature. Accurate determination of this is of little interest except to those who use spinal anaesthesia. To those who use light nupercaine (1:1,500) for this purpose the knowledge is of some importance, for the specific gravity of the two fluids is close. It is obviously important to know whether the fluid which is injected into the spinal canal is lighter or heavier than the fluid into which it is injected. Mr. Etherington-Wilson's results suggest that in the majority of patients the specific gravity of the cerebrospinal fluid lies between 1.0030 and 1.0035. The producers of nupercaine, however, state that the light solution has a specific gravity of 1.0036 at body temperature. This would make it hyperbaric for the majority of patients and hypobaric for only a minority. It would be even more hyperbaric if used at room temperature instead of at body heat as is sometimes done. As this result is not borne out in practice it would seem that one of these figures is incorrect.—I am, etc.,

Staines County Hospital.

J. K. HASLER.

Research in Senile Diseases

SIR,—I was very pleased to see the article by Dr. S. Cieman on the possibilities of research in senile diseases (Aug. 21, p. 239). We are, on the whole, very ignorant about the diseases of old age. Since the senile portion of the population is likely to increase rapidly during the next few decades this ignorance is a matter for anxiety. Some research has admittedly been carried out on the problems of cancer, of endocrine function and dysfunction, and of vitamin requirements, but the commoner senile disorders have been neglected. The most frequent cause of death in the aged is cardiovascular disease, which has been little investigated. The digestive disorders of the aged are yet only ill understood.

It is time for attention to be paid to these matters. Let us hope that the "Club for Research on Ageing," or some other body which can interest research workers and investigators, will find a way to open an assault on the problems of old age. There is material in plenty throughout the country; let us now pay attention to this matter.—I am, etc.,

Leighton Buzzard.

TREVOR H. HOWELL.

H 11 for Cancer

SIR,—I have read your correspondence in the *Journal* of July 31, p. 149, with some interest.

When I was surgical registrar and pathologist to the Hospital for Women, Soho Square, London, W.1, I tried Thompson's early extracts upon inoperable cases of carcinoma. All cases were under independent observation by other members of the medical staff of this hospital. I formed the conclusion that the extract was harmless and seemed to exercise some inhibitory action in certain cases. I still keep in touch with one instance of carcinoma of the vulva, alive and well after ten years, treated with these early extracts and now with the new H 11: I may add that x-ray treatment, radium, and surgery had failed in this case.

Since the outbreak of war I have been out of touch with Mr. Thompson and my research activities have had to be abandoned, but, in all fairness to Mr. Thompson, I think this letter should be published.—I am, etc.,

Anglesey.

JOHN H. HANNAN.

Medical Boarding for the Merchant Navy

SIR,—The letter of Dr. S. H. Waddy (Aug. 21, p. 248) calls attention to one aspect of a large problem. His experience seems to have been unfortunate and to have led him to the belief that more physical fitness and discipline are necessary if the status and morale of His Majesty's Merchant Navy

are to be more worthy of the name. In support of this surprising statement he cites cases of suspected malingering and the impertinence of a youth. In every flock there is a black sheep, and the Merchant Navy is a very large flock, but the tone of his letter suggests that the apparent blackness of some sheep may have been due to his wearing spectacles "smoked" by annoyance.

May one who for thirty years has enjoyed intimate contact with officers and men of the mercantile marine lodge an emphatic protest against this estimate of their discipline and morale? It is largely the sturdy independence of the sailor that has made his reputation, but this very quality makes him suspicious of any attempt at regimentation and control, whose advantages he cannot at once appreciate. Explanation and persuasion are essential preliminaries to his acceptance of any new scheme. However well meant and however useful such a scheme may prove to be he will be unwilling to co-operate if it seems to interfere with what he regards as his rights and privileges as an individual.

The idea of a "properly constituted medical board and a compulsory card" has much to recommend it to the non-sailor; to the sailor himself it may be unwelcome. Those of us (medical men and laymen alike) whose duty and privilege it is to care for the sailor have given very careful thought to the advantages of a regular Merchant Navy medical service charged with the care of the sailors' health in its broadest aspects, providing skilled medical and nursing attention ashore and afloat, adequate convalescence, and complete rehabilitation, for there is no "light duty" at sea. We are concerned, too, to ensure the early detection of disease or disabilities and the provision of protection against illness of all kinds.

Dr. Waddy's suggestions are, therefore, of peculiar interest and value at the present time, but it is of importance in carrying out the changes at which he hints that a policy of gradualness should be adopted. In view of the difficulties involved it would seem unwise to try to force reforms too zealously and rapidly upon a Service whose members are entitled to grant or to withhold their co-operation.—I am, etc.,

Dreadnought Hospital, S.E.10.

C. E. SUNDELL.

"Milk" and "Nurses"

SIR,—Government policy is arraigned by two of your correspondents in the *Journal* of Aug. 21 on quite different counts, but the combination is interesting and provokes thought.

Milk is still to be supplied to the public in a potentially poisonous condition, complains Dr. Watkins (p. 247), and will continue to carry disease to the children who matter so greatly to us all to-day.

Hospital beds, where the sick we go on producing must be cared for, are in ever greater demand, but here we are up against the other problem—insufficient nurses. In vigorous terms Dr. Mavor (p. 248) denounces the proposed remedies and urges young recruits to nursing to evolve others. Surely they will never find a better one than so many of their contemporaries have already adopted—namely, the stay-out strike. It is we, the public, who have failed and must face the consequences of our apathy. If we exploit the health and freshness of one section of our young in caring for another section, who fall sick because of our mishandling, do we deserve to emerge from the vicious circle we have created?—I am, etc.,

Moor Park, Northwood.

ESTHER CARLING.

Hospitals and medical schools in the United States are organizing affiliated hospital units for civil defence, and already over 1,000 doctors and dentists have applied to be associated with them. The staff are commissioned in the "inactive" reserve of the U.S. Public Health Service (which is the responsible Government Department) with ranks equivalent to lieutenant-colonel, major, or captain in the Army, but they do not wear a uniform until called to active duty in an emergency (air raids, etc.), and serve only in their own or neighbouring States. When called for active service they receive the pay and allowances of the equivalent Army rank. The *Journal of the American Medical Association*, in a recent issue, assures doctors that they need have no fear that they will be involved in any other responsibilities to the Public Health Department if they undertake this emergency work. Their duties will be strictly "limited to those which they have agreed to assume as a result of enemy action."

Obituary

F. J. CLEMINSON, M.Ch., F.R.C.S.

we announce with regret that Mr. F. J. Cleminson, the distinguished oto-laryngologist, died from pneumonia on Aug. 21. He was consulting aural surgeon to the Middlesex Hospital, and honorary director of research at the Ferens Institute of Oto-laryngology, founded in 1927 by a benefaction of his uncle, the late Right Hon. T. R. Ferens of Hull, chairman of Reckitt and Sons, Ltd., who gave £20,000 to the Middlesex Hospital Medical School for that purpose.

Frederick John Cleminson was born in 1878, son of the Rev. J. R. Cleminson of Hull. From Kingswood School, Bath, he went to Gonville and Caius College, Cambridge, with a scholarship, and gained first-class honours in both parts of the Natural Sciences Tripos, taking his B.A. in 1901 and M.A. in 1904.

Between those years Cleminson was a successful teacher, living in Caius as Shuttleworth Student. After clinical study at University College Hospital he took the B.Ch. in 1909 and the M.Ch. in 1913, having held several house posts at U.C.H. and a clinical assistantship in the ear and throat department of the Hospital for Sick Children, Great Ormond Street.

During the last war he served with a temporary commission in the R.A.M.C. in France and Salonika. After his turn to civilian life it became clear that his gifts were to find full expression in the specialty to which he gave the rest of his career. In due course he was appointed aural surgeon to the Middlesex Hospital and the Evelina Hospital for Children, and surgeon to the Throat Hospital in Golden Square.

Although private work made heavy claims on his time and energy Cleminson's professional life was centred on the Middlesex Hospital, where his flair for teaching and scientific enquiry proved an inspiration to students and colleagues. The Ferens Institute gave him the means and opportunity for valuable research into the aetiology of diseases of the ear, nose, and throat. The prevention of deafness made a strong appeal to his practical mind, and his command of lucid English was well shown in the article on hearing aids contributed to this *Journal* in 1938 for the series on "Treatment in General Practice." A member of the B.M.A. since 1911 he took an active part in the work of the Hearing Aids Committee, which sat at headquarters from 1937 onwards. He had been secretary of the section of Otology at the Annual Meeting of the Association in 1922, and vice-president of the Section of Oto-rhino-laryngology in 1929; he was also a past-president of the Otological Section of the Royal Society of Medicine. Early in 1938 he found no strain of operating practice too much and devoted himself to academic study and research. The war cut down these activities through the enforced closure of the Ferens Institute, with which the name of F. J. Cleminson will always be associated as its moving spirit and first director of research.

We are indebted to a friend and colleague for the following tribute:

Although his health, originally undermined at Salonika, had been deteriorating for several years and he had for long been more and more restricting his activities, the death of "Clem" will bring sorrow to many, for among his numerous admirable qualities loyalty to his friends was not the least. Another was his genuine and deep affection for children, for whom he had real understanding, and although he work which he finally adopted was mainly surgical he would probably have been happier as a physician. At heart he was a physiologist, and he has been incorrectly described as a demonstrator of anatomy at Cambridge. He taught physiology there for several years before he qualified, so that he completed his hospital training after late. It was therefore not until the close of the war of 1914-18 that he had finally to settle upon some definite line, and he aural departments at U.C.H., under Herbert Tilley, and at Middlesex gave him his opportunity. It was, however, the physiology of the ear rather than its surgery which really interested him. Of aural neurology and everything connected with the problems of deafness he had a profound knowledge, though he did very little himself that was original. His great contribution was the foundation of the Ferens Institute, and he had the instinct of collecting the right men to work there. His administrative capacity, with the pathological, histological, and photographic technique of which Albert Gray was master, made a perfect combination, and enabled Gray to produce some of his finest work. Though both have gone,

the foundation was well laid and the work will surely continue with success in other hands.

For a few years Magnus and De Kleyn made Utrecht the Mecca of those interested in the physiology of the ear, and this soon attracted "Clem," who made many pilgrimages to Holland. De Kleyn, still at work in Amsterdam, remained always one of his closest friends, and with the late Prof. Benjamins and Gray they founded the Collegium, an international club which had its headquarters at Groningen. This institution, now rendered inanimate by war, was dear to "Clem," who was indeed filled with admiration for everything Dutch. Although he wrote very little and was too shy to speak in public, even at a professional meeting, if he could possibly avoid it, he yet managed to do a vast amount to promote the activity and advancement of his own branch and to alleviate the trials of the deaf. This brought him a wide and well-merited reputation. His gentle nature was lacking in the ruthless streak required of the successful surgeon, but he was much loved by his patients and still more by his friends. He knew everything about sailing, almost everything about motor-cars, a great deal about birds; he enjoyed a shoot, and dispensed an elegant hospitality in which the true kindness of his character showed itself. Had it not been for an excess of modesty he might have occupied an even higher professional position than he actually attained.

Universities and Colleges

UNIVERSITY OF LONDON

On the occasion of President Roosevelt's visit to Ottawa on Aug. 25 the Chancellor of the University of London, the Earl of Athlone, on behalf of the Senate, conferred on him the degree of Doctor of Laws *honoris causa*. An Oration was read by Dr. C. H. Best, F.R.S., professor of physiology at the University of Toronto.

UNIVERSITY OF BIRMINGHAM

A course of five lectures on "Heating, Lighting, and Ventilation" for industrial medical officers will be held at the Medical School, Hospitals Centre, Birmingham 15, from Sept. 20 to 24 inclusive; they will be given at 4 p.m. in the Physiology Lecture Theatre. On Sept. 20 and 21 Dr. T. Bedford will lecture on "Heating and Ventilation," and on Sept. 22 on "The Determination and Control of Atmospheric Pollution." On Sept. 23 Mr. H. C. Weston will lecture on "Sufficient Lighting—Illumination and Visual Capacity for Work," and on Sept. 24 on "Suitable Lighting—Environmental Brightness, Glare, Diffusion and Shadow, Colour." The fee for the course is £1 1s., which is payable in advance to the Secretary of the University, Edmund Street, Birmingham. Nurses engaged in industry are invited to join the course at a fee of 5s.

SOCIETY OF APOTHECARIES OF LONDON

At a meeting of the Court of Assistants held on Aug. 17 Sir Stanley Woodwork was elected Master for his third consecutive year of office, Dr. J. P. Hedley Senior Warden, and Dr. Hugh F. Powell Junior Warden.

The following candidates have satisfied the examiners in the subjects indicated:

PATHOLOGY, BACTERIOLOGY, AND FORENSIC MEDICINE.—D. A. Cox, C. M. F. Fiducia, I. D. Henderson, J. R. S. Jackson, M. W. Johnston, J. M. Macdonald, J. Middleton, J. C. F. Poole, A. M. Rajah, N. Sachse, J. R. S. Scarlett, J. C. Stevens, M. N. Tata, J. K. Wilson.

SURGERY.—D. A. Cox, B. A. Gould, R. K. Haslam, R. J. H. Hodges, R. J. C. Hutchinson, F. J. Martin, J. C. F. Poole, A. M. Rajah, N. Sachse, J. R. S. Scarlett, W. M. Thomas, J. K. Wilson.

MEDICINE.—M. A. Hamdy, J. M. Macdonald, J. C. F. Poole, C. D. Sanders, N. Sachse, J. H. S. Scarlett, R. N. Theakston, W. M. Thomas, J. K. Wilson.

MIDWIFERY.—S. R. Abrams, M. Benjamin, A. E. Bernstein, P. D. Bryant, K. R. J. Coates, D. I. T. Edwards, T. H. Eustace, C. C. Gould, E. D. C. Jones, R. A. Leeming, H. R. Mohammed, J. C. F. Poole, A. M. Rajah, N. Sachse, W. M. Thomas, J. K. Wilson, H. M. Wolf.

The Diploma of the Society was granted to J. D. Henderson, B. A. Gould, G. R. S. Jackson, J. M. Macdonald, J. C. F. Poole, A. M. Rajah, N. Sachse, C. D. Sanders, J. H. S. Scarlett, W. M. Thomas, and J. K. Wilson.

The Services

Surg. Cmdr. F. E. Stabler, R.N.V.R., has been awarded the R.N.V.R. Officer's Decoration.

CASUALTIES IN THE MEDICAL SERVICES

Presumed Killed in Action at Sea.—Major R. Clarke, R.A.M.C. *Prisoners of War.*—Lieut. S. Campbell, R.A.M.C., War Subs. Capt. M. C. Dickson, R.A.M.C., Temp. Major J. L. Gilloran, R.A.M.C., Fl. Lieut. A. N. H. Peach, R.A.F.V.R., Lieut. D. R. McPherson, R.A.M.C., War Subs. Capt. A. W. G. Sutherland, R.A.M.C.

Died.—Major H. N. Osborne, R.A.M.C., Capt. R. Wilson, R.A.M.C.

No. 32

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended August 14.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths from each infectious disease, are for: (a) The 126 great towns in England and Wales (London included), (b) London (administrative county), (c) The 13 principal towns in Eire, (d) The 13 principal towns in Eire, (e) The 13 principal towns in Eire.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	46	—	23	1	3	70	4	21	1	3
Deaths	—	—	—	—	—	—	3	—	—	—
Diphtheria	491	28	151	59	24	665	32	184	33	15
Deaths	16	1	2	3	—	15	1	3	1	1
Dysentery	149	20	100	—	—	51	10	44	—	—
Deaths	—	—	—	—	—	—	1	—	—	—
Encephalitis lethargica, acute	2	—	—	—	—	2	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	36	8	4	—	—	40	6	3
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	—	—	—	—	—	—	—	—	—	—
Deaths	39	5	10	137	16	34	2	14	91	6
Measles	1,476	100	19	18	6	4,983	475	126	24	31
Deaths	—	—	—	—	—	4	—	1	—	—
Ophthalmia neonatorum	108	7	21	—	—	76	2	14	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	6	1	2	—	1	13	1	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal*	346	23	2	—	1	440	14	7	1	—
Deaths (from influenza)	7	—	—	—	—	11	1	1	—	—
Pneumonia, primary	—	—	120	16	13	—	—	138	8	5
Deaths	—	12	7	—	—	—	—	11	—	—
Polio-encephalitis, acute	—	—	—	—	—	3	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	11	—	—	—	—	15	1	1	2	—
Deaths	—	1	—	—	—	—	—	—	—	—
Puerperal fever	—	3	13	—	—	—	—	8	1	1
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	118	11	7	2	2	175	6	11	—	4
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1,558	155	221	32	42	1,332	76	253	46	24
Deaths	3	—	—	—	—	—	—	1	—	—
Small-pox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	10	—	3	3	—	15	—	—	20	1
Deaths	—	—	—	1	—	—	—	—	1	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	1,855	137	57	21	33	1,125	97	17	51	18
Deaths	13	1	4	—	11	4	1	—	2	—
Deaths (0-1 year)	278	29	50	56	38	287	28	63	31	20
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding still-births)	3,562	513	495	169	112	3,664	514	538	166	107
Annual death rate (per 1,000 persons living)	—	—	11.2	11.1	†	—	—	12.1	11.1	†
Live births	6,027	783	873	371	263	5,939	727	853	435	310
Annual rate per 1,000 persons living	—	—	17.8	24.4	†	—	—	17.6	29.0	†
Stillbirths	184	20	35	—	—	220	18	38	—	—
Rate per 1,000 total births (including stillborn)	—	—	39	—	—	—	—	43	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales during the week reviewed the notifications of measles fell by 427 and of acute pneumonia by 1 but the figures for whooping-cough and dysentery rose by 27 and 27 respectively.

The 38 more cases of scarlet fever were the result partly a small rise in London and the South-Eastern Counties .. notifications in the combined area) and partly of a rise of 31 in Lancashire. The only decrease of note was 70 fewer cases notified in Yorks West Riding. The downward trend of the past four weeks gave place to a general rise in the incidence of whooping-cough, especially in Lancashire and London, with 51 and 28 more cases respectively. There were only a few exceptions to the falling trend of measles—for example, 48 more cases in Essex. The biggest decreases were in Norfolk 74 and in London 38.

The principal of several outbreaks of dysentery during the week were in Kent, Malling R.D. 12; Essex, Dunmow R.D. 10; Nottinghamshire, Nottingham C.B. 8; Wiltshire, Westbury U.D. 8; Suffolk, Blyth R.D. 8; Caernarvonshire, Bangor M.B. 6 and Llyn R.D. 5. In London notifications went up from 13 to 20, and in Lancashire down from 18 to 9, and in Gloucestershire from 17 to 6.

In Scotland the only disease with a noteworthy change in incidence was scarlet fever, with 45 more cases, due to a general rise in the south-eastern area. The high level of dysentery was maintained, 100 cases (an increase of 5 over the previous week) being notified.

In Northern Ireland, according to the daily press, 13 cases of typhoid have been notified in Belfast. Cases have also been reported from other towns.

The Week Ending August 21

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,516, whooping-cough 2,015, diphtheria 527, measles 1,049, acute pneumonia 312, cerebrospinal fever 38, acute poliomyelitis 16, dysentery 198, paratyphoid 8, typhoid 13.

Medical News

A meeting of special interest to medical practitioners has been arranged by the Association for Scientific Photography and will be held in the clinical lecture theatre on the first floor of the Middlesex Hospital, W.1, at 2.30 p.m. on Saturday, Sept. 18. The subject of the meeting is "Clinical Photography." Short papers will be read by Mr. T. P. Kilner, F.R.C.S., Miss Hilda Marsden and Fl. L. H. Mandiwall, M.B., L.D.S. (chairman). The meeting will deal specifically with the clinical photography of patients. Surgical techniques, orthopaedics, pathology, etc., will be excluded. The Association for Scientific Photography invites all interested medical practitioners to attend the meeting and join in the discussion.

Dr. Donald Johnson, standing as a Liberal Independent, lost the Chippenham Parliamentary by-election by 195 votes. Mr. David Eccles, the successful candidate, standing as a Conservative and National Government supporter, is a son of Mr. W. McAdu Eccles, F.R.C.S., and son-in-law of Lord Dawson of Penn.

A specialized library has been established for the use of members of the Institute for the Scientific Treatment of Delinquency. A twenty-two-page index of authors has just been issued, and a subject catalogue is in preparation. Inquiries should be addressed to the general secretary, I.S.T.D., 17, Manchester Street, W.1, who will be pleased to send application forms and further particulars.

Dr. Andrew McNae Wyllie, deputy physician-superintendent of the Crichton Royal Institution, Dumfries, has been appointed physician-superintendent of Aberdeen Royal Mental Hospital in succession to Dr. R. Dods Brown, who is retiring on Sept. 30.

Some medical journals in Italy have temporarily suspended publication, the *Rivista de Neurologia* among others.

Sir Arthur Newsholme, K.C.B., who died on May 17, bequeathed the residue of his estate to the London School of Hygiene and Tropical Medicine.

The Ministry of Health has set up an informal committee, of which the Ministry of Supply, the Ministry of Works, and the Radium Commission are represented, whose work it will be to see that the best use is made of the limited supplies of deep-x-ray apparatus. Hospitals placing orders for such equipment should send copies to the Supplies Division, Ministry of Health, Whitehall, London, S.W.1.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be sent to the Secretary.

TELEPHONE NO.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES—EDITOR, *Alliologie Westcott*, London; SECRETARY, *Medicorum Westcott*, London.

B.M.A. SCOTTISH OFFICE: 7, Drumshugh Gardens, Edinburgh.

ANY QUESTIONS?

Black Hairy Tongue

Q.—What are the aetiology and treatment of black hairy tongue? This condition has arisen quite suddenly in my patient, an old man who has had a stroke within the last year, and who is a chronic asthmatic. He smokes one ounce of tobacco a week.

A.—The hairy appearance is due to overgrowth of the filiform papillae on the centre of the dorsum of the tongue. There is an inflammatory reaction in the papillary layer of the corium. The black colour is usually thought to be due to a fungus, the *Aspergillus niger*, whose spores are black. In some cases a yeast has been isolated, or bacteria producing black colonies; in others the black appearance is due to food debris, or the papillae may darken with age. Other causes which have been suggested include tobacco smoke, irritant mouth-washes, sulphonamide drugs, gastric hyperacidity, or a trophoneurosis. It is not due to nicotinic acid deficiency, which causes black tongue in dogs. Although the patient is apt to worry about the appearance of his tongue, it usually produces no ill effects unless the overgrown papillae touch the soft palate and cause retching. Malignant changes do not occur. The condition may disappear spontaneously, but treatment is not likely to prove efficacious. Attention should be paid to oral and dental hygiene, and the tongue may be gently scraped daily. A mild mouth-wash, such as sod. bicarb. gr. 10 to 1 oz. of water, may be used twice daily. The patient should not smoke. The application of thymol (1 in 1,000 solution) has been recommended for cases due to a fungus.

Types of Pertussis Vaccine

Q.—I wish my child, aged 5 years, to have prophylactic inoculations against whooping-cough. I notice that some firms make up two types of material—one of which is labelled "Fort." Could you tell me the best type to use?

A.—To get a reasonable degree of protection against pertussis (whooping-cough) it is essential to use large doses of a smooth-phase vaccine. American workers have recommended a total of 80,000 to 100,000 million organisms given in 1.0, 2.0, 2.0, and 3.0 c.c.m. doses at weekly intervals of a vaccine containing 10,000 million organisms per c.c.m. This method has obvious administrative difficulties, and recent work by Bell (see under "Any Questions?", *British Medical Journal*, 1941, I, 622) has shown that two 1-c.c.m. injections of an alum-precipitated vaccine (10,000 million organisms per c.c.m.) at a month's interval gave as good results as the larger dosage more frequently. Pending the preparation of A.P. vaccine in this country, a useful compromise is three injections of 1.0, 1.0, and 2.0 c.c.m. of a (10,000- or 20,000-million-organisms-per-c.c.m.) vaccine (this is the "Fort" vaccine) with a week's interval between the first and second injections and a month between the second and third.

Quinine Resistance in Malaria

Q.—One hears frequent mention these days of the danger of inadequate doses of the sulphonamides, resulting in a sulphonamide-resistant strain of, say, streptococci or gonococci. What chances are there of breeding a quinine-resistant malaria parasite by the common custom of taking 5 gr. of quinine daily for prophylactic purposes? In these days of quinine shortage it is an important consideration.

A.—Some strains of malaria parasites have been shown to be naturally more resistant to quinine than others. Whether a strain can be made resistant through administration of quinine is much more debatable. Strains of trypanosomes made arsenic-resistant by minimal doses of trypanocidal arsenical compounds are well known, and it has recently been shown that the monkey malaria parasite, *P. knowlesi*, can be made resistant to plasmoquin in this way. Theoretically, therefore, it cannot be denied that quinine-

resistant strains of the malaria parasite might result through the taking of small doses of quinine, and some authors have even described such a condition. The general feeling, however, among authorities is that the occurrence of quinine-resistant parasites brought about in such a manner has not been satisfactorily established, and were it a common result such an effect would almost certainly by now have been clearly demonstrated. Cases suspected to be resistant to quinine are occasionally seen in hospital practice, but careful inquiry usually shows that the patient has not had the quinine he is supposed to have had, and the case usually clears up at once when the observer himself sees an adequate dose administered in his presence. In this connexion, of course, malingering may enter in. Briefly the occurrence of quinine-resistant malaria parasites brought about as a result of regular daily dosage of prophylactic (suppressive) quinine treatment may be ruled out as unsupported by any satisfactory evidence and as entirely contrary to general experience.

Lip-reading for the Deaf

Q.—How is lip-reading taught and learned? Would it be feasible for a G.P. to help a boy of 18 with deafness due to bilateral chronic otitis media to learn to lip-read? The boy wishes to go to the university.

A.—Lip-reading is usually taught by a special instructor who has been trained as a lip-reading teacher. Any local association or institute for the deaf would no doubt be able to give the name and address of a suitable instructor in lip-reading. It is assumed that the patient could be treated privately. If not, it will be necessary to secure his admission to one of the institutes for the deaf. It will be rather a waste of a qualified medical practitioner's time to undertake such tuition himself. An intelligent boy of 18 should do quite well and should learn to lip-read sufficiently well to enable him to go to a university. This has been possible in cases within the writer's experience. One Army cadet, for instance, who became completely deaf as a result of meningococcal meningitis during the last war became so proficient in lip-reading as to proceed to one of the well-known universities and become a lecturer in a scientific subject—a position he still holds.

Hair Pigments and Greying

Q.—In the *JOURNAL* of July 24, p. 140, you published a question and answer on the greying of hair. I shall be grateful for information on the following points: (1) What are the pigments which produce the colours of human hair? (2) How are these pigments elaborated? (3) From what foods? (4) Do iron, copper, and manganese produce these pigments? (5) Is greying a failure to metabolize these pigments, or is it a failure of the hair to receive the pigment? (6) Would a prophylactic minimal dose of iron, copper, etc., help to supply hair pigment—either by supplying substances lacking in food or by preventing over-destruction of pigment substances?

A.—Very little is known about the colour of human hair. It is probably due to varying amounts of the pigment melanin and the way in which the pigment is deposited—e.g., granular as in black hair or diffuse as in red hair. Melanin is a complex black pigment formed from tyrosine, catechol, or related substances by oxidizing enzymes. The origin of the melanin in hair has not been established. The melanin of pigmented skin is assumed to be formed from tyrosine.

The greying of hair is ascribed to the absence of melanin, presumably due to failure of melanin formation. Prevention of premature greying of hair by treatment with vitamin B preparations, β -aminobenzoic acid, and endocrines has been dealt with in the answer to a question in the *Journal* of July 24, p. 140. The white hair of old age is due to an increased proportion of calcium carbonate and phosphate. These substances form about one-third of the ash of white, compared with one-sixth to one-fifth in coloured and grey hairs.

It cannot be stated that any particular foods contribute to pigment formation in hair. The melanin is presumably formed ultimately from some breakdown product of protein, but the amount is small and negligible compared with the total daily intake of protein. There is no evidence that iron, copper, and manganese influence hair pigments.

A Difficult Skin Case

Q.—A man, aged 47, six years ago (in Nairobi) first noticed his left foot getting hot while playing golf. After the game the left foot used to get a blister. The disease has been progressive. The hands start swelling now, and both feet get blisters after walking. He has had to give up police work as he is unable to walk. At present his hands and feet feel hot, tingling, and sticky due to slight moisture. The taking of a meal or immersion of the hands in cold water leads to a diminution in the swelling for a short period.

A.—It is very difficult to offer a diagnosis with the information given of this very chronic case. We presume that the usual tests (urine, Kahn, and blood count) have been made. In every case of

bullous or vesicular eruption of the extremities, especially of the feet, the first step is to exclude epidermophytosis, which may trouble a patient for years. Special attention should be paid to the interdigital clefts, particularly that between the fourth and fifth toes, and also to the nails. It is now well recognized that a more generalized eruption, an epidermophytide, affecting the hands as well as the feet, may occur and is cured only when the foot trouble has been cleared. It would be well to take care that footwear has been freed from possible infection.

Assuming that epidermophytosis can be excluded, pompholyx (acropompholyx) vera must be considered. This apparently may be constitutional, or of climatic or nervous origin. The best remedy would be change of climate, especially as the patient may not have had his usual leave owing to war. The diet should be simple, alcohol should be avoided and also highly seasoned foods. The itching may be relieved by 1/4 gr. luminal twice a day; locally by soaking the feet in weak potassium permanganate followed by dusting with a drying powder such as the following: alum 5 parts, tannic acid 5 parts, boric acid 10 parts, talc to 100 parts.

There are other possibilities, such as disturbance of salt metabolism by heat, but this is not likely if the patient has been resident in the Kenya highlands.

Oestrogens for Small Breasts

Q.—On p. 125 of the issue of July 24 there is an answer to a question about oestrogens for small breasts. You recommend using preparations which contain 2 mg. per g. Would you kindly let me know from whom such a preparation could be obtained, and if possible how often it should be applied, and for how long? Also, what is the maximum period that such a preparation could be persevered with if there is no response?

A.—It should be pointed out that the answer to the question on oestrogens for small breasts did not recommend the use of this hormone except where there are other general signs of ovarian deficiency. It is not the function of this column to supply information concerning the various commercial preparations of hormones or other drugs. Application should be made daily. In responsive cases signs of development of the mammary tissues are usually manifest within a month or two. If there is no response at the end of three months it is unlikely to appear subsequently. It should, however, be clearly realized that such treatment is purely substitutional, and that the artificially stimulated development will soon regress once therapy is discontinued. Finally, it must be emphasized that continued oestrogen therapy is undesirable and may be dangerous. For instance, it has been shown that chronic mastitis may be aggravated by oestrogen administration. If menstrual function is normal its rhythm may be disturbed by continued oestrogen therapy, the menstrual flow being sometimes suppressed, sometimes considerably increased in length and volume. The injections should therefore be applied during the first two or three weeks of the cycle only. In any case oestrogens should not be given continuously for more than 3 or 4 months without periods of remission. In view of the purely temporary effect obtained, and that only in cases showing other evidence of ovarian deficiency more obviously claiming therapeutic adjustment, it would seem that the administration of oestrogen for small breasts should be rarely called for.

Control of the Common Cold

Q.—In view of the fact that vaccines appear to be of little use in preventing the common cold, I should be glad to know what general measures should be adopted to prevent loss of time through colds among factory workers. I have been asked by my management whether the routine administration of vitamin supplements to the workers would increase their resistance to colds; also whether routine exposure to ultra-violet light during the winter months would be helpful. Is the voluntary or compulsory wearing of masks during the active stage of a cold likely to prevent spread of infection?

A.—With an estimated (American) average of three colds per person per year this apparently trivial infection must cause great economic loss through time off work due to the cold itself or its complications (sinusitis, bronchitis, pneumonia), and through impaired efficiency in those who carry on. Counteractive measures among factory workers should have two objectives: (1) to raise resistance to the common cold and its complications, and (2) to prevent the spread of infection among the employees. "Physical fitness and well-being does help the individual to resist 'catching cold,'" Locke, for instance, found that two-thirds of a group of persons whose physical fitness was rated on physiological tests as above a certain standard had only one cold each per year, whereas four-fifths of another group below this standard had four or more colds per year. An adequate and well-balanced diet, sensible clothing, in particular footwear, and the avoidance of fatigue or excesses, help to maintain physical fitness, and these facts should be known among factory workers. If there is evidence of vitamin deficiency in the diet, that must be made good, if necessary by synthetic

preparations. Many people claim that a daily dose of cod-liver oil throughout the winter helps to ward off the cold, but there is no evidence that excess of any particular vitamin will protect against the infection. The prophylactic value of ultra-violet irradiation is in doubt. Colebrook² failed to show any benefit, but Sherman³ found, in a comparative trial at the Bournville Works of ultra-violet light, vitamins A and D, and a mixed vaccine by injection or by mouth that the only prophylactic which was associated with a significant reduction in the incidence of colds, with a considerable saving in time lost, was ultra-violet light. Physical well-being will also lessen the risk of complications, particularly if management and patients alike agree that an individual with a cold should remain indoors preferably in bed, for 1 or 2 days during the acute stage.

Control of the spread of infection in the factory will be helped if the "colder" person is encouraged to report sick at once. Chronic sufferers from colds or their complications should be carefully examined and receive appropriate treatment. An environment arranged for maximum comfort is inimical to the spread of the common cold,⁴ so that air-conditioning should, wherever possible, be introduced. Alternatively, there must be good ventilation without draughts and with the atmospheric temperature maintained around 60° to 65° F. Measures must be taken to prevent and control the dissemination of dust. If colds are very prevalent, aerial disinfection by a bactericidal mist of sodium hypochlorite atomized by hand or by pressure pump may be used without risk, and perhaps with some benefit. The wearing of masks in the factory besides creating difficulties, is not likely to effect much, since there are ample opportunities for catching the infection elsewhere.

REFERENCES

- 1 *J. infect. Dis.*, 1937, 60, 106.
- 2 *Spec. Rep. Ser. M.R.C.*, No. 131, London, 1929.
- 3 *British Medical Journal*, 1938, 2, 903.
- 4 Kerr, W. J., and Logan, J. B., *Proc. Soc. exp. Biol.*, N.Y., 1933-4, 31, 710.

Infected Butter and Cheese

Q.—Is there any risk of milk-borne infections being conveyed by butter and cheese (and cream when available), especially to young children? If so, can any precautions be taken?

A.—Almost all butter sold in this country is made from pasteurized milk. Pasteurized milk is being used increasingly in the manufacture of cheese, but the danger from this product is small in any case since pathogenic bacteria, including tubercle bacilli, die out during the usual process of maturation. There is some risk of normal times from the consumption of raw cream, but it should be pointed out that pasteurized cream is a perfectly satisfactory product. A further reason against any serious disquiet on this score is the quantitative factor. No milk product is consumed in such quantities as milk itself, of which a child may receive a pint or more daily, in which the concentration of tubercle bacilli is sometimes such that the infective dose for a guinea-pig is only a small fraction of a c.c.m. Whether or no a serious tuberculous lesion is produced naturally depends in part on the magnitude of the infecting dose which from badly infected milk consumed over a long period may be very large. (The infectivity of butter and particularly of cheese was discussed in an annotation in the *Journal* of June 12, p. 71)

LETTERS, NOTES, ETC.

Research in Senile Disease

Prof. H. E. ROY writes: With reference to the article, "Possibilities of Research in Senile Diseases" (Aug. 21, p. 219), we have in Liverpool a research institute, one of the objects of which is to examine healthy persons over 35 years of age. This Institute of Research for the Prevention of Disease is administered by a committee of the Liverpool and District Hospital for Diseases of the Heart. Dr. I. Harris wished to undertake work on the prevention of high blood pressure and allied conditions, and he persuaded the committee of the Heart Hospital to establish a separate research institute. The research work consists of work on animals and the examination of healthy people. The idea of the latter procedure is to establish standards of health for older people, to detect the early and preliminary stages of departures from health, and to prevent further degenerations, if possible. It seems to me that this project is akin to that suggested by Mr. Creman. If funds were available, our activities could be enlarged after the war. Finally, I must point out that if anyone is found to be suffering from disease, that individual is referred to his or her own private practitioner.

"Sulphamethazine"

Imperial Chemical (Pharmaceuticals) Ltd. writes: In your issue of Aug. 21, p. 230, you published a paper "Pneumonia treated with Sulphamethazine." The authors are probably unaware that the correct name and description of this material has recently been changed to "sulphamezathine" brand of sulphadimethylpyrimidine.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 11 1943

TRANSFUSION REACTIONS AND FATALITIES CONSEQUENT ON CIRCULATORY OVERLOADING*

BY

R. DRUMMOND, M.R.C.S., L.R.C.P.

Late Assistant Lecturer in Pathology, Welsh National School of Medicine, Cardiff; Regional Transfusion Officer, Welsh Board of Health

Much research has recently been devoted to the identification of abnormal agglutinogens and iso-agglutinins. Noteworthy has been the discovery of the Rh factor by Landsteiner and Wiener (1940). Attention, too, has been focused on the grave danger of transfusion of incompatible blood. It is well known that death may follow transfusion of an incompatible agglutinin—e.g., B cells into an A recipient, etc. Yet recovery may follow such a mishap. Kilduffe and DeBailey (1942) give the mortality rate as about 50%. The total incidence of haemolytic reactions due to transfusion of incompatible cells over a large series of cases is very low. Thus Kilduffe and DeBailey in a collected series of 40,000 transfusions found 80 (0.18%) haemolytic shock reactions, of which 32 (0.07%) were fatal. The total number of deaths was 45. I have personally seen only two such cases in 10 years; both were fatal, and both were due to faulty blood grouping by the slide technique. However, as Wiener (1939) remarks, "it is fortunate that the transfusion of incompatible blood is not always fatal; indeed, in a number of instances the reactions were so mild or insidious that they passed unnoticed or were attributed to other causes." Serious reactions have followed transfusion of as small a quantity as 10 c.cm. of incompatible blood. In some cases death has been almost instantaneous.

According to Kilduffe and DeBailey, who cite Bordley, there is a definite relation between the amount injected and the mortality. Recoveries have been reported—e.g., two cases by Wiener *et al.* (1941)—and one of these was a Group O recipient who received Group B cells. A similar case was reported by Mollison and Young (1941).

Further, Wiener noted that second in importance to injection of blood of a wrong group as a cause of severe or fatal reactions to blood transfusions is the use of universal donor blood. He mentions that, according to Gesse (1935), the use of universal donor whole blood on recipients of groups other than O is apt to be followed by a haemolytic reaction if more than 200 c.cm. is transfused when the patient is suffering from severe anaemia, or if the serum of the donor is of high titre for the recipient's cells. However, while this is probably true of severely anaemic recipients of the A-B system, it is certainly not true of the ordinary run of casualties. The use of universal donor blood in recipients of all groups suffering from acute haemorrhage has been repeatedly proved to be safe and successful in thousands of casualties in the present war.

A Frequent Cause of Reactions

Due regard having been paid to deaths consequent upon agglutination and haemolysis either of donor's or of recipient's cells, there still remains in my opinion a more frequent cause

of reactions and fatalities. I refer to overloading of the circulation in the chronically anaemic and diseased subject.

In the Welsh Board of Health Regional Transfusion Service there is a mutual arrangement whereby all transfusions given in hospitals are notified on a standard record form. With the aid of these records it has been possible to track down and investigate some interesting transfusion reactions. It is noteworthy that in 2,300 transfusions notified in the last 2½ years there has not been a single instance of death due to transfusion of cells of an incompatible blood group. There have been some cases of death from pulmonary oedema and cardiac failure due to circulatory overloading in chronically anaemic subjects; also, there have been a few haemolytic reactions—e.g., jaundice or haemoglobinuria—following the use of Group O or of homologous blood.

Whitby (1941), in an address to the Shaftesbury Military Hospital Medical Society on transfusion for battle casualties, noted that these subjects contrasted with those commonly requiring transfusion in peacetime practice in that they had been previously healthy and had no cardiac disability; it was therefore safe to give at least two pints of blood or plasma quickly to anyone with a blood pressure consistently below 100 mm. Hg, and then to carry on with a slower drip transfusion. It is common knowledge that one problem which sometimes confronts a resuscitation officer when dealing with air-raid casualties is how to get the fluid in quickly enough. Indeed, positive pressure may have to be used, and it may be necessary to introduce a pint of plasma or blood in 15 minutes.

The reason why no cardiac embarrassment occurs in Service casualties is, of course, simple. First, the introduced fluid replaces lost fluid. Secondly, the myocardium is invariably normal and therefore functions efficiently. It is well known in clinical medicine that it is impossible to strain a normal heart. This has been abundantly proved experimentally. I quote here from Starling (1930):

"Experimentally it is found that the isolated heart has a marvellous power of adaptation—i.e., regulating its activity according to the mechanical demands which are made upon it. Thus if we keep the venous inflow constant it makes no difference to the output of the heart whether the average arterial pressure be maintained at 80 or 160 mm. Hg, although in the latter case the heart must do twice as much work in order to keep the outflow at the same level. Again, if we maintain the arterial pressure constant and alter the venous inflow, we find that within very wide limits the heart is able to expel against the arterial resistance the whole of the blood which flows into it from the veins. In this way we can alter the output of a small heart weighing 50 grammes from 300 to 3,000 c.cm. per minute."

Further, Hayward (1942) showed that even in only reasonably healthy subjects serum or plasma could be introduced fairly rapidly. He transfused 50 subjects suffering from chronic arterial disease each with 800 c.cm. of pooled serum, the fluid being introduced at a rate of 5 to 15 c.cm. a minute. The incidence of rigors was 30%. If the serum was injected slowly the cardiovascular system adjusted itself to the increased blood volume readily, there being no increase of venous pressure, and the blood pressure in most cases showed no significant change.

* A paper read at a meeting of Regional Transfusion Officers held at Leeds on March 4, 1943.

Overloading after Rapid I.V. Injections

Sharpey-Schafer and Wallace (1942) investigated the question of circulatory overloading following rapid intravenous injections. They used subjects without cardiovascular disease, and up to 2,000 c.cm. of saline, serum, or blood was injected at rates of from 54 c.cm. to 168 c.cm. a minute. The venous pressure was raised up to 11 cm. H₂O when there was considerable retention of injected fluid in the circulation, as indicated by the fall in the Hb. Radiographs showed an increase in the diastolic size of the heart, enlargement of pulmonary arteries, and prominence of the vascular markings in the lung fields. Vital capacity was diminished, but there was no pulmonary oedema. Despite rise of venous pressure many subjects had no increase in heart rate. However, 4 out of 12 had electrocardiographic signs of heart stress. There were no important symptoms. Those authors stated: "There is evidence that the peripheral and pulmonary capillaries and veins dilate to accommodate the increased blood volume." Lastly, Kilduffe and DeBakey mention that they have infused 650 c.cm. of blood in three minutes! They point out that when myocardial disease is present transfusions must be given with caution; but, apart from this, the suggestion of the danger of embarrassing and overloading the cardiovascular system by rapid transfusion has no rational basis, and they therefore rightly condemn the term "speed shock."

It is apparent, therefore, that, if the myocardium is normal and is functioning efficiently, there is nothing to be feared from rapid transfusion or from overloading the circulation.

Risks of Transfusion in Anaemia

The position is, however, quite otherwise when the functional efficiency of the myocardium has been affected by long-standing anaemia or severe toxæmia. Very grave risk indeed may attend the rapid transfusion of the chronically ill and severely anaemic subject. The risk seems to be particularly grave in pernicious or aplastic anaemia, in severe anaemia consequent on chronic and oft-repeated haemorrhage—e.g., of uterine or gastric origin—in malignant disease associated with cachexia and haemorrhage, and in puerperal cases associated with the effects not only of much haemorrhage but also of sepsis.

Plummer (1936) reported five deaths from heart failure after transfusion in chronically anaemic subjects. Careful preliminary tests were performed and there was no incompatibility. Death occurred, often with pulmonary oedema but without evidence of haemolysis, from 30 minutes to 19 hours after transfusion. It was noted that few such cases had been reported; but this was not a true index of their incidence, for these cases were seen in a two-and-a-half-year period at one hospital. They were typical examples of the danger of rapid transfusion or circulatory overloading in subjects with enfeebled cardiac action due to long-standing anaemia. One case well illustrated the very grave danger of transfusion when circulatory failure was already present.

According to Riddell (1939) the commonest cause of a fatality following blood transfusion is circulatory failure. It may be due to overloading of the circulation or it may be secondary to a rigor. Whitby (1942) has pointed out that "too fast a rate can cause a rigor, which ceases instantly if the rate is slowed." As Riddell rightly contends, if the blood volume is normal—i.e., not depleted by haemorrhage—the production or not of circulatory failure after the intravenous infusion of fluid will depend on three factors—namely, the volume of blood introduced, the rate of its introduction, and the mechanical efficiency of the myocardium at the time. Marriott and Kekwick (1940), in their admirable paper on rate and volume of transfusion of blood in anaemia, laid down four important cardinal principles for the transfusion of severely anaemic subjects. These are: (i) rate not to exceed 1 c.cm. per lb. of body weight per hour; (ii) if the Hb is 25% or less, and if there is cachexia or cardiac or respiratory disease, the rate should not exceed 0.5 c.cm. per lb. of body weight per hour; (iii) maintain steadily the determined rate of transfusion and do not accelerate for short periods; (iv) watch carefully for signs of heart failure (dyspnoea, cough, basal rales) and suspend transfusion if they appear. They

consider that the giving of a pint in half an hour is irritating and unsatisfactory. All too often these important principles are neglected.

Too Rapid Transfusion in the Anaemic

The following cases illustrate the dangers of too rapid transfusion in the severely anaemic and chronically ill subject.

Case 1.—A man aged 54 was admitted to hospital suffering from chronic anaemia and cachexia due to carcinoma of the stomach. He weighed about 10 st. and had lost some 3 st. in weight. The Hb was 50% and the blood group was O. Transfusion of 10 c.cm. Group O whole blood was given in 30 minutes. He then experienced severe pain in the chest and headache. He had a moderate rig which lasted about half an hour, and was left with a feeling of tightness in the chest. The transfusion was stopped. Next day he still complained of tightness in the chest, and rhonchi were audible in both lungs. He recovered. Careful cross-matching test after the transfusion showed no incompatibility. The patient died 16 days later of unrelated causes. There was no necropsy.

Comment.—If one works on the principles laid down by Marriott and Kekwick—i.e., 1 c.cm. per lb. of body weight per hour—this patient should have received 140 c.cm. in an hour, or 70 c.cm. in half an hour. In fact, he received 280 c.cm. in half an hour—i.e., the transfusion was given at four times the rate it should have been given.

Case 2.—A multipara aged 39 was admitted urgently for treatment of profound secondary anaemia. The patient stated that she had had a miscarriage, had advanced in pregnancy seven months, and that she had been bleeding per vaginam for 19 days. However, her doctor subsequently affirmed that, so far as he could ascertain, bleeding had gone on intermittently for several weeks. The blood pressure was 150/80 on admission, the Hb 25%, and the blood group A. The next afternoon a transfusion of Group A whole blood was given. Full cross-matching tests were carried out by an experienced pathologist and there was no incompatibility. The patient had not previously had a transfusion. Four oz. was infused in 10 minutes, when the patient complained of a sense of constriction in the chest, severe precordial pain, and a sense of coldness, which in a minute or so was followed by a rigor lasting a few minutes. Slight cyanosis of the lips was noted. The transfusion was discontinued. An hour later her condition had deteriorated very much; she was semi-comatose, had slight cyanosis of the lips, and the pulse was rapid and feeble. Some 24 hours later the condition seemed to have improved, and it was decided to try the effect of a further transfusion. A second bottle of Group A blood was used. Cross-matching tests showed complete compatibility. In the next two hours a further 8 oz. of blood was given. Some 44 hours after starting the first transfusion the patient died of circulatory failure. **Necropsy:**—Weight of body about 10 st.; nourishment good. There was profound anaemia of all organs except the lungs and liver which were congested. The lung bases were oedematous; the kidneys normal. The uterus was 5 in. long and contained placental fragments. There was no evidence of intravascular haemolysis.

Comment.—In this case the rate of transfusion was too rapid. The determined rate of transfusion, since the Hb was only 25%, should have been 0.5 c.cm. per lb. of body weight per hour. Thus from the first bottle 114 c.cm. was given in 10 minutes, whereas the rate should have been 70 c.cm. in 60 minutes. The rate of introduction of the blood was about 11 c.cm. a minute, whereas it should have been about 1.5 c.cm. a minute.

Case 3.—A 36-year-old woman had suffered from symptoms of dyspepsia and epigastric pain after meals for two years. Symptoms had become worse in the last four months. Three days before admission she had a very severe haematemesis. It is not known whether she had suffered from melæna or haematemesis previous to this. She was sent into hospital urgently and was found to be profoundly anaemic and weak. The blood count showed 1,600,000 red cells and 22% Hb. She was at once given a transfusion of stored Group O whole blood. The recipient's group was not known, but a cross-matching test between the recipient's serum and the donor's cells showed compatibility. In barely 30 minutes the patient was given 540 c.cm. of blood. Transfusion had proceeded when she had a rigor. Her general condition had deteriorated, respirations became faint and rapid, and 14 hours after the cessation of transfusion she was comatose. After a further 5 hours the patient was still comatose and had what seemed to be a slight convulsion. Death occurred 54 hours after the end of transfusion. There was no necropsy.

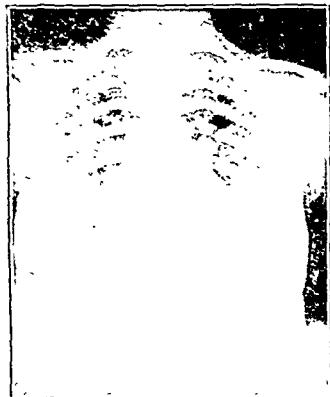
Comment.—The weight of this patient was estimated to be about 9 st. If this is so, and with a Hb of 22%, the rate of

transfusion should have been 0.5 c.cm. per lb. of body weight per hour—i.e., about 70 c.cm. in one hour instead of 540 c.cm. in half an hour.

Cases of Too Large a Transfusion

The next two cases concern the question of overloading the circulation by the factor of transfusion of too great a volume of fluid.

Case 4.—A woman aged 24 was suffering from severe chronic anaemia (pernicious?), albuminuria, and oedema of pregnancy. The haemoglobin was 22%. A radiograph revealed a much-dilated heart (see Fig.). A transfusion of concentrated red cells,* from



Radiograph showing the severe cardiac dilatation in Case 4.

2 pints of whole blood, was given with especial care at a very slow drip rate after careful cross-matching. Both donor and recipient belonged to Group A. After six hours about 400 c.cm. had been given when the patient complained of a sensation of constriction in the chest and developed a slight irritative cough. The ward sister had been warned to look out for these symptoms, and the transfusion was promptly stopped. The symptoms immediately ceased and there was no ill effect afterwards. The recipient, who was Rh-positive, was much improved.

Comment.—This case supports the opinion that in cases of severe chronic anaemia it is better to give initially repeated small transfusions of about 250 c.cm. than single large-volume transfusions. I think, too, that concentrated red cells should be used in preference to whole blood, so that the maximum number of cells may be given in the minimum volume of fluid.

Case 5.—A man aged 40 was admitted to hospital suffering from severe injuries to the left leg and right ankle. It is not evident that there had been extensive loss of blood. The patient was somewhat shocked. No regular blood-pressure recordings were made, and in the space of two or three hours he received 5 pints of Group O whole blood. The blood group of the recipient is not known. All the donors' blood had been carefully checked and grouped on both agglutininogen and agglutinins by the issuing blood store. It is stated that the transfusion was persevered with because the pulse rate continued to rise. The left leg was amputated above the knee a couple of hours later. The patient died shortly after operation. **Necropsy.**—The body was well nourished and showed rigor mortis. The right auricle of the heart was tremendously distended and ballooned. So great was this distension that the heart-muscle fibres were separated from each other, rendering the wall of the right auricle semi-transparent. The right auricular appendage was grossly distended. A small agonal thrombus was present in the main branch of the right pulmonary artery. The lungs were extremely oedematous, and there was a little aspirated food in the bronchi. The endothelium of arteries and veins showed intense haemoglobin staining. **Histology.**—Right kidney: There was autolysis of the kidney parenchyma. In one area a very small amount of yellowish pigment was seen in the tubules of the medulla. Left kidney: Some of the vessels showed lysis of red corpuscles and the presence of numerous bacilli. In other vessels there was much brown pigment consisting of coarse granules arranged in clumps. The lungs showed oedema, and the blood in all vessels appeared to be haemolysed. There was fat embolism of the lungs, but of only moderate degree.

* All the plasma was siphoned off and half its volume replaced with citrate solution.

Comment.—This case illustrates well the grave dangers of uncontrolled resuscitation—i.e., no careful blood-pressure recordings, etc. There can be no doubt that too great a volume of blood was transfused. The essential cause of heart failure was circulatory overloading due to the introduction of too great a volume of blood. The haemolysis was shown to be a post-mortem phenomenon.

Indiscriminate use of universal donor blood is to be deprecated. Compatibility tests ought always to be performed in routine hospital practice, and homologous blood given if it is desired to raise the haemoglobin level. If facilities for tests are not available, then the services of the nearest blood depot should be utilized. In emergencies—e.g., wound shock and haemorrhage—it is safer and wiser to use serum or plasma in order to achieve the object in view—namely, restoration of blood volume—and in the interim full cross-matching tests may be carried out should whole blood be necessary.

Discussion

A case very similar to that just quoted was described by Tubbs (1942). His patient, a 46-year-old man, suffered from chronic lung abscess. During lobectomy there was moderate blood-loss. One pint of saline and 3½ pints of blood were given. After operation his condition was excellent, but on being returned to bed he became cyanosed, pulmonary oedema set in, and thin watery blood-stained fluid accumulated in the air passages. Death occurred two hours after operation. At necropsy the right side of the heart was bloated with blood, and the lungs and air passages were filled with great quantities of blood-tinged oedema fluid. As Tubbs points out, the myocardium of this man was not normal, but had been subjected to the chronic toxic effects of a lung abscess for 12 months. Under such conditions the danger of rapid intravenous injections was only too real. Incidentally A. S. and H. G. Grünbaum (1911), in a forthright article on "post-operative drowning," long ago warned of the grave danger of post-infusional death after intravenous saline injections in cases of surgical collapse. It is evident that this warning needs repetition at the present time.

While the most important cause of transfusion reactions or fatalities is the injection of incompatible blood, it nevertheless seems certain that a common cause of such mishaps is overloading of the circulation. I believe that this remark applies especially when universal donor whole blood is used on anaemic recipients of the A-B system. Not only is there grave danger in overloading the circulation in such cases, but if in addition to this a reaction occurs between the donor's agglutinins and the recipient's cells, then a condition of "haemolytic shock" may be set up. This condition of haemolytic shock in association with a sudden overloading of the circulation from too rapid transfusion may well prove too great a strain on the weakened anaemic myocardium, and circulatory failure may ensue, with fatal result. It should be borne in mind that in severe chronic anaemia the functional capacity of the heart may be seriously impaired and its powers of reserve negligible. The cavities are often much dilated, and the capacity to undergo further compensatory dilatation may be so grossly diminished that the heart becomes unable to accommodate a given volume of blood if too rapidly introduced. Starling has pointed out that an increased diastolic volume means greater length of the muscle fibres of the heart wall. As with voluntary muscle fibres, the energy of contraction is a function of the length of the muscle fibres—a generalization known as "Starling's law of the heart." But in the chronically anaemic myocardium dilatation may be present, possibly of considerable degree (see Fig.). Clearly, under such conditions the heart fibres, already stretched and not contracting to their fullest extent, have little capacity to stretch further. Consequently the right auricle becomes unable to accommodate a large volume of blood suddenly introduced, and fails to expel its contents fully. Failure then ensues. The extra volume of blood must become accommodated somewhere, and, as Sharpey-Schafer has shown, this is done in the vessels of the lungs. Hence the earliest signs of overloading are crepitations due to pulmonary oedema. The precordial pain of which these patients so often complain is presumably due to overdilatation of the right auricle and tension on the

pericardial sac. At necropsy fatal cases constantly show cardiac dilatation and pulmonary oedema and congestion. The pulmonary oedema is evidence of left-sided heart failure.

Treatment should comprise prompt cessation of transfusion, the administration of oxygen, and the injection of morphine and atropine. Adrenaline is contraindicated. Venesection may be necessary to relieve the load on the right heart.

A reasonable rate of transfusion in severe chronic anaemias is 40 drops a minute, and the giving of one pint of whole blood should be spread over at least three hours if disasters from circulatory overloading are to be avoided.

I desire to express my thanks to Prof. J. B. Duguid and Dr. J. Gough, of the Department of Pathology, Welsh National School of Medicine, Cardiff, for help and criticism in the preparation of this paper; to Prof. M. Stewart of Leeds, who kindly drew my attention to the Grünbaums' paper; and to Dr. L. Proger of the M.R.C. Serum Drying Unit, Cambridge.

REFERENCES

- Geese, E. R. (1935). *Diets*, Z. Chlr., 245, 371.
 Grünbaum, A. S. and H. G. (1911). *British Medical Journal*, 2, 1281.
 Hayward, G. W. (1942). *Ibid.*, 1, 285.
 Kidduffe, R. A., and DeBakey, M. (1942). *Blood Bank and Technique and Therapeutics of Transfusions*, St. Louis.
 Landsteiner, K., and Wiener, A. S. (1940). *Proc. Soc. exp. Biol.*, N.Y., 43, 223.
 Marriott, H. L., and Kekwick, A. (1940). *British Medical Journal*, 1, 1043.
 Mollison, P. L., and Young, L. M. (1941). *Lancet*, 2, 635.
 Plummer, N. S. (1936). *British Medical Journal*, 2, 1186.
 Riddell, V. H. (1939). *Blood Transfusion*, Oxf. Univ. Press, London.
 Sharpey-Schafer, E. P., and Wallace, J. (1942). *British Medical Journal*, 2, 304.
 Starling, E. H. (1930). *Principles of Physiology*, London.
 Tubbs, O. S. (1942). *British Medical Journal*, 2, 406.
 Whitney, L. E. H. (1941). *Ibid.*, 1, 533.
 — (1942). *Lancet*, 1, 581.
 Wiener, A. S. (1939). *Blood Groups and Blood Transfusion*, Springfield.
 — et al. (1941). *Amer. J. clin. Path.*, 11, 102.

EFFECT ON THE UTERUS OF EXTRACTS OF GORSE (ULEX GALLI)

BY

WILSON SMITH, M.D.

AND

ANDREW WILSON, Ph.D., M.B.

(From the Departments of Bacteriology and of Pharmacology, University of Sheffield)

In parts of Yorkshire and Derbyshire infusion of gorse is a traditional remedy for retained placenta in the cow. An apparently successful demonstration of its efficacy aroused our curiosity and led us to test its effect upon isolated strips of guinea-pig uterus. Sustained tonic contraction was consistently produced by addition of the watery extract to the fluid in which the uterus was suspended. The consequent investigation was designed to isolate the active principle and to determine its chief pharmacological actions. These objects have not yet been achieved, but we think that the results obtained so far should be published.

Preparation of Extracts

Terminal shoots of gorse from several bushes were passed through a farm hay-chopper and then through a hand tissue-grinder to give a coarse powder. Aqueous extracts, prepared by boiling the minced gorse in water, N/100 HCl, or phosphate buffer solution pH 8.4, were found to be of approximately equal potency when tested on isolated guinea-pig uterus, whereas direct extraction of the gorse with a number of organic solvents failed to yield active products. During attempts to isolate an active principle from the infusions many potent fractions of varying degrees of purity were obtained, but inexplicable irregularities decided us to carry out pharmacological tests on a stock pool of concentrated extracts prepared by the following method, which gives consistently reproducible results and eliminates a considerable amount of inert material.

250 g. of minced tissue are boiled gently for half an hour in 2.5 litres of distilled water. The infusion is strained through muslin and then filtered through a layer of kieselguhr. Approximately 1,800 ml. of clear greenish-brown filtrate with a characteristic odour and acid to methyl red are obtained. Saturated solution of basic lead acetate is added until there is no further precipitation. The

voluminous precipitate is filtered off through kieselguhr and discarded. The filtrate, after removal of lead as lead sulphide, reduced to about 1/50 volume by distillation at 60–65° C. under reduced pressure. To this concentrate 9 volumes of absolute alcohol are added. A flocculent precipitate forms almost immediately, which is filtered off and discarded. The alcohol is removed from filtrate by distillation at 60–65° C. under reduced pressure; leaves a brown viscous fluid together with gummy material adhering to the sides of the distillation flask. The gummy material goes readily into solution in distilled water, and the flask washings used to make up the total volume to exactly 1/50 volume of original infusion filtrate.

Several batches of gorse extracted in this way yielded concentrates of indistinguishable potency; they were therefore pooled to give the stock concentrate referred to hereafter as "S."

The concentrate, when freshly prepared and still warm, has a characteristic pungent odour which is lost to some extent on storage. It is a clear golden-brown viscous fluid and acid to methyl red. Alkalization with NaOH causes deepening of the colour.

Pharmacological Actions

Technique.—In all tests on isolated tissues duplicate preparations were suspended in either Ringer's or Van Dyke's solution, capacity of each bath being 20 ml. One-ml. quantities of various dilutions of neutralized extract were used, and the concentrations recorded were calculated on the assumption that a further dilution of 1 in 20 was effected by mixture with the bath fluid. The period of observation was two minutes, but effects over long periods were also frequently studied. The tests on intact cats were made under nembutal anaesthesia, the uterus being kept submerged in Ringer's solution in the abdominal cavity.

Isolated Guinea-pig Uterus.—With the virgin uterus, S 1 in 1, invariably causes an immediate tonic contraction, sustained for least two minutes. The degree of contraction, shape of the contraction curve, and duration of effect depend not only upon concentration of extract but also upon the phase of the oestrus cycle. Uterus from a guinea-pig in oestrus is more sensitive than uterus removed at other periods of the cycle. Consequently we have found it advantageous to keep a number of spayed animals and to induce oestrus, as required, by inoculations of stilboestrol. With such sensitized preparations concentrations of 1 in 2,000 even 1 in 10,000 S may produce contraction; concentrations 1 in 500 or 1 in 200 cause maximal contraction, sustained for more than 20 minutes and without the step-ladder effect produced by smaller doses. Washing out the bath is always followed by a return of the normal tone and rhythmical contractions of the muscle. Uteri of pregnant guinea-pigs respond in the same way as those from virgin animals, but may be either more or less sensitive. The differences probably depend upon the period of gestation; they may be related to hormonal balance, but the data so far available are not sufficient to correlate these factors. Experiments on parturient uteri give results in striking contrast: the extract produces

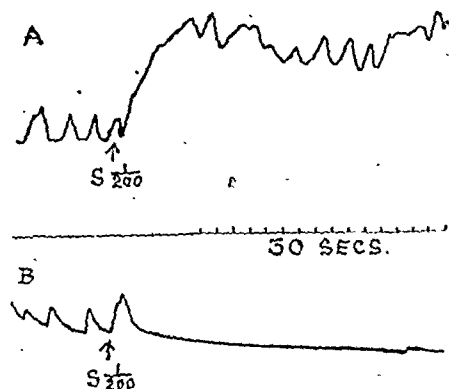


FIG. 1.—Effect of S on guinea-pig uterus. A, Oestrus induced; sustained contraction. B, Parturient; contraction followed by relaxation.

only a small contraction of short duration, which is followed by prolonged abolition of uterine tone. No fewer than 64 guinea-pig tests have been made, with perfectly consistent results except in one or two cases in which the uteri were of such low sensitivity that effects were negligible. The effect of the extract on guinea-pig uterus is not influenced by previous addition of atropine to the bath, nor does the extract modify the response obtained with adrenalin. Typical experiments are illustrated in Fig. 1.

Effects on Uterus and Blood Pressure of the Cat.—A single experiment on the isolated uterus of the virgin cat indicated that it responds like the virgin guinea-pig uterus. In the intact cat intravenous inoculation of 0.2 ml. of S produces tonic contraction almost immediately, which is sustained for several minutes. There is an immediate transient fall of blood pressure, followed by a sustained rise. Further inoculations of extract after uterine tone and blood pressure have returned to normal reproduce the primary effects. It is probable that the transient fall of blood pressure is due to impurities, because some of our more highly purified fractions, which gave typical uterine responses, caused only the sustained rise of blood pressure. We have not had the opportunity of making tests on pregnant or parturient cats. Fig. 2 illustrates these effects.

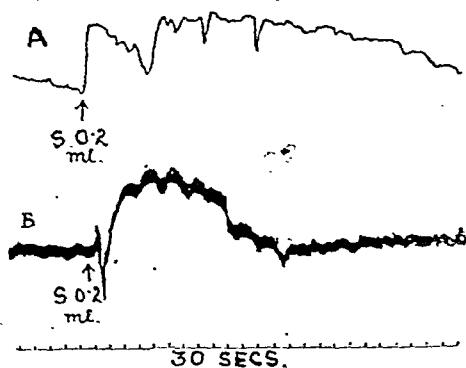


FIG. 2.—Effect of S on intact virgin cat. A, Uterus; B, Blood pressure.

Isolated Human Uterus.—Preparations from 12 human uteri have been tested. In each case a piece of the upper segment was obtained at operation and transported immediately on ice to the laboratory. Two of the specimens were pregnant uteri about a week before full term from cases requiring upper-segment Caesarean section. In seven of the remaining cases the stage of the menstrual cycle was known—five were post-ovulation and two pre-ovulation. The

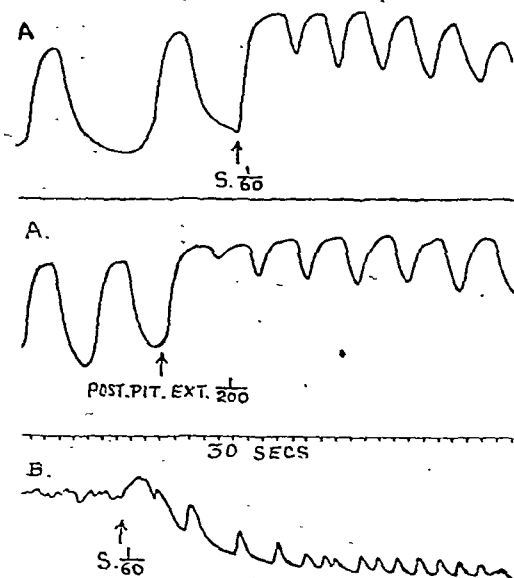


FIG. 3.—Effect of S on isolated human uterus. A, Pregnant uterus one week from term; B, Non-pregnant uterus pre-ovulation.

other three were cases of menorrhagia (2) and uterine sarcoma. All the patients were parous women. The effects of S on pregnant and non-pregnant uteri were in sharp contrast. With the former a 1 in 60 concentration of the extract caused vigorous sustained contraction, with retention of rhythmical tone and without any subsequent stage of relaxation. With the latter the same con-

centration produced an initial contraction of short duration followed by inhibition of tone and sometimes definite relaxation. Relaxation, when it occurred, was prolonged for at least six minutes; in some experiments the effect was maintained for 14 minutes, this being the maximum period of observation. Normal tone with small rhythmical contractions was regained when the bath was washed out. Different uteri varied in sensitivity, some being responsive to much lower concentrations than 1 in 60. The two pre-ovulation specimens were more sensitive than the others, and both showed definite relaxation. With pregnant uterus the addition of the extract after the induction of contraction with posterior pituitary extract caused no relaxation and, as in the case of guinea-pig uterus, its specific effect was not influenced by the previous administration of atropine. Fig. 3 shows the results of experiments with both pregnant and non-pregnant uteri.

Isolated Uteri of Other Species.—Tests with other species have been carried out as opportunity occurred. With a non-pregnant cow uterus, of which the stage of oestrous cycle and the parturition history were unknown, no significant response could be obtained, but with a pregnant uterus removed about a week before full term S 1 in 1,000 produced contraction comparable to that given by pregnant human uterus. Results with the rabbit have been less regular than with other species. Occasionally relaxation and abolition of tone have followed addition of extract, and even a 1 in 20 concentration of S caused only slight contraction in the uterus of a spayed animal. On the other hand, a 1 in 200 concentration produced vigorous and sustained contraction in the other uterine horn of the same animal, removed after oestrus had been induced. Only a single experiment has been made with dog uterus; it responded like guinea-pig uterus, but required much higher concentrations of extract to produce the contraction.

Isolated Guinea-pig Intestine.—Extract S may cause tonic contraction of guinea-pig intestine, but specimens vary widely in sensitivity. Our results suggest that the intestine is much less sensitive than guinea-pig uterus, especially when the latter is in oestrus.

Toxicity Tests

Only preliminary tests on mice have been made. With all routes of inoculation except intranasal, doses have been given in a volume of 0.5 ml.; intranasal inoculations were 0.05 ml. Subcutaneously 0.5 ml. of S (≈ 3.5 g. gorse approx.) causes no observable effects. By intraperitoneal inoculation the same dose kills mice within a few minutes, while 0.1 ml. and 0.05 ml. cause temporary distress with laboured respiration, followed by recovery. Intravenously 0.05 ml. kills within a few minutes, the animals dying in convulsions; 0.025 ml. causes temporary distress; 0.0125 ml. is without observable effect. The administration of 0.05 ml. intranasally under ether anaesthesia is followed by gasping respiration lasting for about half an hour, after which the mice recover and thereafter seem none the worse. The clinical symptoms suggest that toxic doses cause spasm of the bronchioles. Tests by oral administration and by the use of more highly purified extracts have not yet been made.

Methods of Further Purification of Extracts

While attempts to isolate the active principle have so far been unsuccessful they have indicated methods by which further purification may be achieved. Following the precipitations with basic lead acetate and alcohol, a further small amount of impurity may be precipitated out with 9 volumes of acetone. It is clear, therefore, that the active substance is soluble in both 90% alcohol and 90% acetone.

After treatment with lead acetate the addition of a saturated solution of mercuric acetate throws down a precipitate containing the activity from which purified extracts may be obtained. It is probable that the active principle is carried down by adsorption on inert material, for attempts to use mercuric acetate as a specific precipitant on more highly purified preparations were unsuccessful.

The active principle is soluble to some extent in ether, but the optimum conditions for ether extraction from watery solution have not yet been determined, so that very irregular results have been obtained. The most potent fractions produced so far have been obtained by prolonged ether extraction of concentrate S brought to pH 10 with NaOH, in a Kutscher and Steudel (1903) extraction apparatus. Subsequent removal of the ether by distillation leaves a pungent dark-brown oily material which goes completely into solution in distilled water. This aqueous solution is almost colourless and is distinctly acid to methyl red. Similar extractions with amyl alcohol and

petroleum ether failed to yield any active products. Extraction of the dry gorse with organic solvents is at present being investigated.

Discussion

This preliminary investigation indicates that *Ulex gallii* contains at least one active principle with pharmacological activity, chiefly on the uterus, in several species, thus affording some rational basis for its empirical use in farmyard obstetrics. The definite effects of extracts upon isolated human uterus suggest a possible extension to human obstetrics, but further work on chemical fractionation and purification is desirable before clinical tests are made, because there are some indications that the extracts thus far obtained may contain more than one pharmacologically active substance. From the common gorse, *Ulex europaeus*, Clemo and Raper (1935) isolated anagryrine and another crystalline base, but no pharmacological tests appear to have been made on them. There is, of course, no present indication that the active substance is an alkaloid, but its extraction with ether from alkaline aqueous solution suggests that it is a base, the acidity of the extract being due to a weak organic acid present as an impurity.

In its action on isolated guinea-pig uterus and its toxic effects in mice gorse extract behaves like the raspberry-leaf extract studied by Burn and Withell (1941), but the two extracts seem to be quite dissimilar in their actions on cat uterus *in situ*, isolated uterus of dog and rabbit, and isolated intestine. Burn and Withell reported that the dominant action of the raspberry-leaf extract was relaxation of uterine muscle, whereas our substance is chiefly oxytocic; unfortunately they made no tests on the human uterus. Nevertheless, in view of the effects of oestrus and gestation upon the action of gorse extract the possibility of an active principle common to the two plant species cannot be definitely excluded.

The mode of action of the extract remains to be elucidated. Atropine does not affect the reactivity of either guinea-pig or pregnant human uterus, and the response of human uterus to adrenaline is not influenced by the extract. The relaxation effect on parturient guinea-pig and non-pregnant human uteri invalidates comparisons with pituitary extract. However, to gain some idea of the oxytocic activity of gorse extract comparative tests were carried out on both guinea-pig and human uteri; they indicated that the activity contained in 1 ml. of S was roughly equal to 0.3 unit of pituitary extract. The increased sensitivity of uteri from guinea-pigs in oestrus and the altered reactivity of uteri from parturient guinea-pigs and from women near full term are of special interest; they suggest that the effects of administration of gorse extract may be largely determined by the balance of gonadotrophic hormones, thus widening the field of possible clinical application. The advantages of a common plant as the source of an oxytocic drug are obvious, provided a satisfactory method of extraction becomes available.

Summary

Extracts of gorse (*Ulex gallii*) have a specific pharmacological action on uterine muscle. An active principle has not yet been isolated, but relatively pure extracts have been obtained.

The dominant action is one of uterine contraction, demonstrable on the isolated uteri of several species, including pregnant women near full term. With uteri from non-pregnant women initial contraction is followed by abolition of tone and usually definite relaxation. A similar reversal of effect is shown by the uteri of parturient guinea-pigs. In intact virgin cats intravenous administration results in uterine contraction accompanied by a sustained rise of blood pressure.

Uterine reactivity to gorse extract appears to be conditioned by the balance of gonadotrophic hormones, being greatly increased by oestrogen sensitization.

It is a pleasure to record our indebtedness to Mr. L. B. Patrick, by whose courtesy all the human uteri were obtained. Our thanks are also due to Mrs. Wilson Smith for technical assistance and to B. Ibbotson, Esq., of Ashopton, for his help in the collection and preliminary treatment of the gorse. The expenses of the work were defrayed by grants from the Medical Research Council.

REFERENCES

- Burn, J. H., and Withell, E. R. (1941). *Lancet*, 2, 1.
Clemon, G. R., and Raper, R. (1935). *J. Chem. Soc.*, 1, 10.
Kutscher, F., and Steudel, H. (1903). *Hoppe-Seyl. Z.*, 39, 473.

AN ANALYSIS OF ACUTE RESPIRATORY CONDITIONS IN AFRICAN SOLDIERS

BY

W. W. MacNAUGHT, M.C., M.B., Ch.B.
Lieut.-Col., R.A.M.C.; Officer in Charge, Medical Division

AND

R. M. MURRAY-LYON, M.D., F.R.C.P.Ed.
Major, R.A.M.C.; Medical Specialist

Before proceeding to the Tropics medical officers, also invariably are sent to a course on tropical medicine, and are taught at length the various tropical diseases which they are likely to encounter; but no stress at all is laid on the incidence of the common respiratory affections nor on the susceptibility of the African to these. It therefore comes as a surprise to them to find that almost a third of their acute medical admissions comprise conditions similar to those seen at home. The object of this paper is to emphasize the importance of these conditions and to demonstrate the response to treatment as compared with that of Europeans. It is based on the occurrence of respiratory diseases in Africans treated at a West-African general hospital over a nine-months period from June 1, 1942 when the hospital was opened. This period covers the changing climatic conditions, including the maximum and minimum temperatures and humidities.

The total number of admissions to the African Medical Division of the hospital during the period under review, excluding dermatological cases, was 1,250, and of these the high figure of 375 (30%) were respiratory infections, including the upper respiratory conditions—e.g., coryza, sinusitis, and tracheitis. Of all these respiratory infections one only was an example of tropical disease. This patient was a soldier admitted with profuse haemoptysis, and was found to be suffering from paragonimiasis, which responded rapidly to emetine therapy. The remaining non-tropical cases were divided as follows:

I.	Acute lobar pneumonia	..	..	..	..	76
II.	Bronchopneumonia	..	..	..	..	52
III.	Acute pleurisy	..	..	..	..	159
IV.	Bronchitis	..	..	..	..	7
V.	Pulmonary tuberculosis	..	..	..	..	1
VI.	Lung abscess	..	..	..	..	67
VII.	Minor upper respiratory infections	..	..	..	..

Acute Lobar Pneumonia

The physical signs in these cases show no difference from the classical signs seen in a European, apart from a higher incidence of upper-lobe consolidation. The African patient in many instances would report sick at an M.I. room or the reception tent of the hospital, and on examination be found to have complete consolidation of one or more lobes of the lungs. Although this is occasionally met with at home it is much more common among African patients. The commonest complaint when questioned is pain in the chest, even in the absence of an audible friction rub. Little importance can be attached to an increased respiration rate, as this is common to all febrile conditions in Africans and they rarely complain of cough.

Treatment was by oral administration of sulphapyridine in full doses, and in very severe cases the intravenous route was employed for the first one or two doses. The response to this was more dramatic than in the European; for it was a common experience to find the patient on the danger list out of his bed whenever his temperature dropped to normal, although all the signs of consolidation were still present, and in no case were any ill effects of this seen. In spite of the apparent rapid recovery of these patients, radiological examination proved that resolution was no quicker than in the European, in whom the disease appears to run a slower course. It was found that the mean period of stay in hospital in these cases of lobar pneumonia was 21.8 days.

In this series of 76 cases there were only two deaths; one of these occurred within a few hours of admission, and at necropsy the case was found to have been complicated by

pneumococcal meningitis. The other patient, who was admitted in a desperately ill condition, died after four days, showing no response to sulphapyridine. Post-mortem examination revealed red hepatization of one lung and extensive fibrosis of the other, with dense, almost cartilaginous, pleural adhesions. Only two cases showed any complications. One developed a sterile effusion which absorbed satisfactorily, and was only 35 days in hospital; the other developed a lung abscess which finally healed by fibrosis after many weeks.

As the hospital was situated in a hyperendemic M.T. malarial area all patients had routine blood films examined for malaria parasites. Parasites were found in only two cases, which were treated with quinine in addition to sulphapyridine.

Bronchopneumonia

The 52 cases in this group were acutely ill on admission and showed signs of generalized bronchitis, with areas of patchy consolidation in both lungs. A productive cough was a prominent feature. They were treated by the oral administration of sulphapyridine, which was followed by a drop in temperature less dramatic than that in lobar pneumonia, but their recovery was rapid and complete. Only one case showed any complication, and that was an interlobar effusion which absorbed completely without interference.

There was no single death in this group, whose mean stay in hospital was 20.5 days.

Pleurisy

In every one of the 12 cases the symptoms were fever and pain in the chest, and a dry friction rub was found on physical examination. In no instance did an effusion develop. The treatment consisted of sedative cough medicine and heat in the form of kaolin poultices. The majority of these patients were examined radiologically and showed no evidence of any tuberculous focus.

The mean stay in hospital was 17.2 days, and none had been readmitted for a chest complaint over a follow-up period of from 2 to 6 months.

Pulmonary Tuberculosis

The 7 cases of pulmonary tuberculosis were confirmed by radiographs and sputum examination. With one exception they all had extensive lesions of the exudative type, with little evidence of resistance. The one exceptional case had an acute flare-up of a chronic fibroid phthisis, which settled down again with rest in hospital. One of the more active cases was admitted with a massive pleural effusion, which partly absorbed and recurred on three occasions. Contrary to tradition and our expectations, the incidence of pulmonary tuberculosis is low, and when seen was of the acute adult type, and no case of Ghon's focus or other evidence of the primary infection of childhood was seen.

All these cases were medically "boarded" and invalided from the Service.

Lung Abscess

One soldier was admitted in a very toxic state, having just returned from a month's leave in a bush village up-country. On examination he was found to be emaciated, with a swinging temperature and copious foul sputum. Radiographs showed two cavities with fluid levels in the right lung. He did not respond to treatment, and died ten days after admission. At necropsy a large abscess cavity was found in the right upper lobe, extending down to involve the middle lobe, and this had burst into the pleural cavity just before death. The left lung showed scattered areas of bronchopneumonia.

Bronchitis

This was the largest group in the series, and consisted of 159 cases. Five of these cases were acute exacerbations of chronic bronchitis, and the men were invalided from the Service; of these five, three had a superadded asthmatic condition. The remaining 154 patients had acute infections, one having an associated asthmatic element not severe enough for invaliding. They all responded readily to expectorants and inhalations, and required only a few days in bed. In four instances malaria parasites were found in routine blood films, and these patients responded to quinine.

The mean stay in hospital of these bronchitic patients was 11 days.

Minor Upper Respiratory Infections

This group included cases of coryza, pharyngitis, tracheitis, and sinusitis. They had been sent to hospital owing to a considerable pyrexia, which in practically all instances lasted at most 24 hours, when the patients were convalescent, apart from the very small number (five) suffering from sinusitis. In none of these cases were malaria parasites found.

Discussion

There is clear evidence that the African is much more susceptible to acute respiratory infections in the Tropics than the European. During the period under review there were only a few cases of bronchitis and minor upper respiratory infection and no cases of pneumonia or bronchopneumonia in the European wards of the hospital. Chill would appear to be a very important precipitating factor, as shown by the three peaks of high incidence of respiratory infection during the nine-months period. Two of these peaks were associated with the arrival of fresh troops after transit by sea entailing sleeping on deck, when the night cold of a moving ship affects the African severely. The third peak occurred in January, when the weather is at its coldest and the Europeans are at their fittest, with a low sick rate.

It is worthy of note that in all this series only six showed malaria parasites, whereas in the European any acute infection, by lowering the general resistance, allows latent malaria to manifest itself.

Although respiratory infections are seen to be the cause of much sickness, with removal to hospital and temporary loss of man-power, they respond readily to treatment. Serious complications are rare and the death rate low, and the permanent loss of man-power to the Army is very small.

Summary

Of 1,250 admissions to the African wards of the medical division of a general hospital in West Africa, 375 (30%) were acute respiratory infections.

Only one of these cases was of tropical origin, being an instance of paragonimiasis.

There were only two deaths among 76 cases of acute lobar pneumonia (2.6%). No deaths occurred in 52 cases of bronchopneumonia. The third death in the whole series was that of a soldier admitted with advanced lung abscess.

Complications were very rare: among the lobar pneumonia cases, one lung abscess and one sterile effusion; and one interlobar effusion in a case of bronchopneumonia.

An important aetiological factor in these respiratory infections appears to be a degree of chill not affecting Europeans.

The mean stay in hospital for the various groups was as follows: lobar pneumonia, 21.8 days; bronchopneumonia, 20.5 days; pleurisy, 17.2 days; bronchitis, 11 days.

Our thanks are due to Brig. R. A. Hepple, O.B.E., M.C., late R.A.M.C., for permission to publish this article.

NIGHT VISION IN THE ARMY

REPORT OF 10,333 TESTS

BY

A. LISTER, F.R.C.S.

Major, R.A.M.C.

AND

J. W. BISHOP, M.B., Ch.B., D.O.M.S.

Lieut., R.A.M.C.

The purpose of this article is to give additional facts to those already published by Rycroft (1942) and Craik (1943) on the conditions of the Army night-vision test and to place on record the results of a large number of tests.

Rycroft has already given an account of the Army night-vision test apparatus. In this series a certain modification of the technique described by him was employed, and is mentioned below. The brightness figures in Table I have kindly been supplied by Dr. K. J. W. Craik of the Psychological Laboratory, Cambridge, who designed the test. He has asked us to emphasize that these figures are approximate only, because the

filter material (neutral cellastoid) through which the pentagon screens are regarded is not perfectly neutral. It is slightly blue. He points out that, in comparing the results obtained by different types of adaptometer, the colour of the light can make a big difference to the visibility of the light at low illuminations for a constant brightness at high illuminations.

It is also emphasized that the test is one of scotopic visual acuity and not of minimum light threshold. Though this is so, the brightness of the screens as seen through the filter (see below) corresponds closely with the absolute light threshold of 1 to 10 micro-millilamberts (Duke-Elder, 1942).

TABLE I.—Showing Brightness Figures. (The pentagon screens are tabulated in ascending order of brightness)

Screen	Brightness of Screen	Brightness as seen through Filter
1	0.012 c.f.c.	—5.52 log. c.f.c. = 3.0 μ ml.
2	0.021 "	—5.28 " " " 5.2 "
5	0.031 "	—5.10 " " " 8.0 "
3	0.051 "	—4.90 " " " 12.5 "
4	0.095 "	—4.621 " " " 24.0 "

The subjects in this series were from first-class units demanding a high standard of physical fitness and composed largely of volunteers. The purpose of the test was to find men who could be recommended as especially suitable for responsible posts in night operations and to eliminate from operational personnel men with poor night vision. The procedure was briefly as follows:

The men were taken in groups of five or six. Each group was dark-adapted for 30 minutes in dark goggles of a density which, with the lighting conditions, resulted in the first 10 minutes being spent in dim twilight and the last 20 in darkness. Each subject was then tested separately; his goggles were removed and he regarded the pentagon through the windows of a viewing-screen. An easy side of the pentagon was presented to him first, after which the sides were presented in any order. Five seconds was the maximum allowed for any one side at a time. Marks were awarded according to the most difficult side for which two consecutive correct answers were given. Each subject was handed a ticket showing

TABLE II

Age	Total	5/5	4/5	3/5	2/5	1/5	0/5	Average Marks for Each Age
18	43	20	14	8	1	0	0	4.23
19	492	213	165	78	26	7	3	4.10
20	941	339	339	141	45	13	4	4.12
21	933	353	339	147	66	18	10	3.99
22	1,269	450	448	236	96	24	15	3.91
23	1,099	359	385	220	94	25	16	3.83
24	766	235	282	140	75	18	16	3.77
25	664	210	215	146	64	15	14	3.75
26	779	232	283	172	73	12	7	3.81
27	646	169	238	143	72	18	6	3.71
28	588	171	207	128	52	19	11	3.72
29	479	127	179	100	56	11	6	3.70
30	382	100	135	86	45	9	7	3.66
31	272	78	86	59	29	14	6	3.61
32	241	57	91	45	30	8	10	3.54
33	158	43	53	34	14	11	3	3.60
34	132	31	48	32	12	4	5	3.57
35	120	28	38	26	19	6	3	3.45
36	102	16	42	27	9	5	3	3.43
37	67	16	21	19	6	1	4	3.53
38	64	18	21	19	1	3	2	3.53
39	35	6	15	8	4	2	0	3.53
40	19	4	7	5	1	2	0	3.53
41	12	4	2	1	2	1	0	3.53
42	11	2	4	4	0	0	1	3.53
43	6	2	3	1	0	0	0	3.53
44	2	1	0	0	0	1	0	3.53
45	3	0	1	1	0	0	1	3.53
46	1	0	1	0	0	0	0	3.53
47	1	0	0	0	0	1	0	3.53
48	2	0	0	1	1	0	0	3.53
49	1	0	0	0	1	0	0	3.53
50	2	0	0	1	1	0	0	3.53
51	2	0	1	0	1	0	0	3.53
52	1	0	0	0	1	0	0	3.53
53	1	0	0	0	1	0	0	3.53
Total	10,333	3,346	3,663	2,027	896	248	153	

his marks. The group left the dark-room together, and handed their mark tickets to the recording clerk. A group could be tested in this way within five minutes. One hundred and fifty is a convenient number of men to test in a day, but over two hundred can be dealt with without undue fatigue.

The viewing-screen mentioned above is glazed with goggle-glasses—"triplex," the middle element being a neutral cellastoid

filter. Its advantage over goggles is that the space around the eyes is not closed. Fogging is thus prevented or greatly diminished, and can easily be attended to by means of a good quality "anti-dim" substance. It also ensures that the same density of filter is used for all subjects. The results of the series of tests are shown in the accompanying Tables and Graphs.

TABLE III.—Distribution of Marks in Total

5/5	4/5	3/5	2/5	1/5	0/5
32.4%	35.4%	19.6%	8.7%	2.4%	1.5%

TABLE IV.—Distribution of Marks in Age Groups

	5/5	4/5	3/5	2/5	1/5	0/5
18-22	39.0%	35.5%	16.6%	6.3%	1.7%	0.9%
23-27	30.4%	35.3%	20.5%	9.6%	2.2%	1.4%
28-32	27.1%	35.5%	21.3%	10.7%	3.1%	2.0%
33-37	23.1%	34.9%	23.8%	10.3%	4.6%	3.1%
38-55	24.4%	34.4%	25.0%	7.5%	6.3%	2.5%

A large majority of the subjects had visual acuity of 6/ or better in both eyes, without glasses, so that no comparison can be made of scotopic with photopic visual acuity.

The fundi of all the men who received low marks were examined, but in those that were examined no pathological changes were found. Where there are no fundus changes cause of poor night vision is often obscure, and it is of difficult in such cases to assess the truth of the subject's answer. While most of the men with 1/5 and 0/5 stated that they did not see well in the dark, a few were emphatic that they had no difficulty, and it is probable that 0/5 just include the minimum end of the range of normal scotopic vision.

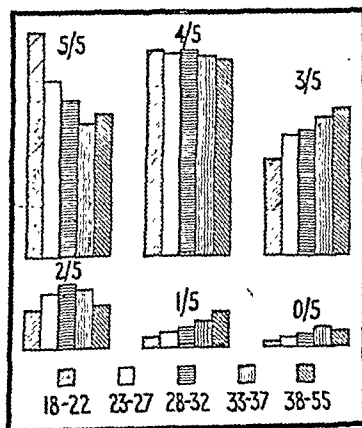


Fig. 1.—Table IV in diagrammatic form.

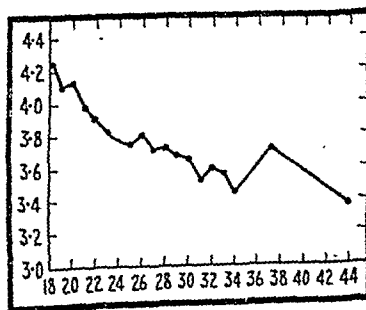


Fig. 2.—Results in graphic form. Ordinates=Average marks out of five. Abscissae=Age groups.

If the brightness is raised two stages, so that that of screen No. 4, as seen through the filter material, is between 60 and 70 μ ml., 1/5 comes within the range of the pathologically night-blind, since this screen has been found to be visible under these conditions to one or two cases of retinitis pigmentosa.

The results correspond fairly closely with those obtained by Steadman (1943) using a different adaptometer. Rycroft

obtained a considerably higher proportion of men with 0/5—7% in even his best group. This discrepancy is probably mainly due to difference in technique, and emphasizes the advantage of the viewing-screen over goggles. In spite of constant attention the latter become fogged and are a source of error.

The chief interest of this series of results is the illustration it gives of the downward trend of scotopic vision which occurs with advancing years. According to these results the drop begins before the age of 18. Since, however, the drop from the average at 18 to that at about 44 is only in the region of 3 μ ml., this point is of theoretical rather than of practical importance.

Summary

The brightness figures of the Army night-vision test are given, with a qualifying remark on the colour of the light in adaptometers. Though the test is one of form sense it appears that the minimum light necessary for the discrimination of a simple form is in the region of the absolute light threshold.

The results are recorded of 10,333 tests, the subjects of which were high-category men between the ages of 18 and 55. They illustrate the downward trend of scotopic vision which occurs with advancing years.

We wish to thank Brig. Sir Stewart Duke-Elder, Consultant Ophthalmic Surgeon to the Army, for permission to publish this article; also Dr. Craik, to whom the first part of the article is due.

REFERENCES

- Craik, K. J. W. (1943). *British Medical Journal*, 1, 632.
Duke-Elder, Sir W. S. (1942). *Text Book of Ophthalmology*, 1, 903.
Rycroft, B. W. (1942). *British Medical Journal*, 2, 576.
Steadman, B. St. J. (1943). *J. R.A.M.C.*, 80, 73.

FILARIASIS IN THE MIDDLE EAST

BY

J. FINE, M.D., Major, R.A.M.C.

AND

Dr. LIVNY, Civilian Medical Practitioner

It is not unusual to meet with cases of clinical filariasis among African native troops in the Middle East, and one of us (J. F.) has seen them in all three hospitals to which he was temporarily attached.

In view of the high incidence of microfilariaemia among natives in certain regions of Africa reported in the literature, it was considered of interest to carry out a routine examination of the blood of all negro patients in the wards of a general hospital, irrespective of the condition for which they were admitted. At the same time information was obtained of the country of origin in each case and the period that had elapsed since they left their homes: in practice this period corresponded to the time of enlistment. The findings are shown in Table I.

An inspection of the table revealed that: (1) 12 cases (29%) out of 42 showed the presence of microfilariae; (2) 30 out of the 42 patients came from Uganda, and all the positives were in this group—i.e., Uganda soldiers showed 40% infestation with filaria; (3) of the 12 cases of filariaemia only two had clinical filariasis; (4) the patients with filariaemia had left Uganda from 10 months to 2 years and 8 months previously.

An attempt was made to determine the species of filaria present by doing relative counts morning and evening. The results appear in Table II, the number of filaria recorded being the total found in an entire uniform wet film.

It is clearly impossible to infer the species in more than three cases in this series: of these three one was *L. loa*, the other two *W. bancrofti*. Unfortunately there was no opportunity of continuing the investigation to determine the diagnosis by more frequent counts or by staining methods.

One point of interest that emerges is the large number of instances (10) in which only one larva was present in an entire wet film. In those cases an average of 15 minutes elapsed before the larva was found, and it is not unlikely that a less leisurely examination would have yielded more negative results: five such negative results were in fact reported by a laboratory assistant whose speedy disposal of 20 films (in about 50 minutes) roused suspicions as to the reliability of his findings. In view of the number of films with only one larva in the entire specimen it seems probable that some of the negative results

might have been positive if a greater volume of blood was examined, or if a concentration method was used at which a quantity of blood was haemolysed and a centrifuged deposit examined. The use of thick films, dehaemoglobinized and stained, should also increase the number of positives in a filarial survey.

TABLE I

No.	Ag	Country Origin	Years since leaving Home	Presence of Microfilaria in Blood	Clinical Diagnosis
1	36	S.W. Africa	18/12	—	Corneal ulcer
2	25	Uganda	10/12	—	Inf. hepatitis
3	37	"	15/12	—	Scabies
4	20	"	15/12	—	N.Y.D. headache
5	22	"	11/12	—	Herpes zoster
6	21	"	1	—	Lobar pneumonia
7	20	"	15/12	—	"
8	26	"	15/12	—	Clin. malaria
9	21	"	11/12	—	Pneumonia (conv.)
10	24	"	15/12	+	Filariasis
11	21	"	15/12	+	Pneumonia (conv.)
12	25	"	11/12	—	Pneumonia (conv.)
13	24	"	2	—	N.Y.D. haemoptysis
14	18	"	10/12	—	Pneumonia (conv.)
15	20	"	2	—	Taenia infest.
16	25	"	32/12	+	Inf. hepatitis
17	19	Kenya	11/12	—	Taenia infest.
18	22	Uganda	1	—	Cellulitis
19	20	"	15/12	—	Arthritis
20	25	"	11/12	—	Clin. malaria
21	21	"	2	+	Filariasis
22	22	Kenya	2	—	Diarrhoea N.Y.D.
23	26	Uganda	1	—	Dysentery N.Y.D.
24	23	"	11/12	—	"
25	18	"	9/12	—	"
26	42	"	15/12	+	Shiga dysentery
27	33	"	3	—	Dysentery N.Y.D.
28	20	"	21/12	+	Inf. hepatitis
29	25	Seychelles	5 12	—	Dysentery N.Y.D.
30	23	Tanganyika	1	—	Ankylostomiasis
31	23	Swaziland	1	—	Schistosomiasis
32	25	Uganda	15/12	—	Arthritis
33	25	"	15/12	+	Bronchiectasis
34	22	"	10/12	+	? Tb. chest
35	25	Kenya	13/12	—	Bursitis shoulder
36	23	Uganda	11/12	—	Mumps
37	19	Kenya	10/12	—	Pneumonia (conv.)
38	42	Bechuanaland	15/12	—	Cataract
39	30	Uganda	8/12	—	?
40	20	Kenya	1	—	Dysentery N.Y.D.
41	25	"	25/12	—	"
42	20	Uganda	1	+	"

The transmission of filariasis is by a wide range of insects. Manson-Bahr instances 24 species of mosquito capable of transmitting *W. bancrofti*, and these include 8 culicines, 11 anophelines, 3 aedes, and 2 mansonioids; among those are *Culex fatigans*, transmitted by mangrove-flies only (*Chrysops*), while the intermediate hosts of *A. persans* are limited to the midge genus *Culicoides*. It is clear, therefore, that malarious areas such as occur in the Middle East are likely to favour the dissemination of *W. bancrofti* infection, and even though the incidence of clinical filariasis is not high among infested individuals, it does not seem desirable to expose non-filarial

TABLE II

No. of Case	Origina Serial No.	Filaria Count		Species Present
		9 a.m.	9 p.m.	
1	10	3	3	?
2	11	1	1	W. bancrofti
3	14	1	1	?
4	16	1	0	?
5	18	1	1	?
6	21	20	—	L. loa
7	26	1	14	W. bancrofti
8	28	5	2	?
9	32	1	0	?
10	33	1	0	?
11	34	1	1	?
12	42	1	2	?

districts to the consequences of introducing heavily infested bodies of troops such as the Uganda natives.

The scope of the present investigation is admittedly too limited to justify any sweeping recommendations such as the cessation of recruiting in endemic filarial areas of Africa. Nevertheless it does seem desirable to introduce a routine blood-film examination for natives in such areas and to assign infected cases for local duty only. Whatever precautions might be taken with infected troops (segregation, mosquito netting), the great length of time, extending into years, during which filariae are present in the blood stream renders the probability of eventual dissemination one of definite proportions.

Summary

Forty-two sick African native soldiers in a Palestine general hospital were examined for microfilariæ and 12 positives were obtained.

Thirty out of the total came from Uganda, and all the infected cases were in this group.

Only two of the positives were cases of clinical filariasis, but it did not seem very likely (though this has by no means been established) that the conditions from which the other ten cases suffered had any relation to the filariaemia.

Most of the infected men had left their homes over a year ago, and in some cases over 2 years before; filariaemia must therefore have persisted for long periods, and must be regarded as capable of persisting still further.

Pending fuller investigations it is suggested that natives in known infested areas should not be recruited for service abroad unless the blood is found to be filaria-free.

THE DETERMINATION OF HAEMATOCRIT VALUES IN WOUND SHOCK

A ROUTINE PROCEDURE

BY

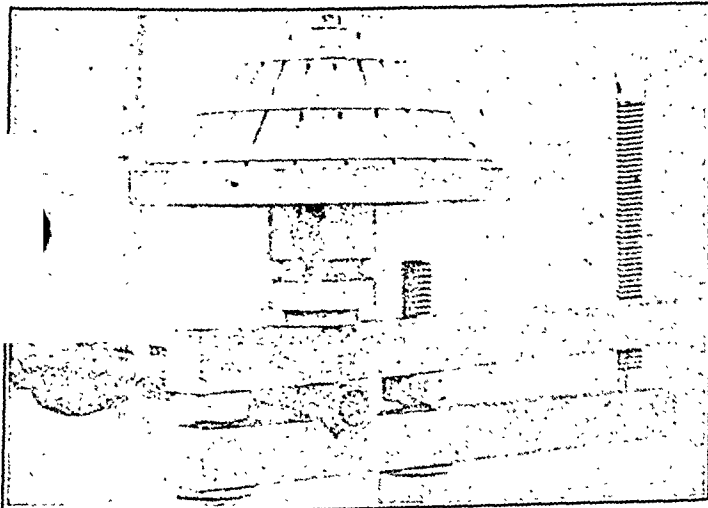
MAX REISS, M.D., D.Sc.

(Endocrinological Department of Burden Neurological Institute,
Bristol)

In the course of certain experimental work it became necessary to devise means of determining the haematocrit value of many blood specimens simultaneously and with the utmost speed. Our requirements were met very simply by (1) the use of thin-walled capillary tubes; (2) millimetre paper; (3) a specially constructed fixed-angle microcentrifuge slotted to hold 25 capillary blood specimens. This apparatus allowed the haematocrit value of the blood from several cases at one time to be determined with accuracy and with such unusual expedition that we feel justified in describing our technique in detail.

Method

The capillary tubing is drawn out and cut into approximate lengths of 60 mm.; from each specimen heparinized blood (small droplet of blood on finger dusted with heparin before pricking) is filled into 8 to 10 such tubes by capillary attraction.



These are then quickly sealed at the uncontaminated end in a spirit flame—taking care not to heat the blood—fitted into numbered grooves in the special centrifuge, and spun. Since the rate of spin depends on the motor power available for connexion to the instrument, the higher the rate of spin the shorter need be its duration. The capillary tubes may be removed as soon as the solid constituents of the blood are

spun out, and the reading is made by checking the fluid-solid level against millimetre paper. The resultant average of all samples of each blood specimen is expressed, as usual, as the percentage of corpuscles in a total blood volume.

The body of the centrifuge (see Fig.) is a truncated cone with a top diameter of 3 in. and a bottom diameter of 6 in., the external surface being at an angle of 45 degrees with the base. The sets of capillary tubes slide into grooves cut from top to bottom of the external surface parallel to its inclination and are retained by three narrow bands running round the outside of the cone at intervals of about 20 mm. between base and top. Underneath, and turned as part of the cone, is a horizontal pulley-drive. The entire head is mounted on a vertical 1/2-in. steel rotating shaft. The shaft is fixed on a universal clamp so that the apparatus can be secured firmly on a table, metal framework, rod, or other platform sufficiently robust. The centrifuge head can be constructed of light metal or some lighter material, so that no great driving power will be needed. A small electric motor is adequate, or the power provided by the fan belt of a motor-car or similar engine. In practice it has been found quite satisfactory to drive the centrifuge by pressing the lower rim against the upper outer side of the tyre of a jacked-up rear wheel of a motor-car. It might be more convenient to interpose a small driving wheel and flexible shaft of speedometer type. In cases where the r.p.m. are low a step-up pulley could be easily interposed between motor and centrifuge to raise the gear ratio so as to yield about 3,000 to 4,000 revolutions a minute. Where such fittings are lacking or the available centrifuge-mounting is not firm enough to allow such a high rate of spin, satisfactory results can be obtained with as few as 1,000 revolutions a minute; but in this event the tubes must be spun for a longer time. The lowest optimal time for every individual connexion can be found once for all by the initial inspection at test intervals of a set of control tubes. When the solid-fluid level ceases to alter, the end-point has been reached. The spinning time so determined will be approximately correct for all subsequent readings under the same conditions. No harm is done by considerable prolongation of the spinning time, where it may be convenient so to do. The usual precautions taken with other types of centrifuge in regard to their slowing gradually to rest without disturbing the content of the tubes should also be observed here. Where a drive is provided by a car engine the r.p.m. should be reduced by gradual deceleration.

This simple centrifuge has proved so useful in the laboratory that its use may be suggested as an aid to clinical differential diagnosis in surgical emergencies.

Comment

Modern investigations in the mechanism of production of shock in the injured have shown that in primary shock the collapse is due to vasomotor failure; the composition of the circulating blood is unaltered and transfusion of blood or plasma is not indicated; it may even overload an already impaired circulatory system. The haematocrit readings will be within the normal range of values. In secondary shock the haematocrit readings will be abnormally high owing to loss of fluid elements of the blood; the percentage of solids in any given blood volume will be in considerable excess of normal. If secondary shock is still developing and not yet extreme the patient is still conscious, but the underlying progressive blood change is already revealed by a moderately raised haematocrit reading.

Haemoconcentration has been found to be the earliest sign of oncoming shock in wounded soldiers (Moon, 1942).

Transfusion of plasma, though an appropriate treatment for all degrees of secondary shock, can confer only temporary benefit if the excessive capillary permeability persists (that has allowed the migration of fluid constituents of blood, and the transfused plasma also escapes. It has been found, as in the case of burn shock reported among others by Rhoads (1941), that adrenal cortex hormones (cortin) are capable of preventing the persistent fluid loss by reducing capillary permeability, thereby saving much plasma. Dehydration shock experiments

in the rat (Reiss, MacLeod, and Golla, 1943) have shown that corticotrophic hormone, by mobilizing an endogenous supply of adrenal cortical hormones, can similarly influence the capillary permeability and effectively prevent the loss of blood fluid.

The haematocrit alone can give a differential diagnosis of the state and fate of the fluid components of the blood.

REFERENCES

- Moore, V. H. (1942). *Shock*, London, p. 243.
Reiss, M., MacLeod, L. D., and Golla, Y. M. L. (1943). *J. Endocr.*, 4, No. 3.
Rhoads, J. E., Wolff, W. A., and Lee, W. E. (1941). *Ann. Surg.*, 113, 955.

Medical Memoranda

An Unusual Amoebic Liver Abscess

It is common knowledge that the metastatic liver infection produced by the *Entamoeba histolytica* proceeds in many cases from hepatitis to suppuration. The resultant abscess must always be thought of as the "cold" variety and be treated with as much circumspection as are those due to the *Mycobacterium tuberculosis*. This lesion progresses, and seeks to establish an outlet whose track may lead into any structure which is in immediate anatomical relation to the liver. Adhesions will form in practically every case, and so prevent general contamination of a serous cavity.

Many years of observation have shown that the amoebic liver abscess is usually solitary and large, and is situated in the right lobe. Again, in the case of the female, liver abscess is relatively uncommon. Rogers observed nearly 400 cases of liver abscess in Calcutta, 97% being in males, and quotes Ludlow's series of 240 cases in Korea, of which 90% were in males; while Manson-Bahr states that European women in the Tropics rarely develop the condition. The undermentioned case presented several uncommon features, in addition to the fact that the abscess occurred in the left lobe and in a female.

CASE NOTES

On Dec. 28, 1939, I was asked to see a parous Hindu, aged about 30, who complained of weakness, fever, general abdominal discomfort, and anorexia. The symptoms came on gradually, without rigors, and were associated with some loss of weight of only twelve days' duration. The fever was at first remittent, and quinine had been given for thirteen days, but without result.

Examination showed a fairly well nourished woman, and the following signs were recorded: coated tongue; no abnormal glands; chest, heart, and C.N.S. normal. The abdomen was held in a tense manner, but a mass filled its upper half, and it was dull to percussion though not very tender. Rectal examination and urine analysis were normal. Blood serum for agglutination contained *B. typhosus* 1:1280, but the Vi agglutination test gave a negative reading.

Stools showed no abnormality on gross examination. On the 15th day of fever the temperature became intermittent. Re-examination revealed that the liver edge was at the level of the navel, and that another mass in the upper abdomen came from behind the costal margin and extended two inches below the navel. There was a notch at the junction of this mass with the liver. It felt like an enlarged spleen, but subsequent signs showed it to be an enormous left lobe of the liver. No shifting dullness was found, nor was the mass very tender. On the 15th day the blood showed 15,000 white cells per c.mm., with 84% polymorphs. Stools were repeatedly negative for ova, cysts, and amebae. A course of 104 gr. of emetine hydrochloride injections was given over a period of 15 days and the temperature became normal, but only for the first three days. On the 19th day signs appeared at the right base—viz., dullness, absent breath sounds, and inspiratory rales.

Shoulder pain and vomiting never occurred. The patient now began to lose weight at an alarming rate and the temperature was swinging from normal to 103° F. She could with difficulty be encouraged to take fluids and glucose. There was no sweating, and the urine showed only a trace of albumin. On the 20th day the white cells were 16,600 per c.mm., and on the 21st day rose to 19,600.

Under twilight sleep and local infiltration with novocain the right lobe of the liver was searched diligently, but with no result. Then the needle was directed into the greatly enlarged left lobe and 58 oz. of light yellowish-green fluid resembling thin pea-soup was removed by means of a Potain aspirator. This immediately relieved the patient, and the temperature kept at the normal level for 7 days. The emetine course was then stopped and the same signs and symptoms recurred. On the 32nd day of the disease aspiration was repeated after the white cell count had risen to 24,400. On the 37th day a further 16 oz. of thicker and darker material was aspirated. The patient continued to lose weight and strength, and for the first time the skin and sclera became icteric and there was choluria, associated with an irregular curve on the temperature chart.

As repeated aspirations failed to achieve a cure, and as the abscess in the left lobe could be seen standing out and fluctuation could be obtained there, open drainage was done.

Operation.—Under local anaesthesia the left rectus was split, and on a nick being made in the oedematous peritoneum odourless pus, thick and with coagula and sloughs, shot forth. Using Bailey's method of a tube within a tube and eusol irrigation, together with extreme care in the changing of dressings, secondary infection was avoided. The patient was discharged healed on the 30th day after operation. She was given stovarsol 4 gr. b.d. in a 10-day course and tab. ferrous sulph. 3 gr. t.d.s. for a month after operation, and is now fit for a normal day's activity.

J. A. M. CAMERON, M.D., F.R.C.S.Ed.,
Major, I.M.S.

The Third Case of Fatal Air Embolism reported after Vaginal Insufflation

Recently details of a death due to air embolism following a picotrol insufflation of the vagina was reported by Dr. Latham Brown. The fatality occurred in a normal primigravida one week before she was due. The clinical picture and post-mortem findings of our case are almost identical to his. They will be stated to emphasize that air insufflation of the vagina in a pregnant woman near term is a very dangerous procedure.

CASE HISTORY

On June 4, 1943, a 1-para aged 21 was admitted to Ashridge Hospital. Her expected date of confinement was June 8. She was completely normal in every respect except for a malodorous vaginal discharge due to the *Trichomonas vaginalis*. On June 6, two days before she was due, it was decided to treat the discharge with a picotrol insufflation. Approximately ten pumps of the insufflator were used—i.e., about 600 c.cm. of air. The patient did not complain of any undue discomfort. When the insufflator was withdrawn she immediately went into what appeared to be a fit. Her eyes rolled up, she became very cyanosed, her pulse became imperceptible, and despite all attempts to resuscitate her she died within about three minutes.

At necropsy the woman appeared well nourished but cyanosed. Air was found in the heart, making the blood in the right side appear frothy. The neck veins had the appearance of overfilled spirit-levels, air showing through the walls. Air was likewise found in the sinuses of the brain. It was also abundantly present in the pampiniform plexus. The uterus contained a normal foetus at term. The placenta was situated high up on the anterior surface. The membranes were not ruptured. Air could be seen through the veins on the outside of the uterus. The cervix was large, inflamed, eroded, and patulous. Although we looked very carefully, we could find no evidence of bleeding, separation of the membranes or placenta from the uterine wall. However, a considerable amount of air was found on the maternal surface of the placenta. In the last case reported the membranes and a portion of the placenta were found stripped from the uterine wall. In that instance it was obvious that the air entered the circulation from the vagina by passing through the cervix, stripping up the membranes, and thus getting into the maternal sinuses of the placenta. The same route must be presumed in our case.

DISCUSSION

We are in entire agreement with the views stated arising out of Dr. Latham Brown's case, and think they should be repeated—namely, that it would be a pity if such an efficient form of treatment as picotrol insufflation should fall into disrepute on account of three fatalities in many thousands of normal cases, when precautions might guarantee its harmlessness. We also agree that an efficient cervical barrier must be demonstrated before insufflation is used, or some other form of treatment should be adopted.

It would seem that as the mode of entry of the air into the circulation is through the placental site, insufflation is only dangerous in a pregnant woman. Let us consider the question, Is insufflation dangerous throughout the whole of pregnancy or only in the later months? These two cases show that it is definitely dangerous in late pregnancy. In the other case, reported in Canada in 1936, death occurred in a multigravida only 4 months pregnant. Since the placenta is fully developed in form by about three months it would seem that there are present in miniature all the factors which are capable of allowing air to enter the circulation from then onwards. In all probability the danger of air embolism increases as the placenta enlarges and the os becomes more patulous. In other words, the later in pregnancy the more dangerous is the treatment. The treatment is also probably more dangerous in multigravida women, as their cervical barrier is less efficient.

Conclusion.—In early pregnancy it would be prudent to hesitate before insufflating a patient; and in late pregnancy dogmatism is justified—it must not be done.

(In fairness to the makers of picotrol, in their literature they state that insufflation should not be done in the last four months of pregnancy.)

Ashridge Hospital.

A. J. PARTRIDGE, M.R.C.S., L.R.C.P.

BIBLIOGRAPHY

- Brown, Latham (1943). *Lancet*, 1, 616.
Peirce, S. J. S. (1936). *Canad. Med. Ass. J.*, 1936, 35, 663.

Reviews

THE LYMPHATIC SYSTEM

The Lymphatic System: Its Part in Regulating Composition and Volume of Tissue Fluid. By Cecil K. Drinker. Lane Medical Lectures. Stanford University Publications: University Series. University Science, Volume IV, No. 2. (Pp. 101; Illustrated. 14c.) California: Stanford University Press; London: Oxford University Press. 1942.

This series of five lectures makes entertaining reading, and maintains the high standards of the Lane Lectures. It is entertaining because the treatment of the subject is original and the author's asides both sagacious and witty, and it maintains the high standards demanded by tradition by reason of the originality of the approach. Space will not permit of long quotations, but the following might well be put up in large letters in many a laboratory. "It is a misfortune that those who apply the idea that living creatures are but complicated expressions of the natural laws which they slowly learn from studies of inanimate objects, measure the reactions of living things with a rod whose every mark is stamped with the authority that can be established for non-living material."

The keynote of the lectures is that the lymphatic system can best be understood by consideration of its essential connexion with the circulatory system, with which it is integrated into a means for maintaining a constant internal environment for the tissues. The historical development of this point of view is attractively treated, as is also the author's search for a biological explanation of the evolution of lymphatics, a subject that still remains somewhat obscure.

The interdependence of blood, tissue fluid, and lymph is elegantly illustrated by the author's own recent work on the lymph flow from the heart and lungs. This work is not only in itself a triumph of technical skill but an excellent illustration of the general principles involved, and, moreover, is likely to be of importance in the pathology of the organs concerned. The last chapter deals with the relation of the lymphatic system to practical problems of medicine and surgery, and shows how a knowledge of the relations between blood, tissue fluid, and lymph throws light on some long-established practices.

INSTRUCTION FOR NURSES

A General Textbook of Nursing: A Comprehensive Guide. By Evelyn C. Pearce, 8th Edition. (Pp. 915; Illustrated. 15s.) London: Faber and Faber. 1943.

Teaching in Schools of Nursing. By Alice M. Jackson, M.A., and Katharine F. Armstrong, D.N., S.R.N. With an Introduction by Cyril L. Burt, M.A., D.Sc. (Pp. 244. 7s. 6d.) London: Faber and Faber. 1943.

Miss Evelyn Pearce has revised her well-known volume *A General Textbook of Nursing* for an eighth edition, a surprising record when it is recalled that it first appeared as recently as 1937. Changes have been made in accordance with advances in treatment, so that there is now a note about penicillin and an interesting new "routine" for the dressing of surgical cases. What seems to be missing is not so much the latest form of treatment as a more up-to-date outlook on the whole future of nursing. The term "social medicine" does not appear in the index, and the part that nurses must play in the social and preventive medicine of the future is not stressed. The word "almoner" does not appear in the index, though mentioned in the text in a brief manner in connection to the discharge of patients.

A reprint of *Teaching in Schools of Nursing* by Miss Alice M. Jackson and Miss Katharine Armstrong has now been issued and appears to be identical with the first edition published in 1934. Here again the new orientation in the world of medicine is lacking, although in an appendix on the "block" system of training the curriculum includes two lectures by the hospital almoner on social services.

CONTROL OF INSECT PESTS

Biological Control of Insects. By Hugh Nicol. (Pp. 174. 9d.) Pelican Books. Middlesex: Penguin Books. 1943.

"Biological control," says Dr. Nicol, "has been practised by every person who has kept cats on account of the mice. . . . With this deceptively simple example he encourages the layman to study the complexities of modern achievements in biological control of pests. Nature is a battleground in which innumerable forms of life compete to live and reproduce. By agricultural

practice man has swayed the ecological balance, but in the course of centuries it has become readjusted in Europe and Asia. The matter is otherwise, however, in recently developed areas of the world, farmed on the largest scale. The constant movements of commerce have brought to these lands insect pests without parasites or competitors to hamper them. The results have been destruction spreading like a forest fire. Chemical and mechanical control measures have achieved little success in these cases, and the apparently obvious procedure of collecting and destroying the pest was entirely useless. Only by the use of scientific observation and experiment were the missing biological checks discovered and brought, perhaps, thousands of miles to the new country. The remarkable success of these measures in many countries was well deserved by the perseverance of the entomologists concerned. Dr. Nicol describes many such campaigns, each presenting different features of interest. Unusual scientific terms are explained, but there is no attempt to "write down" to the reader, who is perhaps, more likely to be a scientist or medical man than a average citizen. There are some good illustrations.

Notes on Books

An abridgment of Mr. J. G. CROWTHER's book *Soviet Science*, published in 1936, has now appeared as a ninepenny "Pelican." The original material was collected during seven visits to the U.S.S.R. between 1929 and 1935, when the foundations of contemporary Soviet scientific and technical strength were laid under the First Five-Years Plan. A large public will welcome this hand and inexpensive edition.

Preparations and Appliances

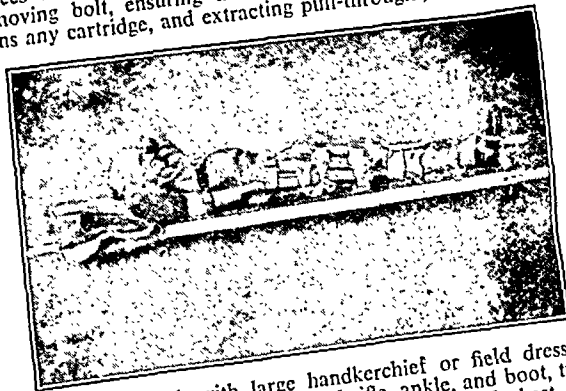
EMERGENCY SPLINT FOR FRACTURED FEMUR

Major P. L. W. WILLIAMS, D.S.O., F.R.C.S.E., Battalion Medical Officer, 4th Cornwall (Wadebridge) Battalion, Home Guard, writes:

An emergency splint for fractured femur (and adjustable for leg bones) has been made up entirely with personal equipment, which can be applied by two untrained men in the absence of skilled assistance. The photograph shows it applied to a member of the Home Guard.

Directions

Place the casualty in extended position; limbs together. One man grasps heel and foot of injured limb, makes steady extension, and maintains it until bandaging is completed. The other places rifle along outer side, butt well up to armpit, first removing bolt, ensuring that neither rifle nor magazine contains any cartridge, and extracting pull-through; then ties boot-



laces together and, with large handkerchief or field dressing, puts a figure-of-eight bandage round rifle, ankle, and boot, tying off on sole of boot; then encircles upper part of chest with one of their belts, and hips with another, passing each one when length permits, round the rifle first. Two field dressings are next applied, pads on wound as far apart as possible, short end of bandage to outer side, long end brought round under thigh, round the rifle, then over and round both thighs and tied off to the short end, knot on rifle. Finally, a pair of anklets buckled together is placed round both legs just below knees and then buckled up, and the pull-through cord passed round them and tied to give the anklets a firm grip on the legs.

I wish to make acknowledgments to Dr. H. C. Harley, who showed in a letter to the *Lancet* that the men's personal equipment could be effectively used for fixation of the rifle, and to the Editor of *Journal of the R.A.M.C.* for permission to reproduce this

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY SEPTEMBER 11 1943

PSYCHIATRY AT THE CROSS-ROADS

It is not too much to say that the future of psychological medicine—or psychiatry, as it is now almost popularly called—is of fundamental importance for medicine as a whole; not only because of the frequency of psychological ills and causes of illness and of psychiatric problems in the community generally, and in special domains of human life and experience, but because of the pervasiveness of psychological factors throughout the art of medicine. The last war opened the eyes of many to psychological problems in medical practice previously hardly suspected. The present war has made that experience vider and deeper. It is curious how at one and the same time the most conservative and the most progressive teaching in medicine is reinforced by psychiatric experience. In clinical psychiatry diagnosis still rests firmly on a thorough clinical history and not primarily on examination by medical or laboratory methods—a principle that still applies equally to general medicine, where, however, it is more easily obscured and forgotten. The social aspects of medicine, to which everyone now pays at least lip service, are nowhere more evident than in psychiatry, the most socially oriented of all the medical disciplines. The new message of “positive health” is already recognized in the efforts of psychiatrists in the fighting Services and their colleagues, the “academic” psychologists, to select the fittest for the multifarious but specialized tasks of war.

In these times of change and progress psychiatrists find themselves in a position where as pioneers they must expect to find themselves—opposed by conservative and even sometimes by reactionary forces of the what-was-good-enough-for-the-Services-in-1900-is-good-enough-today type—but they are in distinguished company. In one direction, however, the war has given point to questionings which had long existed and for which remedies had been sought in vain. We refer to the training of psychiatrists. To put the matter plainly, the qualifications of some psychiatrists for the tasks assigned to them are unsatisfactory, and they could have been far better. It is not solely or even mainly the fault of the psychiatrists. When the University of London raised the standard of its D.P.M., what happened? The number of candidates quickly dwindled, because most candidates were content to take the D.P.M. of other examining bodies whose standards were less exacting. When it was suggested to some of these that they should stiffen their requirements they found objections, and any change made was hardly perceptible.

Apart from the unsatisfactory examination position, many psychiatrists suffered and still suffer from the fact that mental hospitals, where most of them live and work, provide a limited though valuable and indispensable type of experience, but one which fits them in only a one-sided fashion for the great bulk of extramural psychiatric work. Attendance once or twice a week at an out-patient department is useful but does not restore the educational balance. On the other hand there are many psychiatrists who have never held an appointment in a mental hospital—it is as if someone would seek to be a specialist in surgery without having held a resident surgical post. This deficiency in the experience of the most serious and profound

mental disorders is not by any means completely compensated by residence and work in a psychiatric clinic or hospital for “early” or “recoverable” cases exclusively, essential as such experience undoubtedly is for the thoroughly grounded man. Psychiatrists have themselves been to blame in allowing such accidental and unfortunate differences of experience to appear fundamental, so that a school of “organicists” (*sic*), who seem almost innocent of psychological knowledge or insight, became opposed to schools whose principal or only study was psychotherapy; while psychiatrists trained for the most part within mental hospitals have regarded with professional suspicion those trained for the most part outside—and vice versa. The cause of these schisms, which to visitors from abroad seem sometimes as puerile as they are avoidable, lies largely in the nature of our psychiatric institutions—using the word in the sense of established things, and including examinations as well as hospital organization—and in particular in the fact that almost alone of Western countries Britain has failed to develop in-patient accommodation in special units inside general teaching hospitals. The advantages of such units, commonly known abroad as psychiatric clinics, are many, but in general they help to confer not only on future psychiatrists but on medical students a comprehensive outlook on mental disorder, and a psychological as well as a physical orientation towards the problems of everyday practice.

The poverty of training in psychological medicine in many of our schools has been in some ways almost scandalous. In few has the student had a proper introduction to the subject. There have been in places a few lectures, not always valuable in spite of their comparative rarity, some demonstrations of the more advanced type of mental disorder, and little else. A few schools have done much better than this, but their resources have been scanty, with few or no teaching beds for in-patients and crowded and inadequately staffed out-patient departments. The teachers of the subject, it is true, got little encouragement from the programmes of the curriculum. The last Curriculum Conference, of which much had been hoped, turned out to be very timid and tepid in its recommendations. All this has put psychiatry at a disadvantage in the medical schools. Those students who chose a psychiatric career found that the main avenue to it led them away from medicine as a whole, into relative isolation from their colleagues in other branches. They found also that the generally low standard for the D.P.M. made it possible for the most slenderly equipped person to set up as a “specialist” with an undeniable academic qualification.

To remedy this state of affairs, by beginning at the most remediable end—the education of a new generation of psychiatrists—a committee presided over by Sir Walter Langdon-Brown has drawn up a scheme for an approved D.P.M.¹ In its report published recently the committee recognizes several fundamental principles. It considers that the practice of psychiatry is not one in which students of one year of graduate age should blossom as fully equipped specialists as they can do under the present regulations. Four years’ postgraduate training is recommended as the minimum before the D.P.M. can be taken. It also provides that the aspirant will not rush straight from medical school into specialist training, but must obtain experience of general medicine first of all for at least a year in hospital or in general practice. Thereby the report recognizes in a practical way that psychiatry and general medicine are “very much mixed up together,” and will be more so in the future. The subject-matter of psychiatry is not nowadays only the relatively few who are alienated from

¹ Report of the Langdon-Brown Committee on Postgraduate Training in Psychological Medicine. Published June, 1943.

ordinary life. The motto of the psychiatrist of to-day—and especially in the period of training—might well be *Humani nihil a me alienum puto*.

The Langdon-Brown Committee recognizes that no one can practise psychiatry with full effectiveness, sympathy, and understanding unless he has spent a year or two in close contact with mental disorders in their most profound forms. The creation of special units—psychiatric clinics—in general hospitals, necessary as this is, will not remove the need for residence in a mental hospital as part of the specialist's or consultant's training. The ideal training will include both. In the meantime the Committee makes the best of the existing facilities by recommending a year's attendance at psychiatric out-patients in a teaching hospital.

Disagreement may be found with the details of such a scheme, but the general principles implied in it—of length and diversity of training, and of contact with general medicine—are likely to command wide acceptance. The report of the Committee should be of great help in all future deliberations on the same subject, which is one of urgency, not only for psychiatry but for the application of sound and comprehensive medical principles to the development of the post-war world. It is not a symptom of a mania for planning: it is a remodelling which works with the organizations that exist, pending the construction of a better *milieu* for the training of practitioners in psychological medicine. The report is fair, constructive, broad-minded, and brief.

MOSQUITO BREEDING IN STATIC WATER TANKS

The extent to which mosquitoes in this country give rise to serious annoyance is not so widely appreciated as it ought to be. It is true that no question of transmission of serious disease, as in the Tropics, ordinarily arises; but the nuisance effect is widespread, and in the summer months countless persons suffer minor tortures from bites of mosquitoes which might be largely avoided if sufficient attention were given to control of these insects. The introduction of static water tanks in our towns has recently brought this question rather prominently into the foreground, forming a sanitary problem which for some time has been engaging the attention of local authorities—namely, how far are these to be regarded as possible sources of mosquitoes and what action in this connexion ought to be taken.

An account lately given by its Director, Mr. John F. Marshall, on the activities of the British Mosquito Control Institute, Hayling Island, in the City of Portsmouth,¹ gives some very pertinent information on these points. To oil all tanks, without more information as to how far they are actually being utilized by mosquitoes as breeding places, might be very wasteful as well as objectionable where tanks are waterproof-lined with bitumen, on which oil would have a prejudicial effect. Again the English species most likely to breed in such tanks, *Culex pipiens*, rarely if ever bites human beings, though on the other hand static water contaminated with sewage or other nitrogenous matter would be liable to breed the fierce and poisonous mosquito *Theobaldia annulata*; and static water stored in dark underground situations—for example, in "basement tanks"—may be expected to breed the almost equally fierce *Culex molestus*. In the present case the Medical Officer of Health of Portsmouth, Dr. A. B. Williamson, with the co-operation of the Hayling Institute, arranged to carry out a systematic inspection of all tanks in the

city area. The tanks were of seven types—namely, oblong and circular steel tanks, brick-and-concrete and concrete tanks, clay-lined tanks, basement tanks, and excavated sumps. The great majority were filled with fresh water, but sea water was used in a certain proportion of cases. As the result of some seven months' close inspection only two species of mosquito—*Culex pipiens* and *Anopheles maculipennis*—were found breeding, and the latter only in tanks containing algae and during the late autumn. A positive find was made before May 7 or after Oct. 6. Mr. Marshall points out, this result was not due to absence of other species in the area, since the mosquito *Theobaldia annulata* habitually and heavily infested garden tanks in which "manure water" was kept for plant-watering purposes, while *Anopheles claviger* and other species of mosquito were present, including certain "coastal species" of *Aedes*, often a serious pest in seaside localities and very troublesome in the environs of Portsmouth until their control was taken in hand. Why these mosquitoes did not avail themselves of the breeding facilities offered by the tanks was not very clear, but one must suppose that their own special and particular habits did not "fit in" with the conditions which the tanks provided. One reason was probably the size of the tanks, since the smaller the tank the more likely was it to contain larvae. No difficulty was found in treating tanks where larvae were detected by the clearing of algal growth and dilling where this was appropriate. In only one instance did reinfection take place.

The practical importance of this careful piece of research needs no emphasis. The only cautionary comment it is perhaps advisable to make is that conditions in different localities no doubt vary a good deal, and the results found in one locality might not be exactly reproducible in another, the main deduction to be drawn being the necessity for a proper supervision wherever such tanks exist. One would desire to compliment the public health authorities at Portsmouth on their action in the face of unknown potentialities in arranging for such a survey as Mr. Marshall on this example of the work of the Hayling Institute, which for many years has been carrying out research of great scientific interest and public utility on British mosquitoes and their control. Besides describing the Portsmouth investigation, the pamphlet published by the Institute gives much useful information on the general question of breeding in static water and would well repay perusal by those who may be interested in this subject.

VOLUNTARY HOSPITALS LOOK FORWARD

Special interest attaches to the speech of the chairman (S. Bernard Docker) at the annual meeting of the British Hospitals Association because it indicates the general line upon which the association's discussions with the Ministry of Health have proceeded. He said that certain principles were fundamental to the fulfilment of the Government's declared promise to retain the voluntary hospitals—namely, individual hospitals must keep their freedom and flexibility in the administration of their own affairs and the appointment of their staffs, and the patient must be free to choose not only his doctor but also his hospital. The B.H.A. had suggested a central hospitals board, the members of which would be appointed by the Minister on the nomination of the parties concerned—the voluntary hospitals, local authorities, and doctors. This board would advise him on the general plan and policy, on local schemes, and on the allocation of certain money, including that provided centrally from social security funds. It should be free to make suggestions and recommendations to the Minister and

¹ The Control of Tank-breeding Mosquitoes in the City of Portsmouth. British Mosquito Control Institute, Hayling Island, Hants.

publish reports. Sir Bernard Docker here defined the extent of the responsibility of local authorities by saying that they should see that the facilities available in their areas were adequate; he did not say that they should provide these facilities. Local advisory hospital boards, he continued, should be set up, constituted in the same way as the central board except that a university in the area should be represented on it. These local boards would advise the health authorities on the provision of hospital services in the area and the part to be played by each hospital. They should be autonomous, independent of local politics, with the right of appeal in case of dispute to the central hospitals board. On the question of finance, he said that if voluntary hospitals were to be preserved then they must still be able to receive voluntary contributions and the public to make donations—this in addition to a contribution from the Government out of social security funds and payment from local authorities for services rendered and from patients for maintenance. Contributory schemes would continue: it was at present being considered how they could best be maintained and utilized in a comprehensive health service. The Minister of Health, who was the guest of honour, after acknowledging the help the B.H.A. had given him, said the discussions had dissipated the idea (which was quite unfounded) that some kind of onslaught was being planned against the voluntary system. That was a complete misconception. The Government's policy was and always had been to make the fullest use of voluntary resources in any post-war hospital service.

THE SHORTAGE OF MIDWIVES

Though there was an increase in the number of women enrolled as midwives during the past year, and a further steady rise—of nearly 1,000—in the number of pupils received in the training schools, the shortage of women practising the profession still causes anxiety, according to the report of the Central Midwives Board for England and Wales. It is hoped that the recommendations of the Rushcliffe Committee and the Advisory Council for the Recruitment and Distribution of Nurses and Midwives will secure that the necessary proportion of pupil-midwives continue in practice after qualification. A special survey of Part II training schools has been made on behalf of the Board, especially with a view to looking into the conditions under which pupil-midwives live and work, in the endeavour to assess the extent to which these factors may influence the pupils in their choice or rejection of the profession after qualifying. Some useful information has been elicited and is now being considered. The roll of midwives on March 31 last contained 67,112 names, being 1,480 more than at the end of March, 1942. The number who notified their intention to practise during 1942 was 15,868. Of this number only five were untrained "bona-fide midwives"—that is, enrolled by virtue of having been in bona-fide practice before the passing of the Act of 1902. Of the midwives practising in 1942, 56% had been enrolled during the thirteen years since 1930. Out of 16,000 midwives enrolled in the six years 1935-40 only about 27% notified their intention to practise in 1942. It is estimated that the proportion of enrolled midwives who are or have been married must be nearly 48%, and very few married midwives work in institutions. The need for adequate housing for the practising midwife, with special reference to recommendations of the Rushcliffe Committee, was brought to the fore at a conference held in London on Aug. 30 by the College of Midwives. Several speakers,

including medical men with first-hand knowledge, pointed out the handicaps under which the midwife lives and does her work and the discouragement to recruiting that arises therefrom.

CHEMOTHERAPY IN SWITZERLAND

The *Schweizerische Medizinische Wochenschrift* has recently published a magnificent special number (No. 19/20, 1943) on chemotherapy, which is dedicated to the International Committee of the Red Cross. Its 140 large pages are devoted to articles by Swiss authorities on almost every aspect of sulphonamide therapy, including both the treatment of various types of disease and such more general matters as chemistry, pharmacology, nomenclature, mode of action, the assessment of therapeutic success, and the conduct of treatment in children and the aged. It is noteworthy that a greater range of different sulphonamide compounds appears to be on the market in Switzerland: a table of formulae and correct chemical descriptions with corresponding trade names includes a total of 22 different substances. In the purely clinical articles sulphathiazole appears to be a strong favourite for most purposes. It is encouraging to find that, according to G. Bickel, the recovery rate in endocarditis lenta has risen to 6%: he emphasizes the need for a prolonged course of heavy dosage, and gives a total of from 800 to 1,200 g. of sulphathiazole. Before embarking on so serious an undertaking as this it might be well to determine the sulphonamide sensitivity of the streptococcus concerned; the absence of instructions for performing such tests is one of the few omissions from among possible subjects in such a symposium. M. Grob reports a reduction in the mortality of perforative appendicitis in children from 16 to 1.6% after adopting the method of scattering a mixture of sulphathiazole and boric acid powder in the peritoneal cavity after appendicectomy. There is a very valuable paper by N. G. Markoff on blood changes produced in the course of treatment, with particular reference to marrow changes and effects on haemopoiesis, but including descriptions of sulph- and met-haemoglobinaemia and other effects on the blood. On the academic side a noticeable feature is some degree of scepticism about what may be called the *p*-aminobenzoic acid theory. While fully acknowledging the validity of Fildes and Woods's fundamental discovery, more than one author questions whether this is the whole explanation of the sulphonamide effect on bacteria. As a detailed reflection of practice and belief in a most enlightened and at present regrettably inaccessible country this number is of exceptional interest.

DIET OF WORMS

The manner in which tapeworms obtain their nutrients has long been a matter of speculation rather than of observation. It is commonly believed that they depend for their nourishment on the digested or semi-digested intestinal contents in which they are bathed, and which they absorb by diffusion through the body surface. This has long been assumed, but never verified. Very little work has been done on the effect of variations in the diet of the host on the persistence, growth, and reproduction of tapeworms, most of our knowledge on their nutrition and physiology having been obtained from worms kept in various nutrient media *in vitro* or from chemical analyses. Several facts suggest that adult tapeworms may absorb nutrients directly from the mucous membranes of the gut of the host rather than from the food products in its lumen. Thus some

adult tapeworms can live outside the lumen of the intestine and have their head and neck deeply embedded in the intestinal mucosa; others live in the liver, gall-bladder, and bile ducts. Immature tapeworms can also develop in such tissues as the liver and muscles, under serous membranes, and even in the brain.¹ Still another reason² for believing that tapeworms may not depend entirely on the nutrients in the intestinal lumen is the strong host specificity of most species, which suggests that they depend, in part at any rate, on the host's tissues for food.

Recently experiments by Chandler³ with *Hymenolepis diminuta* in albino rats prove that this tapeworm is wholly independent of the protein in its host's diet, for complete elimination of protein from the latter had no evident effect on the establishment, growth, or reproduction of the tapeworm, though it made the rats lose a lot of weight. Chandler has also produced evidence that the tapeworm is independent of vitamins A, D, E, and B, in the diet. It seems plain, therefore, that the worms absorb these vitamins and proteins—or at all events nitrogenous substances—directly from the mucous membrane of the host's intestine. On the other hand it appeared that the tapeworms got the bulk of their carbohydrate and vitamin B₁₂ complex from the contents of the intestinal lumen. Perhaps some part of the vitamin B complex is necessary for the utilization of carbohydrate by the worms.

The popular idea that tapeworms are injurious to their hosts primarily because they rob the host of unabsorbed food may need revision. The general systemic effects commonly produced by tapeworms—e.g., nervous symptoms, gastro-intestinal disorders, loss of weight, and weakness—may be due not to toxins but to the absorption by the worms of vitamins, proteins, and other essential factors from the gut wall. Symptoms of frank vitamin deficiency have not so far been reported in patients infested with tapeworms, though Chandler believes that tapeworm toxicity may be in part an induced vitamin-B deficiency; but other worms can cause avitaminosis and anaemia.² In this connexion the precipitation of a macrocytic anaemia resembling pernicious anaemia by infestation with the tapeworm *Diphyllobothrium latum* (*Dibothriocephalus latus*) is of some interest. It is generally agreed that in pernicious anaemia an extrinsic factor, contained in meat and yeast, is converted into anti-pernicious-anaemia factor by the action of an intrinsic factor secreted by the stomach. It is possible that one of these factors is absorbed by *Diphyllobothrium* in large enough quantity to cause anaemia in the human host.

HEALTH AND TONSILLECTOMY

A feature of medical practice in recent years has been the popularity of tonsillectomy, especially among patients of well-to-do families; over half of the children in boarding schools have had their tonsils removed. Paton,⁴ in his analysis of the data relating to 424 girls at boarding schools, of whom 42.9% had a history of tonsillectomy, suggested that this operation was carried out too readily, and that the tonsillectomized group had no advantage over the group who were not operated on. Since this inquiry a mass of material has been collected by the School Epidemics Committee of the Medical Research Council.⁴ The data were based on the records of an average number per term of over 10,000 boys and 3,500 girls during 1930-4. Of the children studied 56% of the boys and 50% of the girls had

had their tonsils removed. The sickness experience of the tonsillectomized group was no better than that of the children in whom there had been no operation; in fact there was some slight indication that the incidence of rheumatism, otitis media, and mastoid disease was higher among the former. A comparison of the sickness incidence before and after the operation was made for a selected group of 364 boys who had their tonsils removed on the advice of the school medical officer. Before operation this group had an attack rate for nasopharyngeal infection which was 8.7% greater than the expected rate obtained from age distribution and rates of all boarding schools combined. After tonsillectomy the attack rate was 0.5% less than the expected rate. The committee concluded that in properly selected cases an operation was of real value but in general it was performed for no particular reason and with no particular result.

A further contribution to the subject has been made by Paton,⁴ which extends his previous study to the decade 1930-9. The data are based on the records of 909 girls, of whom 57% had had a tonsil-adenoid operation, compared with 43% in the earlier study. The physique of the girls who had undergone operation was similar to that of the girls who had not been operated on, and girls of exceptionally low weight and height and above the average were as common in the one group as in the other. Common colds were more frequent among the tonsillectomized than among the rest, the rates being 114% and 97% respectively. Influenza was also slightly more prevalent among the former group—43%, compared with 39%. Only a few cases of tonsillitis occurred during the ten years, the tonsillectomized group having a slightly better record with a rate of 1%, compared with 5% for the other group. All other cases of sore throat were as frequent in the one group as in the other, the rates being 40% for those who had been operated on and 41% for the remainder. Susceptibility to the common infectious diseases of childhood was about the same in both groups, 26% of the tonsillectomized children and 24% of the others contracting these diseases. There was a considerable difference between the two groups for bronchitis, the rate among the tonsillectomized being 27%, while for the others it was only 16%.

An interesting comparison was made of the experience of the girls who had tonsils only removed and those who had an operation for adenoids only. The rate for bronchitis and for otorrhoea among the group who had only their tonsils removed was 23% and 0%, while the rates for the other group were 4% and 8% respectively. The number of girls concerned, however—tonsils only 57, adenoids only 24—is too small for definite conclusions. The author suggests that the removal of tonsils is the factor in the combined operation which is responsible for the reduction in tonsillitis and for the increase in respiratory infections, while the removal of adenoids alone reduces the incidence of respiratory infections but increases the liability to attacks of otorrhoea. In the combined operation the removal of adenoids failed to counteract the increase in respiratory diseases which resulted from the removal of the tonsils. This study supplies additional evidence to support the view that a large proportion of the tonsil and adenoid operations in children are unnecessary, entail some risk, and give little or no return, while a reduction in their number would not have any unsatisfactory result and might, perhaps, be beneficial.

The doyen of our profession, Sir Thomas Barlow, Bt., M.D., F.R.S., celebrated his 98th birthday on Sept. 4.

¹ Amer. J. Hyg., 1943, 37, 121.

² Lancet, 1939, 1, 1143.

³ Quart. J. Med., 1928-9, 22, 107.

⁴ Epidemics in Schools. M.R.C. Spec. Rep. Ser. No. 227, 1938 London.

⁵ Quart. J. Med., 1943, 36, 119.

LISTER INSTITUTE OF PREVENTIVE MEDICINE FIFTIETH ANNIVERSARY REPORT

The report of the Governing Body of the Lister Institute for 1943 is noteworthy as marking the fiftieth anniversary, not of the incorporation of the Institute, which took place in 1891, but of the beginning of its active operations. Sir Henry Dale, P.R.S., has been elected chairman of the Governing Body, and Dr. Alan N. Drury has succeeded Sir John Ledingham as director. The Governing Body has placed on record its appreciation of Sir John Ledingham's devoted work for the Institute over a period of 38 years.

Much of the research described in the annual report has already appeared in the journals, some of it in these columns, notably Felix's papers on the typhus group of fevers and on the typing of typhoid bacilli by means of Vi bacteriophage, the paper by Korenchevsky, Hall, and Clapham on the effects of vitamins on experimental hyperthyroidism, and that by Petrie and Steabben on the identification of the chief pathogenic *Clostridia* of gas gangrene.

Dysentery Prophylaxis

In a series of experiments designed to avoid the toxic reactions of a bacterial Shiga vaccine, H. L. Schutze has found that mice inoculated with diethyleneglycol extract of *Bact. shigae* develop a considerable immunity. With a mortality of 90 to 95% among the untreated, a survival rate of 60 to 80% may be expected among the inoculated. The optimum spacing of vaccine doses has been found in the case of the Shiga bacillus to be of some importance in establishing maximal immunity to infection. A definite superiority has been shown in the protection afforded when inoculations are separated by six weeks as compared with a shorter interval. The stability of this diethyleneglycol extract in the presence of preservative has been tested, and formalin and merthiolate have been found not to damage its potency. Inoculations of a small group of human beings have been carried out. The reaction was minimal in some, in others more pronounced, but of short duration and not excessive.

From experiments on the antigens derived from *Bact. shigae* and the protective action of their antisera, Steabben draws the inference that in the treatment of dysentery in man antitoxic serum containing an antismatic or "anti-endotoxic" component may be of prime therapeutic importance as an adjunct to chemotherapy. Such a serum will not only neutralize the toxin but may also arrest bacterial invasion if given at the earliest possible moment. Further, as the serum possesses both antitoxic and antibacterial components it should also be of value in the prophylaxis of dysentery in man in an epidemic.

Substances inducing Tissue Permeability

Research has been carried out by McClean and others on the enzyme hyaluronidase. Experiments on its role in fertilization have shown that the transparent viscous fluid or gel in which the cumulus cells of the rat ovum are embedded is dissolved by hyaluronidase from any source, with disintegration of the cell mass. A close correlation has been found between the viscosity-reducing activity of the enzyme and the rate of denaturation of the egg, no matter whether the enzyme comes from testis, spermatozoa, bacteria, or snake venom. This observation may perhaps explain why a reduction in the sperm count rapidly leads to sterility, as there would be a corresponding reduction in the concentration of the hyaluronidase in the neighbourhood of the egg.

It has been found that when the infecting organisms of the gas-gangrene group produce hyaluronidase this enzyme can be detected in the oedema fluid as soon as enough can be collected for examination, and in the muscle as soon as the earliest sign of infection appears. A large proportion of *Cl. welchii* strains associated with clinical gas gangrene produce hyaluronidase; all the strains of *Cl. septicum* which have been examined produce it, but only a small proportion of those of *Cl. oedematiens*.

Digestibility of Wheat Grain

Nutritional studies along several lines have occupied many workers at the Institute. Sir Charles Martin and others have tried to ascertain the degree to which the contents of the aleurone cells in the bran of wholemeal (100% extraction of the wheat grain) are made available during digestion. Of the extra 25% of the grain contained in wholemeal about 15% is bran, which consists of the outer integuments of the grain and the closely adherent aleurone layer, the latter containing as much as one-fifth of the total grain protein. Rats fed on diets in which finely ground bran was the only source of protein were killed, and the contents of the various portions of the alimentary tract collected separately, examined microscopically, and analysed for nitrogen content. The protein and fat of the aleurone layer were found to be utilized to a large

extent by the rat, the cells losing their contents chiefly in the small intestine and caecum and occasionally also in the stomach. The nitrogen of the bran had an apparent coefficient of digestibility of about 60%, compared with about 83% for that of wholemeal (100% extraction) and 89% for that of white flour (75% extraction). In human trials the degree of disintegration of the bran observed on microscopical examination of the faeces, though variable, was similar to that which occurred in the rat.

A study of the faeces of rats fed on diets in which the protein was derived respectively from wholemeal, white flour, wheat bran, potato, and milk showed that the bacterial fraction of the faeces was lowest and contained the least percentage (36) of the total faecal nitrogen when the diet was composed of bran. With a wholemeal flour diet the bacterial fraction contained 53% of the total faecal nitrogen. When the diet contained white flour or milk the dry weight of the faeces passed was much lower and the bacterial fraction contained about two-thirds of their nitrogen, and the same was true more or less of a potato diet.

Nutritive Value of the Potato

Compared with wheat, most varieties of potato have a much lower nitrogen content, and since less than half of this nitrogen is in the form of protein certain researches have been continued by Chick and others to determine the nature of the other nitrogenous compounds and their nutritive value. Preliminary tests with young growing rats have shown that the protein (tuberin) separated from juice squeezed from the raw potato possesses a biological value slightly superior to that of the proteins of whole wheat, notwithstanding the fact that the latter are more digestible and better absorbed. It has been found possible to rear young rats from weaning on a diet containing whole cooked potato, fresh or dried, as sole source of nitrogen. The variety used was the "King Edward," grown on the fenlands and containing a rather high nitrogen content. The nutritive value of the protein separated from the potato and of the total nitrogen as contained in the tuber is much greater than that of the whole nitrogenous concentrate prepared from raw potato juice, containing only the more easily extracted nitrogenous substances.

Other Nutritional Studies

A nutritional survey covering 374 women employed in Oxford factories and 288 housewives in the same locality revealed a relatively high incidence of goitre and of dorsal spinal curvature, the latter being diagnosed in about 7% of 553 women examined. Many cases of dorsal spinal curvature have also been found among Oxfordshire school children. A connexion is suggested with low iodine and high fluorine content of water and soil, and the matter is being further studied.

Investigations on vitamin C in plant metabolism have shown that the vitamin content of unripe green tomatoes is considerably lower than that found in red tomatoes ripened in store after the season is over. Tomatoes ripened in store attain a vitamin C content similar to that of fruits ripened on the plant.

The relative effects of butter and margarine in preventing fat-deficiency disease in rats when added to a completely fat-free diet have been examined, and butter has been found to be rather less effective than margarine in preventing this condition. This is held to dispose of a suggestion that the increased substitution of margarine for butter in wartime diet is a responsible factor in producing dry and scurvy skins.

The Lister Institute's collection of type cultures, housed at Elstree, received some 150 new strains during the year under review.

NAGUIB MAHFOUZ PASHA ADMISSION TO HONORARY F.R.C.S.

Surg. Rear-Adml. G. Gordon-Taylor, as Senior Vice-President of the Royal College of Surgeons of England, recently admitted to the Honorary Fellowship Prof. Yudin and Prof. Burdenko during the visit of the British-American Surgical Mission to Moscow. On his way back from this arduous journey Adml. Gordon-Taylor also admitted to the Honorary Fellowship Dr. Naguib Mahfouz Pasha, professor of gynaecology in the Fuad University, Cairo. The ceremony took place in the presence of a large number of members of the Senate and of the Medical Faculty of the University, and many British and American officers. By a happy chance three members of the Council of the College of Surgeons were also present. Another coincidence, and a pleasant one for Egypt, was that the ceremony took place on the day it was announced that Mussolini was deposed from power. We print below the text of Adml. Gordon-Taylor's address of welcome to the new F.R.C.S.

"Naguib Mahfouz Pasha, the Council of the Royal College of Surgeons of England by unanimous vote elected you an Honorary Fellow of the College over three months ago. This is the highest honour which the College can bestow; the Honorary Fellowship is limited to 50 names, and is conferred almost unreservedly upon those who have distinguished themselves in surgery, whatever be their country or clime. This chance though fleeting visit of mine to your country suggested to the President that I might be charged with the pleasing task of presenting you with the insignia of the Fellowship amidst your colleagues in Cairo, the scene of your meritorious surgical work. The story of Great Britain cannot compete in years with your historic land, whose civilization goes far back for millennia and aeons of years into the dark backward and abyss of time; far less can our College claim to vie with you in the tale of the centuries. Nevertheless our ancestral saga stretches back dimly for over four hundred years, and as the College of Surgeons our existence dates from the earliest dawn of the nineteenth century. This is not the first time that this honour has come to Egypt. His Majesty the late King Fuad graciously accepted the honour; a second recipient is Sir Ali Ibrahim Pasha, Director of the University Hospitals and Dean of the Faculty of Medicine, the doyen of Egyptian surgeons and respected of all men.

"In awarding you this honour, Naguib Mahfouz Pasha, the Council of the Royal College of Surgeons of England recognizes your distinguished work in your own special branch of surgery; and the pre-eminent position which you hold in the world of gynaecology; it also bears in mind the wondrous museum illustrating the problems of the maieutic art which was created by your own labours, and it further recognizes your administrative ability, your efforts on behalf of medical education in Egypt, and your staunch allegiance to the Allied cause. It is perhaps not inappropriate, although exceptional, that this honorary Fellowship is being conferred upon you far beyond the precincts of that building in Lincoln's Inn Fields, battered and burned by Hun air attack. It is sometimes in adversity and misfortune that we find our truest friends, and you surgeons of Egypt made haste to assure us with your promises of aid to restore, recreate, and reconstitute a temple of anatomy and pathology worthy of the name of John Hunter and of his tradition. It is, then, perhaps not unfitting that to-day's ceremony should take place in your own historic land, where obstetrics already existed as a surgical specialty in the fourth millennium before Christ."

Reports of Societies

ASCORBIC ACID IN IDIOPATHIC METHAEMO-GLOBINAEMIA

At a meeting of the Section of Anatomy and Physiology of the Royal Academy of Medicine in Ireland Dr. J. DEENY, Prof. H. BARCROFT, and Prof. D. C. HARRISON presented a communication on familial idiopathic methaemoglobinaemia and its treatment by ascorbic acid, describing the condition in two brothers.

Only two other instances of this disease had been found in the literature (Bensley *et al.*, 1938; Lian *et al.*, 1939). In the present instance cyanosis was persistent and dated from birth in one case and from before puberty in the other. The face and hands of both brothers were slate-coloured. General health was good, and one brother played hockey although his blood contained nearly 50% of the total blood pigment in the form of methaemoglobin. There was no history of drugs. Deeny (1940) had reported that ascorbic acid and sodium carbonate had a favourable effect on two cases of polycythaemia, and he had investigated the possibility that this treatment might also be of benefit in the cases of cyanosis due to methaemoglobinaemia. The first of the two brothers to be given this treatment showed a dramatic improvement and cyanosis disappeared in about 10 days. In the second brother the cyanosis similarly disappeared, and frequent determinations of methaemoglobin in his blood showed that it fell from 43 to 6% of the total blood pigments in about a month. At the same time there was a fall in the total pigments, in the red cell count, and in the reticulocyte count. Both brothers had now been on the treatment for a year and the improvement was maintained. At the time the authors were not aware that Lian *et al.* (1939) had already observed the favourable effect of ascorbic acid on a case of this disease; they also confirmed the latter's finding that ascorbic acid could

convert the methaemoglobin in these patients' blood into haemoglobin *in vitro*.

Dr. DEENY read clinical notes of two cases and described treatment in detail; the patients, he said, were blue in color and were normal after the treatment. Prof. HARRISON described the pigment changes which occurred during the treatment. The pigment was intracorpuseular and there were no other abnormal pigments. Prof. BARCROFT, discussing the rarity of cases, searched through the literature had shown altogether 12 since 1930 and none before. Of these only six were definite familial—Dr. Deeny's two, two in Paris, and two in Monte-A feature was the persistence in the colour: in 9 of the cases it had been there since birth, and in the other 3 since before puberty. All had good general health; all showed tendency to polycythaemia. Treatment consisted of an intravenous injection daily of 100 mg. of ascorbic acid. All patients improved.

REFERENCES

- Bensley, E. H., Rhea, L. J., and Mills, E. S. (1938). *Quart. J. Med.*, 7, 325.
Deeny, J. (1940). *British Medical Journal*, 2, 864.
Lian, C., Frumussan, P., and Sassier (1939). *Bull. Mém. Soc. méd. Hôp. Par* 55, 1194.

RECENT EXPERIENCE OF WAR NEUROSIS

A meeting of Allied psychiatrists was held at a base hospital over-seas on June 5, when Lieut.-Col. S. A. MACKEIT presided, and the subject for discussion was war neurosis.

Lieut.-Col. R. R. GRINKER (U.S.) said war neuroses did not constitute a clinical entity with characteristic and invariable symptoms. Statistics of frequency were unreliable as cases were diagnosed by different psychiatrists, and the syndrome varied from day to day and place to place. There were nine syndromes: (1) free floating anxiety, severe and moderate (2) somatic regression; (3) psychotic states; (4) conversic symptoms; (5) depressions; (6) psychosomatic visceral disturbances; (7) anxiety complicating concussion states; (8) exhaustion states; and (9) fatigue states, particularly in flying personnel.

Severe anxiety states were characterized by psychological and physical manifestations of terror. The patients were fearful apprehensive, and showed bizarre and peculiar behaviour patterns. There were marked tremor, intolerance of noise and a startle reflex. Only a few islands of normal behaviour persisted. Some persons were mute and dependent like a child others showed varying degrees of stupor, mutism, and amnesia with little evidence of anxiety. There was thus a splitting of the personality in these cases resembling schizophrenia, and as such they were often erroneously diagnosed. In patients with moderate anxiety states there were insomnia, tremor, restlessness, and signs of sympathetic over-activity; they had severe battle dreams and were intolerant of noise. They recollected well the source of their anxiety and rapidly seemed able to control it. The clinical condition, however, was no index of the severity of the precipitating trauma or the quantity of anxiety beneath the surface. This could only be brought out by pentothal or during air raids, which were a good test of the patients' stability.

Patients with somatic regressions looked as if they had organic disease of the brain from which they had "recovered" completely. The regressions took the form of severe foetal pictures and attitudes, extrapyramidal symptoms of rigidity, coarse tremors, masked facies, excessive sweating, propulsive gait, etc. In some there were severe speech defects. In many there was no conscious anxiety: the emotion was only liberated as the symptoms disappeared. In group 3 severe anxiety states with paranoid projections occurred. The paranoid element indicated hostility within the patient; with proper care these people could be restored. Group 4 was the only one in which the term "hysterical" was justified. Physical symptoms of a defensive nature like deafness, visual difficulties, and regressive phenomena like astasia-abasia or stuttering were included in this group, which contained only a few true cases of conversion hysteria. These were usually in the form of weakness, monoplegia, hemiplegia, sensory defects, or numbness. They seemed directly related to a minor injury at the traumatic site. The patients were blandly without emotion, but when the symptom was relieved there was severe anxiety.

Depressions were seen, especially in the obsessed person. Many were acutely precipitated by war situations and often

associated with gastro-intestinal symptoms. The dependent passive type reacted by depression, which continued after the anxiety was reduced. Psychosomatic visceral disturbances were most often observed with gastric conditions. Very few cardiac syndromes had been seen, in contrast with the last war. All egresses of anorexia, abdominal pain, nausea, and vomiting were observed in persons with little subjective anxiety, or with apprehension only about their symptoms. Enuresis for the first time and diarrhoea were other psychosomatic symptoms.

Concussion states were frequently complicated by anxiety states, which had to be treated first; the residual headaches, lizziness on change of posture, intellectual difficulties, and isual disturbances had to be treated by long periods of rest. To force these patients to get up and back to duty was not rational therapy for the concomitant neurosis. Exhaustion states were seen especially in the forward area; very few cases had been handled at the base. In patients who apparently came into this category there was usually much unconscious anxiety. Fatigue states were found only in flying personnel, and constituted an incipient neurosis caused by mobilization of anxiety and tension without opportunities for proper release. The actual neuroses in airmen were little different from those in other Services. There were few severe anxiety states. They were mostly mild anxieties, depression, gastric dysfunction, and conversion states. In all these cases the influence of secondary gain was important. The individual had become dependent and learnt to live with limited resources. Unless early treatment was started the influence of secondary gain increased, and the individual would continue to be dependent and lean on the State.

Place of Narcosis

Capt. SPEIGEL (U.S.) thought that sodium pentothal, which produced a semi-narcotic state in which the patient could face the traumatic battle situation and relive it with proper emotional response, was indicated in all cases of severe war neurosis with stupor, mutism, somatic regressive and regressive psychosis-like manifestations, and amnesia. Response was dramatic; in most instances there was rapid recovery from major symptoms, but in more severe cases a series of four or more treatments might be required. The residual anxiety and associated symptoms had to be dealt with by psychotherapy. Pentothal was also indicated in moderate anxiety and conversion states to determine the intensity of, and to release, unconscious anxiety. It was also useful in concussion states to distinguish symptoms due to anxiety from those of organic origin. Subsequent treatment consisted of a series of half-hour interviews with the patient. The psychotherapist had to establish a positive transference identification, assuming the role of the sympathetic but firm father figure, reassure the patient that he would not have to return immediately to combatant duties, deal directly with the anxiety by taking over the patient's temporarily lost ego functions for him, and deal with the super-ego reaction, the passive dependent trends, the conversion symptoms, and the unconscious hostility and its transfer to the super-ego in the form of depression. The last was the most stubborn psychotherapeutic problem. Hostility arose from frustration of dependent needs, from feelings of injury and abandonment in traumatic situations, from loss of object relationship through death of friends and separation from the group, and was expressed through the super-ego and directed at the ego, which became correspondingly weakened. If transference could be made sufficiently stable some of this hostility could be absorbed by the psychotherapist, but this was difficult in an active theatre of war. The aim of treatment was to return the patient to duty as early as possible. Few would be returned to full combat duty from a base hospital.

The Precipitating Factor

Major C. KENTON said that anxiety was the precipitating factor and common symptom in breakdowns, and was the basis on which the different forms of war neurosis were imposed. It was an apparent paradox that a chronically anxious man could go through so many situations producing anxiety before breaking down. Referring to the frequency and degree of psychological regression in his cases, he said it appeared as if the ego defences to anxiety were overwhelmed in greater or less degree, producing clinical pictures of stupor, confusional states, uncontrolled primitive behaviour, psychotic pictures often of a bizarre character, childishness, apparent idiocy, and, in some exceptional cases, simian behaviour. The precipitating traumatic factor, although often specific in a psychological sense, was only the final one in a long process kept under control until then. He could not agree that the suddenness of the trauma "shocked" the patient into neurosis. Discussing the response to abreactive therapy, he said that results with pentothal had been remarkable, but it should be administered only by those trained in its use; inexperienced use had made subsequent treatment

difficult, producing "pentothal-resistant" patients. Prolonged treatment after the initial improvement by abreactive and short-term psychotherapy was difficult, such factors as secondary gain, imperfect transference, and resolution of guilt feelings playing a part. Hypersensitivity to noise and fear of air attacks were frequent sequelae, facts well shown by the "testing situation" of occasional air raids. Continuous narcosis was of value in patients who showed evidence of exhaustion. These cases on the whole were rare at the base, but responded well to abreactive therapy following a period of narcosis. A characteristic of the psychoses was their episodic nature, remission and relapse occurring rapidly, often without apparent external cause. Convulsive therapy gave good results in the depressive and catatonic states. He concluded by saying that 81.5% of the patients with neuroses had been returned to some form of duty in that theatre of war—a very satisfactory result.

Experiences in the Forward Area

Capt. F. R. HANSON (U.S.) said that all cases of blast injury were diagnosed as exhaustion for administrative reasons and to avoid the diagnosis of "shell shock." Phenobarbitone 4 to 6 gr., nembuta 4½ to 6 gr., or sodium amytal 7½ gr. was given immediately by the mouth. The men were then sent to the evacuation hospital (equivalent to a C.C.S.) in a drowsy state and divided into those for immediate evacuation—severe anxiety reactions, psychotic states, and recurrent cases—and those to be kept for treatment. The latter lasted 4 to 5 days. Phenobarbitone gr. 2 twice a day was given for 3 days, after which all sedatives were stopped except for a small nightly dose. There was no impression of illness or hospitalization and men were made to get up, stand in line for their food, and help with ward routine. At the end of 5 days the patients were divided into those fit to return to combat duty and those to be evacuated. The criteria were: past history; type, severity, and cause of the reaction of the patient and whether he responded to treatment; desire to return to duty; social response and reaction to noise. No one was allowed to panic, and physical restraint was used where necessary. As the cases were all of the same type group therapy was possible. 60% of men returned to full combat duty within five days. In a follow-up of 44 cases after three weeks or further fighting 89% had remained on duty, including 1 killed and 6 wounded.

Discussion

In the discussion several speakers said that the aims of psychotherapy were: (1) to return men to full duty; (2) to return men to selective duties: over 80% at the base could be returned to such duties; (3) to treat the man's illness; and (4) to reduce the drain on the State for pensions, etc. In a great number of cases there had been difficulty in meeting the individual problems of a patient owing to the very limited number of psychiatrists. Brigade J. R. REES stated that the recovery rate curve and the number of patients psychiatrists had to deal with were directly correlated.

Correspondence

The Medical Superintendent

SIR,—I have noticed with deep regret a tendency to criticize medical superintendents from time to time in your correspondence columns. Only those closely associated with Poor Law infirmaries for the past twenty years can have any idea of the truly splendid work of these men. There was a time when the infirmary was like some tale told by Dickens illustrated by Hogarth, and the conversion of infirmaries into proper hospitals has been one of the greatest medical achievements of our time.

Surgically and administratively results obtained are remarkable because of the uphill nature of their efforts and because medical superintendents have not only had to carry out difficult reforms in the work and buildings but they have had to persuade the rate-paying public that all this was necessary. It has been no light task, and without the help of Nevill Chamberlain, our greatest Minister of Health, it could never have been achieved. Chamberlain saw the need for freeing the rate-supported hospital from the curse of the Poor Law and never ceased to support all efforts to that end.

Virtue is its own reward, and medical superintendents can well afford to ignore criticism, safe in the knowledge that they have conferred on the sick poor an inestimable benefit. At a time of great crises and anxiety it was largely to the rate-supported hospital that the country turned for help, and there could have been no Emergency Medical and Hospital Service had it not been for the devoted and fine work of medical

superintendents and their committees in creating such hospitals. Let us, then, give honour to whom honour is due, and freely acknowledge the great debt that medicine and the whole country owe to our medical superintendents.—I am, etc.,

New Barnet.

JOHN ELAM.

Vitamins and Fitness

SIR.—I have read with great interest in the *Journal* of Aug. 28 (p. 265) the paper on vitamins and physiological function by G. Neil Jenkins and John Yudkin, as, with collaborators, I have been carrying out somewhat similar investigations, a report on which is ready for publication and the results of which I cannot anticipate. Drs. Jenkins and Yudkin in my opinion are quite justified in saying that the non-induction of physiological change by the giving of vitamins to their subjects may have been due to such subjects not being deficient in these nutriment before administration began. I would like to suggest that they carry out another investigation in which they compare vitamin-deficient children (found by testing) with children who are not so deficient. Another point: in the Manchester experiment of Harper, Mackay, Raper, and Camm (*Journal*, 1943, 1, 243) the subjects were adolescents; Drs. Jenkins and Yudkin's subjects were pre-adolescents; this I am sure would make a difference. I have found differences myself (pre-war) in 14-year-olds in Gloskop, and in S. Africa E. Jokl and E. H. Cluver, while finding no differences in physical efficiency between well-off and badly off (nutritionally) children before puberty, found that after puberty there were striking differences.—I am, etc.,

Gloskop.

E. H. M. MILLIGAN, M.D., D.P.H.

Public Attitude to Venereal Disease

SIR.—I think everyone will agree that it is of vital importance that all persons suffering from venereal disease should be under treatment and kept under treatment until cured. The Ministry of Health has done everything possible to ensure that this shall be so and is spending much money on propaganda. The efforts of the Ministry are being undermined by certain misguided persons, who are doing possibly as much harm as the Ministry's propaganda does good.

It has come to my knowledge that certain employers of labour, or their managers, have threatened with dismissal, and in some cases have dismissed, persons in their employ who, they have found out, are attending a venereal diseases clinic unless they can produce a certificate stating that they are not suffering from V.D. This action presumably is taken under the delusion that they are safeguarding their other employees. I have reason to think in some cases that it is prompted by a self-righteous attitude against persons whose morals are no worse than the majority of the public.

Persons with venereal disease who are under treatment are not a source of danger to others. Those who are highly contagious are suspended from work by the medical officers of the clinics until they are no longer a danger. It is the untreated cases that are a danger, and this high-handed action by employers prevents infected persons seeking advice, and tends to prevent those under treatment continuing until cured. Moreover, these unfortunate people become ostracized by their fellow-workers, and their lives made a burden. I know of one case where a girl was thrown out of her lodgings from this cause. It is high time something was done to put a stop to this persecution. That there are many mental defects still large is shown by the notices dealing with V.D. put up by authorities in public lavatories being torn down and replaced.—I am, etc.,

London, N.W.3.

HAMISH NICOL, F.R.C.S.E.D.

Infective Hepatitis?

SIR.—Dr. John Waring in your issue of Aug. 21 (p. 228) describes a case of benign lymphocytic meningitis showing transient icterus, and immediately classifies it along with cases of gastro-enteritis, ileo-colitis, and infective hepatitis with and without jaundice—assuming on rather slender evidence that all these conditions have been due to the same infecting agent. On this assumption he would like to discard the now accepted term of "infective hepatitis," substituting for it the vague and nebulous expression "influenzal hepatitis."

That cases presenting identical symptomatology, with and without jaundice, are frequently seen together in time and place is well recognized, and in the present state of our ignorance it seems most reasonable to classify these as infective hepatitis. It is not easy to see how the introduction of such an expression as "influenzal" can do anything but darken the gloom which already surrounds these fascinating syndromes.

Had Dr. Waring given us fuller pathological findings in his case it would perhaps have been easier to accept it as an example of infective hepatitis showing meningeal changes, and might then have proved to be a valuable piece of evidence relating to the aetiology of this condition. A brief examination of the available literature leads me to believe that infective hepatitis and meningitis are but rarely seen; while, on the other hand, it is well known that leptospiral infections very frequently give just this picture. If Dr. Waring had recorded the white cell count, often of value in differential diagnosis, the blood urea level, and the presence or absence of albuminuria and cylindruria, it might have been possible to make a provisional diagnosis of Weil's disease. Even at this time—nine months after the illness—an agglutination reaction would probably clinch matters.

There is considerable evidence to-day that many of the long-recognized cases in which jaundice has unexpectedly presented—the icterus often seen in acute infections such as pneumonia, and that so often met in the therapeutic use of the arsenicals—may one day be shown to be due to a latent virus infection activated by the trauma of infection or drug. This should not, I feel, justify hurried and unconfirmed diagnostic assumptions, such as seem to have been made in this paper.—I am, etc.,

Winchester.

KENNETH M. ROBERTSON.

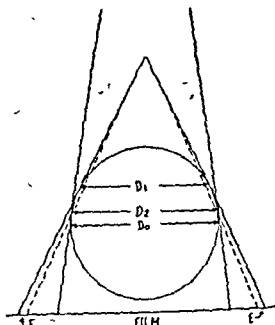
Precision Method of Cephalometry and Pelvimetry

SIR.—Dr. Paul Cave's article on pelvimetry and cephalometry (Aug. 14, p. 196) describes a method of x-ray mensuration which is not by any means new, but which is not generally used because it possesses many disadvantages and may, in some cases, be grossly misleading. The method is an application of the tube-shift principle, which is used in stereoscopy and foreign-body location, the only difference introduced being movement of the tube in a plane away from the film instead of in a plane parallel with the film, as is usually done.

Taking the depth-location first, all tube-shift methods depend on the production of two shadows of the object being investigated by two separate exposures taken with movement of the tube between them, the distance and direction of the movement being known. The movement of the shadow is measured on the film, and as the tube-shift distance and the tube-film distance are known, it is simply a matter of triangulation to determine the unknown depth of the object, whether it be a piece of shrapnel or the pelvic brim. Normally the tube is moved in a plane parallel with the film through a distance of 5 or 10 centimetres, producing an image-shift of the order of 1 or 2 centimetres usually, and this can be measured to half a millimetre, giving an over-all accuracy of about 2 or 3% in the depth calculation. It is usual to make each exposure about half the normal exposure appropriate to the part of the body concerned, and the whole procedure may be easily carried out on any plant, a portable unit being commonly used.

The method of Dr. Cave employs a vertical tube-shift sufficient to double the tube-film distance, making the distant exposure with this greater distance between 5 and 6 feet, which is mechanically impossible with most plants; in addition, the part-exposure made from this greater distance would have to be four times that made at the shorter distance to give equal intensity, producing greater tube wear, which we are urged by the Ministry of Health in a recent circular to avoid.

The variation in size of the two shadows he thus produces will be considerable for a large object but minute for a small one, so that the diameter of the pelvic brim would show several centimetres increase, while a foreign body, even as large as 1 centimetre in diameter at a depth of 10 centimetres, would show an increase of a fraction of a millimetre—too small to measure with accuracy, even if it could be clearly demarcated through the penumbra produced.



by the superimposition of shadows. The lateral tube-shift method gives an image which is the same for large and small objects, and the shadows overlap for only part of their extent, so that they can usually be clearly distinguished and accurately measured. It thus appears that Dr. Cave's method does not compare favourably with the common methods of depth location, and now its special claims in obstetrics require some comment.

The practice of pelvimetry differs in no way from the depth measurements carried out above, and with a lateral tube shift the distance of the brim from the film can be determined and the pelvic measurements, as recorded on the film, corrected by simple triangulation, as described by Hastings. This calculation can, of course, be avoided altogether by the use of a direct measuring method such as with the Thoms grid, which is exposed on to the film from the same level as the brim, but, owing to the uncertainty of definition of the brim level, the tube-shift method gives rather more accurate results. Dr. Cave's method would presumably give results as good as any other in this instance, but it must be pointed out that very heavy exposures are required in any case for pelvimetry radiographs, and a really enormous exposure must be required for his distant tube position.

In the case of cephalometry, however, his method is liable to serious error, which may give dangerously misleading results. The lateral tube-shift method is successfully used in this investigation, but is also liable to a certain degree of error, as the object is large and its size must be considered in three dimensions. This means that the shadows cast in the two positions of the tube are not cast by the same diameter, and so triangulation rules do not strictly apply, but the error is small and is usually ignored. In the vertical tube-shift method, however, the two shadows are cast by completely different diameters, as shown in the diagram, and calculations based on these measurements will make the object appear to be further from the film, and will lead to an estimate of the diameter of the head which is too small—a most vital error.

My conclusions are that the method is not new, that it is inefficient in general use, and dangerous in cephalometry.—I am, etc.,

Hove.

E. MILLINGTON, D.M.R.

Fracture-dislocations of the Spine

STR.—Mr. A. H. G. Munro has had a very wide experience in the treatment of fracture-dislocations of the spine, and his comments (Aug. 21, p. 246) are consequently of much interest. He apparently does not agree with the pessimistic view that cases of cord injury with complete loss of function lasting twenty-four hours are permanently complete lesions, and it is to be hoped that he is right. In my paper I was not quite so dogmatic as he seems to think, and I suspect that he has been misled by a mere synopsis. The number of cases was relatively small—21 cord and cauda equina lesions—and I went no further than saying that my series supported this pessimistic view—a view held by Sargent and Trotter, and, more recently, Naffziger, among other distinguished observers. Furthermore, the case Mr. Munro cites in support of his own more optimistic view is not of the type to which I was referring; the cord lesion was incomplete on admission, and only progressed later to a complete loss of function. In such cases it is generally agreed that there is a possibility of recovery, but this is a very different matter from the patient with complete loss of function immediately after the accident, and it is to this type I referred.

As regards frequency of locking of articular facets, my figures, though small, agree with those of Mr. Munro: of twelve cases with dislocation, locking was present in seven. Mr. Munro, in a large series of operations, has found internal fixation unnecessary. It should, however, be realized that at operation the processes do not just snap back into place with immediate stability resulting. There is a marked tendency to re-displacement, which can sometimes only be overcome by extreme hyperextension. In one case operated on by Mr. Sloan Robertson deep respiration was sufficient to cause re-dislocation, and to overcome this the spinous processes were drilled and fixed together by stainless steel wire. Subsequently I have done the same in two cases, and, in my opinion, this relatively simple procedure is well worth doing to ensure maintenance of reduction until the hyperextension plaster is applied. In the cervical region I would go further and say that there are cases in which it is impossible to maintain reduction without some form of internal fixation.—I am, etc.,

Ramsgate Hospital, Inverness.

R. C. MURRAY.

Skin Sensitivity to Sulphonamides

STR.—During the past two months I have seen several cases of cutaneous hypersensitivity to sulphonamides of the type reported by Park (July 17, p. 69). In general, whatever the route of administration of the sulphonamide, the eruption was almost confined to the head and neck, and the hands, especially the dorsal surface—i.e., the parts exposed to light. The lesions consisted of erythema, papules, with much exudation, and often on the hands bullae and pustules. Three-quarters of my cases were in markedly seborrhoeic subjects, and were followed by much desquamation and dryness of the skin. Other features not mentioned by Park I have noticed are oedema of the eyelids in every case, and conjunctivitis in two cases. A case was recorded in the *Journal* of April 3, 1943, of this sensitivity persisting for fifteen months. One of my cases, however, had a similar reaction two years previously, so there seems to be no time limit to it, and it may well persist throughout life without desensitization. One severe case, which also developed pyrexia, showed a strongly positive scratch test, with erythema and vesicles, when performed on the forehead.—I am, etc.,

London.

C. D. CALNAN.

Sulphonamides in Asthma

STR.—Your issue of May 1 has just come to hand, and in it I note with considerable interest the letter of D. K. O'Donovan recommending sulphonamides in asthma (p. 551). The use of sulphapyridine in old asthmatics associated with chronic bronchitis and emphysema has been standard practice in my medical wards for the past two years. The results, although not constant, have usually been surprisingly good, and this has been attributed to the occurrence of bouts of low-grade bronchopneumonia in these cases. These bouts are considered to precipitate the attacks of asthma, and sulphapyridine successfully combats them. At first the use of this drug was confined to those cases showing fever with or without leucocytosis. In this type of case the results have been consistently good. More recently this treatment has been tried in cases of asthma without fever, but in these patients the response has been more irregular, as is to be expected. It might further be pointed out that in certain areas of the Indian Decan patients suffering from chronic bronchitis with asthma and emphysema are common, particularly during the monsoon and the cold seasons of the year. Chronic upper respiratory infection is almost invariably associated in them.—I am, etc.,

Miraj, India.

L. B. CARRUTHERS.

Boiled Milk and Raw Protein

STR.—One does not wish to return the boiled milk discussion to your overworked staff and correspondence columns. But as reported in the *Journal* (Aug. 21, p. 251), a statement is made, quoted from Lord Horder in Parliament, about milk which rather upsets people who are trying to rear other people's babies on something other than their natural food. The report states, "Boiling definitely lowered its nutritive value." Admittedly the words are taken alone and out of context. Looking up my most recent book on children's diseases (*Sick Children*, Donald Patterson, 1937) it is stated as one of the advantages of boiled cows' milk that it is more digestible. Granted that this is not a comparison with pasteurized milk, but it is in agreement with the generally accepted opinion of civilized races that cooked foods, apart from fruit and certain fresh vegetables, are best. Should milk be exempted from this general rule that what one may call animal foods are best cooked? (I do not, of course, mean food fed to animals, but my composition has always been poor.) This statement that milk loses something by boiling is widely prevalent. Now backed by a statement in Parliament by Lord Horder, humble G.P.s such as I will have the greatest difficulty in controverting it.

Are any controlled experiments reported which show that babies fed on raw cows' milk thrive better, and that babies fed on pasteurized milk thrive better, than babies fed on milk just brought to the boil—which is my definition of boiled milk? And by this question I mean to include children arriving at school age. If such experimental evidence is available, I have not yet run across it. When the baby is weaned from milk and goes on a mixed diet should we continue the practice of

giving raw foods such as raw fish, to which certain Oriental races are said to be partial, or raw meat, in which certain African races are said to indulge? And if we continued the practice of giving raw animal proteins to human children after weaning, would these be more advanced at school age? We know the advantages given in the textbooks of cooking animal proteins, but, apart from the risk of infection by various parasites, I do not know of any controlled experiments either. Is there such a radical change in human babies that up to ten months they thrive best on raw foods, and immediately begin to thrive best on cooked foods thereafter? Practically, raw milk protein is the only animal protein which we do not cook. We cannot all afford oysters. One does not know of any experiments on human babies which clearly indicate that they might not thrive best on cooked human milk.

Whether the statement is made in Parliament by dignitaries of the medical profession or by anyone else, one can only decide that the statement that milk loses something by cooking—that is, something that is not counteracted by a corresponding gain—must be looked on as pure superstition.

Meantime, I have to begin all over again, arguing with distracted mothers who have failed to pacify a baby with several sorts of patent foods, and who assuredly, when boiled cows' milk is suggested, will triumphantly tell me that Lord Horder agrees with them, that boiling milk removes some spiritual essence which babies need—forgetting that all the patent foods they have tried are already well cooked.

Later on, when we tell mothers to be sure to cook fish and meat for toddlers, as well as most vegetables, will we be "stigmatizing and sabotaging basic foods"? There does seem to be a lack of logic somewhere. And logic still exists, in spite of Stuart Chase and others.—I am, etc.,

W. L. ENGLISH.

* We give the following quotation from *The Pasteurization of Milk*, by G. S. Wilson (Edward Arnold and Co.). "Where this [i.e., pasteurization] is impracticable, as in the home, the milk can be brought rapidly to the boil in a water-jacketed saucepan fitted with a lid to prevent scum formation, and, unless it is to be drunk immediately, cooled at once to as low a temperature as possible so as to interfere with the growth of any non-pathogenic organisms that may have survived." To quote Prof. Wilson again: "If neither Pasteurized nor Tuberculin Tested milk can be obtained, then the milk should be boiled, or dried milk made up with some suitable flavouring agent should be supplied."—Ed., B.M.J.

The Government's Milk Policy

SIR.—Milk is not necessarily safe because it has been pasteurized. Samples of pasteurized milk taken by me to the Emergency Public Health Laboratory in the unopened bottles as delivered were found to contain:

Lab. Ref. No.	Q 755—B. coli in 3 out of 3 tubes inoculated with 1/100 ml.
" " "	S.740 " " " 3 " 3 " " "
" " "	V.629 " " " 2 " 3 " " "
" " "	V.627—Plate count 140,000

The bottler as well as the milker may have dirty hands or a throat infection capable of contaminating the milk after it has been pasteurized. I am quite certain that para. 28 of the Milk and Dairies Order is not strictly observed. I have taken rinsings (*Practical Public Health Problems*, Sir W. Savage, p. 88) from several churns and bottles said to be sterile and ready to be refilled and found them to be contaminated. I find every person who handles the milk as a potential source of pollution.—I am, etc.,

E. J. CROSS,
Medical Officer of Health.

St. Neots.

Medical Boarding for the Merchant Navy

SIR.—Dr. S. H. Waddy's able letter (Aug. 21, p. 248) raises a most important point. It passes comprehension how our mercantile marine can go on year after year without any medical organization. The Shipping Federation has shirked its responsibilities in this matter, which is not so necessary for all those vessels that have competent ship surgeons, but for the many ships that have no medical personnel the need for shore overhaul of sailors is very urgent. Grade IV men with such disabilities as fits, diabetes, tuberculosis of the lung,

hernia, duodenal ulcer, and venereal disease can put to sea as easily as Grade I men.

The Board of Trade pays attention to food, sanitation, and accommodation, but has no system of medical examination. A sailor may pass a good deal of his time at sea unfit for duty on account of illness, then go ashore, be patched up temporarily, and ship again: he may also mangle at will.

The last paragraph of Dr. Waddy's letter is on the right line and should receive official attention without delay. Advantage could be taken of the medical recruiting boards throughout the country to examine all seamen for the Merchant Navy in order to start the scheme without delay. As rightly said, this is really a Government responsibility, and after the war it will be to the benefit of all concerned if the same system is carried on.—I am, etc.,

GEORGE DOUGLAS GRAY.

SIR.—Dr. Waddy's letter draws attention to one of the deficiencies in the present method of medical examination of merchant seamen, but it is hardly fair to the men to suggest that they are all malingerers.

In the past men have become seamen from choice. The medical standards have been lax and in certain branches of the trade non-existent, so that many men have been at sea for half their lifetime without medical examination. The doctor appointed by the Shipping Federation has time to make only a cursory examination and, it must be remembered, is employed by the owners to exclude the men who are unfit. It is no part of the examining doctor's duty to provide treatment or advice, and he functions as a one-man medical board. Nevertheless the standard of work is fairly high, and the number of men whom the doctor wrongly passes as fit will be found to be small. On the other hand, the power to mark a man as permanently unfit for service at sea also rests with the examining doctor, and this arbitrary power, which deprives the man for ever of his livelihood, is frequently used.

Many of the men now serving at sea have only returned to their calling since the beginning of the war, and their standard of physical fitness may well have been impaired by long years of unemployment. They may easily pass a medical examination without possessing the necessary stamina to stand up to life in the fore-castle under black-out conditions for the long voyages which are nowadays so common. These men receive none of the physical training which is considered necessary in the fighting Services, and, with the exception of some of the better companies, do not have the benefit of any of the prophylactic measures which should be available.

The Merchant Navy requires a real health service so that in future fit men are taken into a service which will take pride in keeping them fit. Dental caries and dyspepsia are two of the commonest complaints among seamen, and there is an obvious association between the two. The Seamen's Hospital Society provides in London much of the necessary service, but of all our other great ports only Cardiff has a special seamen's hospital.

Our seamen are entitled to something better than a further strengthening of the means of depriving them of their right to follow their calling, and reform, when it comes, will need to be on a grand scale. Victuals, living conditions, recreation rooms, bathrooms, and toilets will have to take their place alongside protective inoculations and vitamin concentrates to make the work of the medical boards a mere formality. "Shirking" and "loafing" are mean terms to apply without reservation to a body of men who have followed so faithfully one of the most dangerous callings.—I am, etc.,

London, W.1.

ALEC WINGFIELD.

British Spas

SIR.—The various Government Departments appear to have done everything possible to kill the work of the British spas. They have commandeered practically all the accommodation for offices, Government officials, civil servants, etc. The Ministry of Labour has depleted the trained staffs of the bathing establishments and spa hospitals in spite of urgent appeals to it and to the Ministry of Health. One skilled masseur, who has had over 15 years' experience, has been placed in the N.F.S., where he is employed in massaging the brasswork of the fire engines; this man has now been released. Another man,

fully qualified in wet and dry massage, has been placed in the R.A.F. as a hospital orderly, but is not employed in massage, as only women are so employed in that Force. Again, the authorities of the E.M.S. and the Ministry of Pensions do not officially approve of spa treatment, but concede its usefulness for civilians. The spa hospitals with their depleted staffs are working to capacity and are treating miners, munition workers, etc., and are returning quite two-thirds of them to work.

Those of us who have long experience of spa treatment recognize, as the Soviet medical authorities do, that more is required than physical treatment by massage, diathermy, and other forms of electrical treatment. There is a danger in this country that physical treatment will mainly consist in such, and ignore the great usefulness of balneological and hydrological methods. On this point it is observed that the Supplementary Report of the Council of the B.M.A. draws the attention of the teaching bodies of our medical schools to the necessity for instruction in physical medicine, and points out that in many of the smaller towns neither the facilities nor the trained personnel are available; "the result is that a considerable proportion of patients treated at spa hospitals suffer from disabilities which might have been cured or arrested at home."

A great opportunity is being lost by our Government. In pre-war days thousands of pounds went out of the country annually owing to British people frequenting the Continental spas. Even if the war stopped to-morrow it would take months to renovate the hotels and get them in working order. There are hundreds of people waiting to have a cure who cannot get accommodation of any sort—hard-worked officials, munition workers, people who have contracted rheumatism from sleeping in damp underground shelters, men and women who have been invalidated out of the Services, etc. This is an overcrowded and industrial island and no provision is made for health and rest centres for our people such as are found in Sweden and Russia. Discussions on health services, a State Medical Service, and the medical views expressed in the Beveridge report quite ignore this important point, and none of the discussions gets down to what is so urgently required in this country, and when the opportunity is so great for the Ministry of Health to embark on a comprehensive scheme which would produce so much benefit for the many.

Space will not allow me to enlarge on what is required. Town planning of spas, the elimination of all factories within a certain radius of the spa, large open spaces with numerous sun traps, the by-passing of all main through traffic, rehabilitation centres with occupational therapy; means of exercise, such as golf, tennis, bowls; etc.; psychological therapy, consisting of music, the drama, exhibitions of the arts, etc. Further, we should copy the Russians by having home farms attached to sanatoria, hostels, etc., providing them direct with fresh vegetables and pure milk.—I am, etc.,

HARROGATE.

G. L. KERR PRINGLE.

Learning the Art of Medicine

SIR,—I was most interested in Dr. D. W. Winnicott's letter (Aug. 21, p. 243) and agree with him. He points out that our professional work is partly science and partly art, and that if we have a State Medical Service the science may increase but the art will decrease, and the flood-gates will open wide to quackery. For there can be little doubt that the public at large suspects and fears our science.

The trouble begins with our education. We have gradually evolved from the necessity for Latin and Greek, and, in my opinion, it is time we evolved from chemistry, physics, and biology beyond the School Certificate standard. Few of us know the chemical composition or the number of grains—or is it grammes?—in a couple of tablets of sulphapyridine. It does not need a highly skilled chemist to prescribe a couple of aspirins for a headache. If this seems a sweeping statement I invite your readers to look at the physics papers set at the last First M.B. examination of London University. I would bet a lot that not a single practising medical man could pass, and that few indeed could give even a reasonable answer to a single question.

The inevitable evolutionary changes in our education must be cut out that which is useless (the present First M.B. as a start) and substitute that which is useful. In my opinion it is essential that the art must be taught and learned, and the

best way of doing this is to make each student do a year in general practice as part of his course.

I do not think it is yet appreciated sufficiently that the bulk of the work of the medical profession—the handling of the patient through his bodily and mental troubles—is done by general practitioners. Surely it is high time that the members who know the work that has to be done should have a larger control of the education of our students and a larger control of the profession itself in matters of policy.—I am, etc.,

ROTHEHAM.

ERIC COLDREY.

* Perhaps we may anticipate some comments on Dr. Coldrey's letter by remarking that a good general education and a grounding in the discipline of the basic sciences are not useless lumber in the practising doctor's mind, even if details learnt in classroom and laboratory are forgotten.—ED., B.M.J.

London Teaching Hospitals Committee

SIR,—A committee consisting of two representatives of the medical committees of each of the London undergraduate teaching hospitals has been formed with the object of co-ordinating the views of the medical staff of these hospitals at the present time.

At a meeting on Aug. 17 the following resolution was passed, and we have been asked to bring it to your notice with a request that you may publish it:

"This meeting regards it as essential that freedom of expression in medical matters and hospital policy and freedom of medical practice be preserved in hospitals in any post-war reconstruction; and that a medical committee should be the advisory body to the Governors of an institution on medical matters."

—We are, etc.,

GEOFFREY BOURNE, M.D., F.R.C.P.,
St. Bartholomew's Hospital, Chairman.
W. D. DOHERTY, M.CH., F.R.C.S.,
Guy's Hospital, Hon. Secretary.

London.

Psychiatry in General Hospitals

SIR,—While no unqualified affirmative can, of course, be given in reply to Dr. G. L. Alexander's invidious question (Aug. 14, p. 214), a categorical negative would do less than justice in view of the greatly varying nature of cases treated in our mental hospitals to-day. Moreover, there are many physical illnesses which would equally give cause for hesitation in similar circumstances because of their potentially disabling or propagational risks.

It seems pertinent to ask why, throughout the ages, disorders of the mind have, unlike most other varieties of human affliction, been singled out for social condemnation, since herein lies the meaning of that enlightenment to which we refer. The persistence of a stigmatizing attitude, even among some who might be expected to know better, is but an attenuation and modification of that attitude which in former days prompted punitive measures, such as the use of chains or corporal punishment, as appropriate treatment for the disordered mind.

The motive underlying this attitude in people otherwise not unkindly consists of a latent fear of their own unconscious forces; it is a projection of individual inherent anti-social tendencies, which, lying dormant in us all, have become manifest in the mentally disordered. Owing to the fact that the repression of these tendencies was in the first instance moralistically achieved, all subsequent lapses, irrespective of how caused, are viewed with condemnation—i.e., they become socially taboo. From various causes, many entirely physical in character, failure of repression may occur; thus it is to be found as the result of the toxæmias of pregnancy, in thyrotoxicosis, or yet again in the delirium of any acute infective disease. In the Hughlings Jackson sense, such manifestations, although psychically displayed, represent, at least temporarily, a lowering of the level of cortical physiological control.

The stigmatization of the disorders of mind, even in their minor manifestations (the so-called nervous breakdown is regarded with but veiled contempt), represents in fact an attempt to reinforce one's own repressions by condemning such untoward tendencies as may appear in others. This fear

of contagion and dim consciousness of personal susceptibility is readily rationalized so as to dispose of what otherwise would appear an unjust attitude. The remedy for the individual lies in his coming to terms with his own unconscious tendencies—an ideal only possible by the Freudian psycho-analytical approach. For the public in general, much yet can be hoped from their continued education as to the nature of mental disorder. This act of social justice can best be furthered by our great body of general practitioners, many of whom we know are already aware of the fundamental need for an attitude of scientific objectivity towards the problems of psychiatry.—I am, etc.,

Warrington Park Hospital.

W. H. SHEPLEY.

Health and Social Medicine

SIR.—The sudden attack of modesty by which the spokesmen of the profession have recently been overwhelmed is not without its comic side. We all agree, I hope, that the labourer who puts in the sewers has just as important a place in the social structure as the doctor, but even the least well instructed member of the populace to which Dr. W. N. Leak refers in his letter (Aug. 21, p. 243) will hardly fail to see the motives underlying the attempt by the profession to underrate its own importance and to stress instead the necessity for environmental reform.

Unfortunately, even if a Utopian state of affairs could be reached to-morrow in matters of housing, nutrition, and general standard of living, there would still be need for an efficient curative service for a long time to come. Cities are not rebuilt in a day. We have been officially warned that we shall be short of food for some years after the war. Devastated Europe constitutes a reservoir of disease which may well spill over and threaten the health of these islands. The incidence of tuberculosis and venereal disease is still rising. Further, when our main Forces are engaged on the Continent the resultant heavy casualties will leave a heavy burden of chronic traumatic conditions.

It is idle under these circumstances to belittle the importance of the curative services. If the doctor has at his disposal all the resources of modern medical science there are a few diseases which he can actually cure, there are many patients whose condition he can improve, and few who cannot be given a little help, even if it is only a little elementary psychotherapy. Dr. Leak's poor opinion of the capabilities of the doctor is surely an indictment of medical practice as at present constituted.

The populace may be ill informed on the finer points of medical science, but they are well informed as to the difficulties of getting adequate medical treatment to-day. They are all ex-patients or potential patients. If doctors when ill were compelled to seek treatment on the same terms as their patients they would lead the "ill-instructed clamour" for reform which Dr. Leak condemns.—I am, etc.,

St. Mary Cray, Kent.

BRIAN H. KIRMAN.

The Future Health Services

SIR.—Dr. J. Shackleton Bailey's letter (Aug. 7, p. 181) makes sad reading because it betrays, so obviously sincerely and with such placid and complacent politico-acquiescence, a state of mind which views without the slightest disturbance, indeed with an almost gleeful anticipation, the possibility of an immediate upheaval which cannot but result in the permanent and disastrous lowering of the status of our profession. "Immediate," because he says that both "inside and outside the House of Commons there is a highly critical consensus of opinion impatiently waiting for action." Medicine is by far the most "learned" profession in the world as practised even by the average doctor. The lawyer deals in printed word, in precedent, in tomes replete with ancient legal pronouncements and decisions, in argument; the clergyman in Holy Writ and the lessons to be drawn from it, in sermons and exhortations, in hymns and prayers and psalms. But the doctor cannot get away with either knowledge of books and power of clever and convincing argument or with profound knowledge of the Bible and a capacity to influence men's souls for good. After six years of the most exacting scientific study demanded of any profession, he has to graft on to this a far more profound

knowledge of, and insight into, humanity, both bodily and mental, than is called for in any other calling, or trade, or that matter.

So far as I have been able to gather in conversation a correspondence, certainly not less than 95% of my colleagues fairly representative of the profession as a whole, totally agree with the attitude of the politico-acquiescents as defined by Dr. Shackleton Bailey. It is impossible to drag on a highly specialized and individualistic body into turning themselves into a Government Department such as the P. O. Office, or one with the routine-bound, clock-watching, "drinking proclivities of Whitehall." Of all human activities medicine is the one that it is most important to keep free all except the minimum of political and Government interference. Far from being "the strongest trade union in the world," as someone has quite erroneously stated, doctors equipped neither psychologically nor occupationally for combination and resistance, and if on a vote-catching campaign any Government tries and succeeds in establishing the impossible—i.e., the regimentation adumbrated by your correspondent—then the entire status of the profession will infallibly be lowered because a different type of person will begin to enter it. Indeed, it may well happen that the supply of students will fall perilously low if a Government appointment, with accompanying loss of initiative, freedom, and incentive to study, all they have to look forward to after six years of intense study punctuated every few months by formidable examination hurdles to be leaped.

Dr. Bailey deprecates "delay pending demobilization." It is difficult to conceive why. The older or unfit civilian doctors are too busy to combine, arm, and resist political cajolery and pressure. The younger fit men in the Services have the chance. It is manifestly unfair, though it may be go "policy," for Parliament to charge in with their tanks at the weakest spot at this juncture, with half the profession absent and unconsulted, and the other half unholidayed and unsuited trying their utmost to keep the medical home-front from burning.

I note that Dr. Shackleton Bailey is, like myself, a (Government) Factory Act surgeon. He therefore has to fill up a form showing that he has carried out the following examination of each young person joining a factory: "Any previous employment (Name of Employer and Character of Employment), Name and Address of Health Insurance Practitioner, Address of last School, Medical History and Information obtained from School Medical Record, Bodily Development and Nutrition, Height, Weight, Skin and Hair, Eyes and Eyelids (Right, Left for vision), Mouth and Teeth, Nose, Throat, Ears, Glands, Respiratory System, Circulatory System, Nervous System, Bones and Joints, Other Observations"—and sign it. The capital letters are all the Government's, and the fee for this detailed overhaul, which, except for urine examination and blood pressure, practically amounts to a life insurance requirement, is 2s. 6d. This is a sample of Governmental valuation of our professional services now, and with a vivid recollection of the happenings of 1912 in mind I have no reason whatever to suppose that this valuation will not permeate any State service that is instituted in the future. The tragedy of it (and it is difficult to understand why the "reformers" do not visualize this) that if it is pushed through, it will be the public and not the pigeon-holed doctors, cribbed, cabined, and confined, who will be the first to complain. But then it will be too late.—I am, etc.,

Stowmarket.

H. S. GASKELL.

Plant Hormones

SIR.—The annotation on plant hormones (Aug. 7, p. 17) states that plant hormones are "particularly active in stimulating root growth." As it stands this is misleading. The auxins, as Went and many other workers have demonstrated, may promote growth in one part of the plant and inhibit in another. Prof. Kögl and his collaborators, who first isolated indole-3-acetic acid from urine, actually demonstrated the inhibitory effect on the growth in length of Avena roots when they were immersed in solutions of indole-3-acetic acid at auxins "a" and "b." Writing on the inhibition of root growth by auxins Bonner and Koepfli compare the growth-inhibiting activity of twenty-one analogues of indole-3-acetic

id, and regard the chemical specificity of auxin for root growth closely similar to the chemical specificity for shoot growth, the substances being highly active in promoting growth in roots and inhibiting roots.

In experiments which I have carried out with seedlings this opposite effect of auxin on the growth of root and shoot is early demonstrated. Application of auxin may cause swelling of a stem or root. It may stimulate cell division and initiate the growth of adventitious roots on stem cuttings. It also inhibits the growth of lateral buds when applied to the main stem. Thus, to quote Went,⁴ "one substance may be promoting growth in one part of the plant and inhibiting it in another."—I am, etc.,

Reading.

E. DOROTHY BRAIN, F.L.S.

REFERENCES

- ¹ *Phytohormones*, New York, 1937.
- ² *Z. physiol. Chem.*, 1934, 228, No. 1, 104.
- ³ *Amer. J. Bot.*, 1939, 26, 557.
- ⁴ *Ibid.*, p. 205.

Simmonds's Cachexia

SIR.—I am in the midst of some research work on a rare endocrinological syndrome—namely, Simmonds's cachexia—and should be extremely obliged to hear from any doctor in regard to a patient suffering from this disorder who is willing to come into hospital for two or three weeks for investigation and treatment.

I would not venture to presume upon the hospitality of your correspondence columns were not the disorder of such comparative rarity.—I am, etc.,

London, W.1.

S. L. SIMPSON.

National Health Insurance and Assumption B

SIR.—National Health Insurance at its inception in 1911 represented a great contribution to the social services of this country, placing a medical service at the disposal of sections of the community which found difficulty in obtaining it themselves. Few will question this statement, but does N.H.I. provide a framework into which the medical services of the future can be fitted? Has the time not come when N.H.I. organizational forms represent a brake on progress rather than a spur thereto?

Consideration of this question is very important at the moment, especially in view of Recommendation M of the Council of the B.M.A. (*Supplement*, Aug. 7, p. 20), which suggests that implementation of Beveridge's Assumption B would, for the moment, be met by a two-way extension of N.H.I. The following points may help in considering these questions.

(a) N.H.I. is based on the individual practitioner with his own professional equipment, accommodation, etc. (This statement is not, in general, invalidated by the development of partnerships.) It is impossible within its forms to develop that co-operative team work which is demanded by the increasing technical complexity of medicine and its allied services.

(b) N.H.I. tends to degrade the general practitioner into a mere sifter of cases, unable to devote a sufficient time to their consideration because of the numbers to be seen under the conditions it imposes. As he has to provide a 24-hour service, seven days a week, with little possibility of any private or social life outside his professional work, his chances of putting into practice those clinical ideals he had on leaving his medical school are slight indeed. Preventive medicine and research work in his own sphere of activity are closed to him. His growth to that full clinical stature and position which are rightly his because of the importance of his position *vis-à-vis* his patient is inhibited by his working conditions. To say so is in no sense to criticize the body of insurance practitioners, which gives loyal and devoted service; it is to criticize the system under which these doctors work.

(c) A two-way extension of N.H.I. cannot solve any of these problems. On the contrary, it will aggravate them and at the same time strengthen the position of the approved societies, with consequent economic loss to patient, doctor, and national health. What the public needs is a health service maintained

by a completely unified profession, operating as a single instrument to bring every aspect of scientific medicine within the reach of every member of the community. The profession on its side needs an organization that will enable its members to produce their best clinical work in the best conditions—good income, reasonable hours of work, holidays, pensions, modern professional accommodation, adequate equipment, lay assistance that will relieve practitioners of non-clinical work, and the possibility of living "privately."

(d) To extend and develop N.H.I. is to push further away into the distant future these desirable and necessary improvements. That will be the result of carrying Recommendation M, which represents a "slipping back" from the decisions on group practice made at last year's Annual Representative Meeting, and a definite retreat from Assumption B.—We are, etc.,

H. C. BOYDE,
D. S. BRYAN-BROWN,
L. FIELDMAN,
W. W. FOX,
H. GAINSBOROUGH,
P. D'ARCY HART,
P. INWALD,

H. JOULES,
R. POOTS,
J. POWELL-EVANS,
J. A. SCOTT,
S. SMITH,
B. C. THOMPSON.

The Doctor with a Cold

SIR.—Whatever scheme may be evolved for the betterment of the medical services of the country, it must not be forgotten that it will depend for its success entirely on the good will of the doctors, especially for the next ten to fifteen years.

Now, according to the Press, in the years before the war workers were advised, at the onset of influenza or febrile cold, to stop work and go to bed, and further reports of the large percentages of absentees showed that the advice was taken. Doctors, it also said, were working all hours of the day and night. A matter not brought to prominence was that many of the doctors were suffering likewise, and should also have been in bed. It will cause a sense of grievance if doctors, as modified or wholly civil servants, are supposed to be the only workers not allowed to go sick. Such sickness takes place mostly at one period of the year, and simultaneously over the country, and means that a very large pool of doctors must be built up to carry on the normal services. At present and for many years this will be impossible, and unless the doctor behaves as he has always done, and works on while others go to bed, the whole scheme will fail.

This fact, if stressed, may modify the increasingly dictatorial attitude of the Ministry of Health, either by force or, preferably, by a realization of the debt owed to doctors, and that if their work in helping to tide over a very difficult transition period is to be free of all grievance, adequate pay and privileges must be given them.—I am, etc.,

Hove.

FRANK PORTAS, M.D.

Appeal for Back Numbers

SIR.—There must be many who are responding to the appeal for back numbers of the *Journal*, and I am going to suggest that they should do what I have already arranged for in my own case—namely, ask that the postage fees (which are offered to be refunded) should be allowed to accumulate until the end of the financial year and then handed over to the Central Charities Fund.

Few or none would miss the 6d. or 9d. paid for postage occasionally, but these small sums, multiplied many times over, would mean a quite appreciable addition to our Charities Fund at the end of a year.

May I commend the idea to my fellow-members.—I am, etc.,

Stokesby, Gt. Yarmouth.

PERCY B. SPURGIN.

According to the statistics of the health authorities (*Nationaltidende*, July 11, 1943), the mortality rate in Denmark for 1942 was 9.6%. In that year there were 2,200 fewer deaths than in 1941. Infant mortality and mortality of elderly people have decreased. Infant mortality was 4.7% as against 5.5% in 1941. The age groups between 17 and 45 have an increased mortality. Deaths from infectious diseases and from pneumonia have greatly decreased. This is attributed to sulphonamide therapy. There is an increase in cancer deaths, especially in women. There has also been an increase in the number of murders (36 in 1942).

Obituary

SIR FRANCIS FREMANTLE, M.P.,
D.M., M.Ch., F.R.C.P., F.R.C.S.

The medical men in Parliament who were returned after each of the half-dozen general elections between the two wars formed a varying group, in numbers (ranging from ten to twenty), in political affinities, and in the interest they took in medico-political affairs. But there was among them all the time one constantly dependable figure, Sir Francis Fremantle,



whose death on Aug. 26 we chronicle with great regret. From 1919 onwards he was the most thorough example of "The Doctor in Parliament," to quote the title of a lecture he once gave under the Chadwick Trust, always diligent and interested, with a high conception of the function of the medical man in the shaping of legislation and criticism of administration. No one recognized more fully that the first responsibility of the medical man in Parliament is to his constituents, not to his profession, but subject to this he was ready to respond to any call made upon him to assist public health and the causes

which the medical profession had at heart. He took his Parliamentary duties, like everything else, with great seriousness. Having already had a career in public health before he entered Parliament he felt himself, as indeed he was, well qualified to speak on public health subjects, and in the chair of the Parliamentary Medical Committee, which he first occupied in 1922, and continued to hold save during the period of the Labour Governments—when a Labour chairman was elected—it was his task to interpret medical views to Parliament, and, what was equally important and perhaps still more difficult, to interpret Parliamentary procedure and party exigency to the medical profession. The British Medical Association, in common with a number of other bodies concerned with the health of the community, often had occasion to thank Sir Francis Fremantle for his work on their behalf in voicing in the Legislature the new outlook in medicine and sponsoring and supporting measures which the medical profession desired to see placed on the statute book, not to speak of such services as asking questions in the House or introducing deputations to Ministers.

Francis Edward Fremantle came of a family whose name is distinguished in naval annals. His great-grandfather, Francis Fremantle, commanded the *Neptune*, the second ship behind the *Victory* at Trafalgar. His grandfather, another Francis, was at one time Secretary for War, and lived to become "the father of the House of Lords" and the patriarch of Buckinghamshire society. His father, however, the Very Rev. and Hon. W. H. Fremantle, chose the Church, and eventually became a well-known Dean of Ripon. Francis was born on May 29, 1872. In 1886 he entered Eton as King's Scholar, where he remained for four years, and then went to Balliol College, Oxford, from 1891 to 1894, where he gained a reputation in athletics. In 1895 he began his medical training at Guy's Hospital, qualifying M.B., Ch.B. in 1898. In 1903 he became M.Ch. and Fellow of the Royal College of Surgeons, in 1910 Fellow of the Royal College of Physicians, and in 1928 took the D.M. of Oxford.

After holding a house-physicianship at Guy's he went out to the South African War as a civil surgeon with the field Force, afterwards collecting his military experiences in a book of nearly 600 pages entitled *A Doctor in Khaki*. On his return he served as assistant secretary to a War Office committee for the reorganization of the Army Medical Service. In 1902, in which year he took the D.P.H., he was appointed county medical officer for Hertfordshire, a county with which his

career, professional and Parliamentary, was henceforth to be closely bound. Through his mother he eventually inherited the seat at Bedwell Park, near Hatfield. Before he had really got into the saddle as county medical officer he was sent, in 1903, to the Punjab as plague medical officer, acquiring some very useful experience, and afterwards, in 1903-4, he acted as special correspondent for the *Lancet* in the Russo-Japanese War. In the war of 1914-18 Fremantle served as D.A.D.M.S. (Sanitary) in Mesopotamia, and he also saw service in Gallipoli and Egypt, and was mentioned in dispatches, retiring with the rank of lieutenant-colonel R.A.M.C. On his return he devoted himself to public affairs. He had relinquished in 1916 his post of county medical officer, though he continued to serve in an honorary consultant capacity. In 1919 he was elected to the London County Council and served for three years, being for part of the time chairman of the Housing Committee. In the same year he entered Parliament as a Conservative for the St. Albans Division, and retained the seat with very large majorities. Although always on good terms with his party, he was not a strong party man, and once he declared that dogma—meaning presumably political dogma—is of the devil, and that the solution of problems comes not by the application of rigid theory but by experience.

In everything that had to do with public health, especially on the side of housing, Francis Fremantle was prominent. In 1920-1 he became president of the Society of Medical Officers of Health. In 1923 he served on Lord Trevethin's Committee on Venereal Diseases. He was a fellow and vice-president of the Royal Sanitary Institute, to whose congresses he contributed many papers, and past-president of the Section of Epidemiology and State Medicine of the Royal Society of Medicine. In 1930 he was appointed a member of the Industrial Health Research Board. In 1922, and again in 1930, he served on the Rent Act Committee to advise the Government on the future of the Rent Restriction Act. He attached himself enthusiastically to the garden city movement, was chairman of council of the Garden Cities and Town Planning Association, and director of the Welwyn Garden City in his own county.

Although never closely identified with the central work of the B.M.A., he was always helpful on special committees. He was a member of the committee which prepared in 1924-5 the evidence to be given on behalf of the Association to the Royal Commission on the Insurance Acts. In 1922 at the Glasgow Meeting he was vice-president of the Section of Public Health, and in 1937 at Belfast vice-president of the Section of Medical Sociology. For some years he served on the Parliamentary Subcommittee and on the Central Emergency Committee. In 1938 he was one of four medical M.P.s who were specially invited to be present at the Annual Representative Meeting. In 1940 he was made a member of the Medical Planning Commission. His writings, in addition to *A Doctor in Khaki* already mentioned, included *Health and Empire*, published in 1911, and two books which were really companions, *The Housing of the Nation* and *The Health of the Nation*, both published in 1927, and both carrying a foreword by Mr. Neville Chamberlain—then Minister of Health. His *Health of the Nation* in particular was a most commendable work, and though not likely to have a popular appeal, it went into a second edition within a couple of years. In reply to one critic who said that the information it afforded on any one subject was better given in official publications, Fremantle said "Precisely; this book is a bait." But that was too modest an appraisal. It was, and remains, a useful work, the more so because he approached the subject of public health not as a branch of science but as a branch of civics.

In 1926 Fremantle was appointed Deputy Lieutenant for the County of Hertford, and in 1932 he received the honour of knighthood. He had been appointed O.B.E. in the Birthday Honours of 1919.

A. I. SIMEY, M.D., F.R.C.P.

Dr. A. I. Simey, who died at Fordingbridge on Aug. 20, was for 22 years medical officer to Rugby School, succeeding I. Clement Dukes, who had held that post for 37 years. Athelstane Iliff Simey was born at Sunderland in 1873 the son of Ralph Simey, J.P., D.L. He went to Rugby in 1887 where he won a classical scholarship, and entered King

College, Cambridge, with a classical scholarship in 1892; in 1895 he was placed in the first class of the Classical Tripos. After two further years at Cambridge as a natural science student he went to the London Hospital for his clinical course and qualified M.R.C.S., L.R.C.P. in 1901. He took the M.B., B.Ch. degrees in 1902 and the M.A. and M.D. in 1905, after serving as house-physician, house-surgeon, and medical registrar at the London Hospital. In 1906 he obtained the M.R.C.P. and for a short period was physician to out-patients at the Victoria Park Hospital for Diseases of the Chest. Then in 1908 he was appointed medical officer to his old school and went to live at Rugby. During the last war Simey held a temporary commission in the R.A.M.C. as M.O. to the Officers' Hospital at Le Havre. Apart from his duties at Rugby School he worked for many years on the staff of the Hospital of St. Cross as physician and medical officer in charge of the x-ray and skin departments. He joined the B.M.A. in 1910 and was a member of the Association of Physicians of Great Britain and Ireland. His election as F.R.C.P. came in 1925. Like his famous predecessor, Clement Dukes, Simey was a recognized authority on health at boarding schools, and wrote on the hygiene of adolescent boys, and on the medical supervision of camps, sports, and exercise. His hobby was natural history, and in particular botany and entomology.

R. H. writes:

I first met Simey at the London Hospital in 1900. He had then just come down from Cambridge, where he had taken a first in the Classical Tripos, and was now embarking with enthusiasm on the clinical course. I was early impressed not only by his intellectual ability but by the sincerity and modesty of his character, and our relation as teacher and pupil (we were almost of an age) soon grew into one of close friendship which lasted for life. After qualification he held some resident posts at the London, increasing both the general esteem in which he was held and his affection for the hospital and everyone connected with it. Soon afterwards he was appointed medical officer to his old school—Rugby—of which he was a devoted son. He carried out his duties there with the thoroughness and high conscientiousness which characterized all he did, and became recognized as a leading authority on the diseases of school life. On resigning his post at Rugby he went to Exeter as physician to the Royal Devon and Exeter Hospital, engaging also in consulting practice in the West Country. But it was not many years before he was struck down with sudden illness, and for the rest of his life he was more or less incapacitated. He spent it partly in the New Forest, to which he had been attracted by its facilities for his hobby of bird-study, and partly in his cottage in Cumberland, bearing his enforced inactivity with exemplary courage and cheerfulness, and supported by the devoted care of his wife. The end came quite peacefully. He died at dawn, and his last words were: "How wonderful! I do love the light"—for the beauties of Nature meant much to him always. He has left little record of his long experience as a school doctor, for although he had accumulated a mass of clinical data his high standard of accuracy and scientific scrupulousness made him reluctant to publish; but those who were privileged to know him intimately will always cherish his memory as that of a great gentleman and one who exemplified in all he did the highest standards of our profession.

J. C. M. writes:

It is only for a few recent years that I have had the privilege of knowing Dr. Simey and visiting him at his home on the edge of the New Forest, overlooking the valley of the Hampshire Avon. The thatched roof of his home is in keeping with its old-world cottage garden, which is at the same time a veritable museum of rare and interesting ferns, flowers, and shrubs which he collected and tended over many years; it is also a miniature sanctuary for the birds which Simey knew and loved so well. Dr. and Mrs. Simey had a genius for friendship, which had a fragrance that will endure in the hearts of all who enjoyed it. This was a feature of Simey's 22 years at Rugby School. I am told by one who knows that the boys loved him and welcomed admission to the "San" for the sheer joy of contact with him. He was indeed a "gentle doctor" and a gentle man.

CECIL PRICE-JONES, M.B.

We regret to announce the death on Aug. 27 of Dr. Cecil Price-Jones, the haematologist whose work on the size of blood cells made his name known in every civilized country.

He was born in 1863 son of Dr. William Price-Jones of Surbiton, whose practice he carried on for a time after graduating M.B.Lond. in 1889 from Guy's Hospital, where he won the Preliminary Science Exhibition in 1884 and was assistant to the bacteriologist. For some years he was M.O.H. under the Kingston-on-Thames rural sanitary authority, but his real bent was for research, and he devoted himself more and more to haemacytology. He won a Salters' Company scholarship in 1911 and was appointed assistant pathologist to the Middlesex Hospital Cancer Research Laboratory. Much of his later work was done at University College Hospital Medical School, where he was appointed Sidney Ringer lecturer in 1936. Price-Jones's classical work on sizes of blood cells received early encouragement from the British Medical Association, the Council making him two scientific grants—in 1909 and 1910. He had joined the B.M.A. in 1900 and was a member of the Pathological Society of Great Britain. During the last war he served with the British Expeditionary Force as a temporary captain in the R.A.M.C.

Cecil Price-Jones's *Blood Pictures*, first published in 1917, was a brief and clearly written introduction to clinical haematology, beginning with the technique of haemacytology and the normal blood picture and following with an account of the use of blood counts in the diagnosis of disease. In a small space it gave the maximum amount of information, and was accompanied by five admirable coloured plates, the whole providing an excellent guide to house-physicians and clinical clerks. A second edition was called for in 1920, and a third edition in 1933 brought the handbook up to date. The chapter on the measurement of the size of the red blood cells was illustrated by the graphic curves with which the author's name is rightly associated. He also contributed papers on his special subject to the *Journal of Pathology and Bacteriology*, and published in 1933 a monograph, *Red Blood Cell Diameters*, which gave a lucid account of long-continued and mathematically controlled work by himself and a review of the results obtained by others. Price-Jones had a concise way of writing, and for a number of years he gave valued help to this *Journal* by reviewing books on haematology.

To his friends Cecil Price-Jones was known as a connoisseur of life, with a dry humour all his own. He was a gifted musician and had much skill with brush and pencil. In his country home at Radlett, well named "The Apple Orchard," he cultivated his garden and cared for the fruit trees and their crop.

JOHN MURRAY, F.R.C.S.

An old house-surgeon of Mr. John Murray's, the first to serve for him when he became senior surgeon to Middlesex Hospital shortly after the last war, sends the following tribute as a supplement to that already paid him in the obituary notice which appeared in the *Journal* of Aug. 28.

John Murray had a strong personality and a conservative but essentially sound outlook, founded on a wealth of clinical experience. He had, in addition, a keen sense of humour, and a merry twinkle would appear in his eye when he gave his opinion, usually iconoclastic, on some new-fangled and often ill-established procedure. "Oh, I say, I say!" he was wont to remark. "You might as well stick a postage stamp on the sole of the foot." He was opposed to operation in acute pancreatitis, many cases of which he had seen, and when, occasionally to the astonishment of his colleagues, recovery took place following masterly inactivity, he would remark with a smile, "Another triumph of conservatism!" His hobbies were billiards and Freemasonry, and he achieved distinction in both, making breaks of over a century in the one, even against crack players, and reaching Grand rank and winning many honours in the other. He liked to compare operative surgery to the playing of billiards, remarking that to be adept at either you needed to be constantly practising it. Mr. Murray did not seek and, in fact, sometimes went out of his way to avoid private practice, but nothing was too much trouble for him with his hospital patients, and he would come round to Middlesex at any time of the day or night to do something for any one of them. He loved to have a dig at a friend, and I well remember how one day he was chuckling in high glee because he had said to a gynaecologist

whom he met on the way to the hospital, "You do glands in the neck, don't you?" and the gynaecologist had replied, "Oh, you heard about that case, did you?" As a member of the Court of Examiners he became known to many candidates. One day on returning from examining for the Fellowship he told how a candidate had flourished his knife about in the operative test. "You won't stick me, will you?" said Mr. Murray. "No, sir," said the astute candidate, "I remember last time." "What do you mean?" he was asked. "Well, sir," he replied, "last time you stuck me!" "I had to let him through," said his bluff but kind-hearted examiner, and added, "He knew his work." Passing this candidate seemed to give him especial pleasure, and perhaps this story best describes the man he was. Strong, perhaps rather bluff, no nonsense and straight as a gun barrel, he was a chief whom it was a privilege to serve. His high sense of professional integrity and kindness, even if somewhat hidden behind a rather severe and dignified exterior, will cause him to be long remembered with affection by Middlesex men.

The death took place at a nursing home on Aug. 7 of Dr. J. J. R. BINNIE of 21, Walker Street, Edinburgh. John James Rouse Binnie qualified M.B., Ch.B.Ed. in 1919, proceeding to the M.D. in 1921. In 1920 he took his D.P.H. after holding the post of medical superintendent of Lightburn Hospital, Shettleston, Glasgow. For a time he was in general practice in Mid-Calder. Later he returned to Edinburgh as consulting radiologist in succession to the late Dr. Hope Fowler, and in this capacity was attached to Gogarburn and Craiglockhart E.M.S. Hospital. Dr. Binnie held the rank of major in the last war, and also served in the present one until he was released owing to ill-health. In spite of this he continued to do good work for the Emergency Medical Service.

The death of Dr. H. CHISHOLM WILL, which occurred on Aug. 11, will cause great regret among his many friends in Bromley, Kent. Dr. Will served in the R.A.M.C. in France and Gallipoli from 1915 to 1918, and then settled in practice in Bromley, where he has practised for nearly 25 years. He was closely associated with the Bromley Congregational Church, of which he was a deacon for 21 years. He took an active interest in Congregational churches generally, and was a member of the executive of the London Congregational Union, a member of the executive of the Kent Congregational Association, and a delegate of the Bromley Church to the Congregational Union of England and Wales. He took a special interest also in the work of the London Missionary Society and of the Bromley Crusaders. Dr. Will, who qualified in 1893, was closely associated with the activities of the British Medical Association, which he joined in 1900. He was secretary of the Bromley Division for ten years (1922-32), and chairman from 1939 to 1941. On many occasions he acted as representative on the Representative Body, and even after the onset of his illness he attended meetings of the Association whenever he was able to do so.

The death has occurred in a Glasgow nursing home of Dr. JOHN AITKEN, aged 67. A native of Glasgow, John Aitken was educated at Garnethill School and Glasgow University, where he graduated M.B., Ch.B. in 1898 and M.D. in 1901, taking both with commendation. After a period as resident in the Western Infirmary and Royal Maternity Hospital he joined the Scottish Red Cross Hospital in the South African War as assistant physician, being mentioned in dispatches. Thereafter he succeeded the late Dr. Prentice in Kilmarnock, eventually becoming, to his undisguised satisfaction, physician to the Kilmarnock Infirmary. Here he practised for a quarter of a century, with an interlude when he was a medical officer to the 1st Division in Palestine in the last war. Following a breakdown in health he sought the sunny shores of the Mediterranean and built up a practice among the British colony at Allassio, returning to this country in 1940. Maintaining throughout a busy life an interest in the science of medicine, especially his first love, physiology, he was an early worker in haematology, among his publications being papers on pernicious anaemia and haematuria. Apart from service in the Territorials he had few outside interests, but acquired a taste for gardening, characteristically specializing in the viola, the touchstone of the Ayrshire amateur. He was a member of the B.M.A., and of the local panel committee, attending an occasional Panel Conference. He is survived by his widow, a daughter, and a son, a member of his own profession, at present on service in India. Of a sanguine temperament, buoyant and debonair, Aitken was ever a stimulus to his friends and quickly made his presence felt in any assemblage; but he will be remembered best for his exuberant spirit and alertness of mind and body, despite years of ill-health.

By the death of Col. Sir GEORGE HASTINGS, V.D., M.R.C.S., L.R.C.P., at the age of 90, the profession loses a personality of Victorian days the like of whom, it is safe to say, will not be seen again. To call him a Dickensian character, writes an old friend, might be very slightly to overstate the case, but at least he might have stepped from the pages of Mr. Sadler's *Fanny by Gaslight* or from a "conversation piece" canvas by his father-in-law, W. P. Frith. He reached the long-obsolete rank of surgeon colonel in the old Middlesex Yeomanry Cavalry—itsself a designation abandoned before the present century began—but was best known as the presiding genius, indeed dictator in all but the name, of the Ranelagh Club, where he was chairman for forty years. He was also president of the Coaching Club, of which he was the senior member. From all this it will be gathered that he was a horse-lover; certainly he dressed for the part—sponge-bag trousers, glossy top-hat, wash-leather gloves, large cravat, immaculate frock coat—and on the right occasions the correct black-banded grey "topper," as recorded in the *Times* recently. He was a West-End "society" practitioner of very long standing; and was also consultant to the Gas Light and Coke Company. He had his medical education at St. Bartholomew's Hospital, qualified M.R.C.S., L.R.C.P. in 1875, and served his own hospital as house-physician. He was the son of George Hastings of Terrington, Norfolk, and married Alice, daughter of Mr. W. P. Frith, R.A., by whom he had two daughters. He was knighted in 1910, was a Knight of Grace of the Order of St. John of Jerusalem, and held the Volunteer Decoration for his long service with the Yeomanry. Of late years he lived in the Albany, exactly his right milieu.

The following well-known medical men have died abroad: Dr. EDWARD JACKSON, formerly professor of ophthalmology in the University of Colorado, and consulting editor of the *American Journal of Ophthalmology*, aged 86; Dr. FRANK W. MARLOW, professor of ophthalmology for forty years at Syracuse University and member of the Ophthalmological Society of the United Kingdom, aged 84; Dr. LUTHER CROUSE PETER, emeritus professor of ophthalmology in the University of Pennsylvania, aged 73; Dr. GUSTAF NEANDER, pioneer in the campaign against tuberculosis in Sweden, aged 68; and Prof. EMILE SERGENT of Paris, the eminent authority on tuberculosis, aged 76.

Universities and Colleges

UNIVERSITY OF LONDON

The title of Reader in Medicine in the University of London, with the status and designation of appointed teacher, has been conferred on Dr. Clifford Wilson in respect of the post held by him at the London Hospital Medical College.

The reduction in the clinical course for the M.B., B.S. degrees will remain in force during the season 1943-4. The additional M.B., B.S. examination to be held in 1944 will begin on Monday, Jan. 31.

The Services

CASUALTIES IN THE MEDICAL SERVICES

Prisoners of War.—War Subs. Capt. H. D. T. Gawn, R.A.M.C., Temp. Lieut.-Col. L. R. S. Macfarlane, R.A.M.C., War Subs. Capt. E. Snell, R.A.M.C.

Wounded.—War Subs. Capt. J. S. Montgomerie, R.A.M.C.

DEATHS IN THE SERVICES

It is now announced that Dr. JAMES RAWDON SODDY, aged 24, previously reported as missing, lost his life at sea by enemy action in July last. He qualified M.R.C.S., L.R.C.P. in 1942 from St. Thomas's Hospital and held house appointments at the Royal Portsmouth Hospital and the Lambeth Hospital. At the time of his death he was on the way to take up an appointment in the Colonial Medical Service in Nigeria.

Dr. VICTOR VARTAN MUIR of the Colonial Medical Service, Nigeria, is reported to have lost his life at sea in July as the result of enemy action. He graduated M.B., Ch.B. of Edinburgh University in 1939 and took the D.T.M.&H. a year later. His father is Dr. Ernest Muir, C.I.E., medical secretary of the British Empire Leprosy Relief Association and at present head of the Leprosarium in Trinidad.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales during the week a rise was reported in notifications of whooping-cough 160, dysentery 49, and diphtheria 36, while there was a fall in those for measles 427, scarlet fever 42, and acute pneumonia 34. The increase in the figure for whooping-cough was due to a general rise throughout Yorks West Riding, 139 cases.

The fall in the number of cases of measles was most pronounced in the counties of Essex, Suffolk, and Norfolk, where the decreases were 51, 63, and 45 respectively. The incidence of this disease was highest in Kent 110, Lancashire 72, and London 53.

Relatively big increases in the number of cases of dysentery have been reported for the last three weeks, and the week's figure of 198 cases is the highest for almost a year. An outstanding feature is the 57 cases in Yorks West Riding, the chief outbreaks being in Wakefield C.B. 18, in Knaresborough U.D. 14, and in Wharfedale R.D. 15. Outbreaks occurred also in Kent, Malling R.D., 11; Wiltshire, Westbury U.D., 9; Suffolk, Debin R.D., 8; Hertfordshire, Watford M.B. (in the local isolation hospital), 8. There were 19 cases in London and 17 in Lancashire (Liverpool C.B. 10).

In Scotland there were 33 more cases of whooping-cough, but 11 fewer cases of dysentery, than in the preceding week. The incidence of dysentery is still high (89 cases), the chief centres being the cities of Aberdeen 20 and Glasgow 16, while Kincardine County had 12 cases.

In Northern Ireland further cases of typhoid were reported from the outbreak in Belfast; 14 diagnosed and 7 suspected cases are now in hospital.

The Week Ending August 28

The returns of infectious diseases in England and Wales during the week included: scarlet fever 1,890, whooping-cough 1,915, diphtheria 614, measles 986, acute pneumonia 337, cerebrospinal fever 48, dysentery 129, paratyphoid 7, typhoid 16.

Registrar-General's Quarterly Returns for Scotland

The chief feature of the returns for the second quarter of 1943 was the high birth rate of 20.4 per 1,000 of the population; this was the highest rate recorded in any June quarter since 1930. The infant mortality of 58 per 1,000 live births was 10 below the average of the five preceding second quarters. The number of stillbirths was equivalent to a rate of 34 per 1,000 total births. The maternal mortality of 3.5 per 1,000 total births was the lowest for any second quarter since 1931. A general death rate of 12.7 per 1,000 was recorded, this being 0.5 below the average of the five preceding June quarters. The death rate from all forms of tuberculosis was 66. Deaths from the principal epidemic diseases numbered 48 more than in the second quarter of 1942, but the rate (24 per 100,000 of the population) was 11 below the average of the second quarters of 1938-42. The diseases responsible for the largest number of deaths were: whooping-cough 77, influenza 73, diphtheria 51, cerebrospinal fever 44, and measles 41. Road accidents caused 182 deaths, 102 fewer than in the previous quarter. The marriage rate has almost returned to pre-war level, being 7.8 per 1,000, which is 2.0 below that for the corresponding quarter of 1942.

Paratyphoid in Schleswig-Holstein

A severe epidemic of paratyphoid broke out recently in the district of Husum in Schleswig-Holstein. The health authorities there issued a statement on the precautions to be taken by the local population as follows: (1) Milk should be quickly boiled and rapidly cooled. (2) Water from springs and ditches should be drunk only when boiled for tea or coffee. (3) Fruit and raw vegetables should be thoroughly washed with mains water or with boiled water. (4) After using the w.c. thoroughly wash the hands. (5) Always wash the hands before eating, including the breakfast meal. (6) Stop unnecessary shaking of hands. (7) Publicans must thoroughly wash glasses in running mains water or in boiled underground water which must be changed several times a day. (8) Ice firms must use only mains water or boiled spring water for making ice. (9) Human excreta must not be used for manure for the period of a year. It must be limed and composted in ditches at least 10 metres from the nearest spring. It can then be used on the land before winter without harmful consequences. (10) Infected persons and suspects must see a doctor. Inoculated persons take the disease in a mild form which resembles influenza. (11) The isolation of infected cases and suspects in hospital is a police order. (12) Disinfection of the patient's room must be carried out immediately after entry into hospital.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended August 21.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	38	5	23	1	1	68	5	23	2	7
Deaths ..	—	—	1	—	—	—	—	4	—	—
Diphtheria ..	527	29	141	61	24	629	29	184	37	16
Deaths ..	9	—	2	1	—	20	1	1	—	—
Dysentery ..	198	19	89	—	—	59	17	69	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute ..	3	—	—	—	—	7	—	4	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Erysipelas ..	—	—	55	6	2	—	—	29	5	5
Deaths ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	48	10	8	95	16	42	5	18	192	8
Deaths ..	—	—	—	25	—	—	—	21	—	—
Measles ..	1,049	53	18	7	3	4,039	307	77	22	32
Deaths ..	1	1	—	—	1	3	—	4	—	—
Ophthalmia neonatorum ..	90	7	26	—	—	86	5	20	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever ..	8	—	1	—	2	8	—	1	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza* ..	—	—	4	1	3	346	19	6	1	5
Deaths (from influenza) ..	9	3	1	—	1	7	—	—	1	—
Pneumonia, primary ..	312	16	122	12	3	—	—	91	10	6
Deaths ..	—	12	—	7	—	—	—	—	6	3
Polio-encephalitis, acute ..	1	—	—	—	—	2	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Polio-myelitis, acute ..	16	1	—	1	—	19	—	1	2	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever ..	—	1	17	—	—	—	5	24	2	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia† ..	157	9	12	2	5	172	12	27	—	2
Deaths ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever ..	1,516	131	221	48	55	1,332	109	272	32	20
Deaths ..	2	1	—	—	—	—	—	—	—	—
Small-pox ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever ..	13	2	2	15	14	15	5	4	8	3
Deaths ..	1	—	—	—	—	—	—	—	—	—
Typhus fever ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough ..	2,015	122	90	19	22	1,235	141	17	176	16
Deaths ..	12	5	1	—	—	11	1	1	31	1
Deaths (0-1 year) ..	326	39	56	39	315	32	62	35	29	—
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) ..	3,741	525	545	156	136	3,639	545	532	180	122
Annual death rate (per 1,000 persons living) ..	—	—	12.3	12.2	†	—	—	12.0	12.0	†
Live births ..	5,889	703	886	370	245	6,118	721	839	382	235
Annual rate per 1,000 persons living ..	—	—	18.1	24.3	†	—	—	17.3	25.5	†
Stillbirths ..	193	14	36	—	—	201	20	23	—	—
Rate per 1,000 total births (including stillbirths) ..	—	—	39	—	—	—	—	32	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

Dr. C. H. Bateman, Medical Officer, Civil Defence First Aid Post Service, Essex, has been commended for brave conduct in Civil Defence.

A meeting will be held at the Charterhouse Rheumatism Clinic, 56, Weymouth Street, W., on Sept. 15, at 5.0 p.m., when there will be discussions on vitamin C in chronic rheumatism, and on an arthritic condition associated with partial scorbutic diet. The meeting is open to any member of the profession.

The National Association for the Prevention of Tuberculosis and Joint Tuberculosis Council has arranged a refresher course in the social side of tuberculosis work for almoners, social workers, and health visitors at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C., on Thursday, Friday, and Saturday, Sept. 23, 24, and 25. The fee for the course is 10s. for three days or 5s. for one day. Early application should be made to Dr. Harley Williams, Tavistock House North, Tavistock Square, London, W.C.

A refresher course in tuberculosis for tuberculosis officers and medical practitioners will be held from Oct. 11 to Oct. 16 (Monday to Saturday inclusive) at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C. This course, under the auspices of the National Association for the Prevention of Tuberculosis and the Joint Tuberculosis Council, is intended to give, in concentrated form, a complete review of the medical and social aspects of the disease. The number attending will be strictly limited to 50, but other courses will be arranged in London and elsewhere at later dates. The fee is 4 guineas for six days or 1 guinea for one day. Early application should be made to Dr. Harley Williams, Tavistock House North, Tavistock Square, W.C.1, from whom the syllabus of lectures and demonstrations can be had.

In the *Journal* of June 5 (p. 711) we published an appeal from a number of distinguished men and women, including the Archbishop of Canterbury, Lord Horder, and Sir Gowland Hopkins, for subscriptions towards the building of a new hospital in Stalingrad. The subscriptions from hospitals all over the country now amount to over £1,000 and, in addition, individual doctors have contributed over £600. But much more is wanted if the hospital is to be a fitting tribute to the Russian defence of Stalingrad. Cheques should be made payable to the Joint Committee for Soviet Aid, crossed "Stalingrad Hospital Fund," and sent to the Organizing Secretary of the Joint Committee, 171, St. Stephen's House, Westminster, London, S.W.1.

The Council of the British Association of Physical Medicine has elected the following officers of the Association for its first year: President and chairman of the Council, Lord Horder; hon. treasurer, Dr. M. B. Ray; hon. medical secretary, Dr. P. Bauwens; hon. general secretary, Sir Frank Fox. Other officers will be appointed when the membership of the Association has been extended. The Council approved 50 new members and consideration of other applicants was held over until its next meeting. Registered medical practitioners interested in physical medicine are invited to apply for membership. The address of the Association is 11, Chandos Street, London, W.1.

In the budget of the London County Council the amount to be voted for hospitals and medical services for 1943-4 is £6,482,735, an increase of £359,350 as compared with 1942-3. The increase is due mainly to cost-of-living additions and increased rates of pay for staff, the bringing into commission of additional beds, an estimated higher average bed occupation, and the continued rise in prices. In addition to the amount mentioned there will be an expenditure of £68,000 in 1943-4 in applying the Rushcliffe Committee's recommendations for increases in nurses' salaries.

During last year 12 institutions were approved by the Central Midwives Board—making 83 in all—for the purpose of giving instruction to midwives in the use of a recognized apparatus for nitrous oxide and air analgesia. The Board has asked the guidance of the Royal College of Obstetricians and Gynaecologists as to the need for persisting in the requirement that when a midwife gives gas-and-air analgesia on her own responsibility to a woman in labour a second person should be present. The reply of the College is to the effect that the presence of a second person is necessary in order to minimize the risk of infection, but the class of second persons allowed to be present is enlarged, and in addition to another midwife, a nurse, or a senior medical student may include a woman over 21 who has been for at least a year a V.A.D. or ordinary member of the British Red Cross Society or Order of St. John or a duly enrolled member of the Civil Nursing Reserve. The Board has also decided to take steps to compile a register of midwives qualified to administer analgesia.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to 1 EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (from 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be sent to the Secretary.

TELEPHONE NO.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES.—EDITOR, *Attilage Westcent*, London; SECRETARY, *Medisera Westcent*, London.

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Glutamic Acid for Epilepsy

Q.—A patient has sent me a cutting which quotes a report by Drs. Waelisch, Price, and Putnam of the New York Neurological Institute advocating treatment of petit mal by mixed laevo- and dextro-glutamic acid, given in the form of a hydrochloride, in capsules, the dosage being from 12 to 20 g. a day. They report diminution of attacks, together with increased mental and physical alertness. I should like to know whether this treatment has been tried in this country, and if the preparation in question is on the market.

A.—Dr. Tracy Putnam has for many years encouraged investigations into the effect of different therapeutic agents in epilepsy, and work in his department was responsible for the successful applications of the hydantoins, of which epanutin is an example, to the treatment of convulsions. Treatment by glutamic acid is still in the experimental stage, and I have not heard of any controlled trial of it in this country. It should be readily available by special order from any of the large drug firms, but it might be well to delay its use in individual cases until its relative efficiency compared with bromides, phenobarbital, and the hydantoins has been established.

Anatomical Nomenclature

Q.—Immediately after the last war I learned anatomy partly in "New Terminology" (Basle nomenclature) and, especially in the clinical years, also in the "Old Terminology." In reading articles, considering reports about patients and so on, I now find myself very confused. Has any standard terminology yet been agreed upon and universally accepted; and if so, can you recommend a suitable book in this terminology for a G.P. to use in brushing up his anatomy?

A.—A standard English terminology was agreed in 1933 and was accepted by medical schools and publishers. It is a revised form of the "B.N.A." (*Basle Nomina Anatomica*). It was published as a separate report by the Anatomical Society of Great Britain and Ireland, after several years' work by a specially appointed committee, and is sometimes known as the "Birmingham Revision" or "B.R.," since it was finally approved at a meeting of the society in that city. This terminology was introduced into Johnson's *Synopsis of Regional Anatomy* in 1934, Cunningham's *Practical Anatomy* 1935, Buchanan and Cunningham's textbooks 1937, and Gray's *Anatomy* 1938. Most recent editions of anatomy books contain glossaries showing the more important changes from the old contain glossaries showing the more important changes from the "B.N.A." In most foreign countries the "B.N.A." is at present in use, often alongside some indigenous terminology. The "B.N.A." is a terminology agreed by an international committee shortly before the last war. It was intended to replace the various systems in use in different countries, and it gave an opportunity for reducing the number of synonyms which abounded, for example, in the so-called "Old Terminology" in English. It was anticipated that revision would be needed from time to time as new knowledge and experience made it advisable, but this has never been carried out on an international basis. New terms as they arise are frequently linked with some author's name for the sake of clearness in discussion, but it is an agreed policy that personal names should be replaced as soon as possible (as in the "B.N.A."). Confusion of terms in clinical literature arises from the employment by some writers of old names that have been superseded. It is desirable that writers and teachers should conform to the accepted standard terminology.

Adolescent Kyphosis

Q.—A woman patient aged 30 had adolescent osteochondritis, at it is sometimes called. Though it caused no symptoms at the time, she now has three lower dorsal vertebrae semi-fixed, and x-ray examination shows the intervertebral bodies thinned, with some osteophytes on the bodies of the vertebrae. She has pain in the

back, on stooping particularly, but also on walking or standing for more than an hour or so. Massage, sun-ray, and exercise have improved matters, but she wants to get to work, and often the ache prevents her from carrying on with her job. The present attack of pain was due to overwork on her job as cook in a day nursery. What is the prognosis? Any suggestions for treatment would be acceptable.

A.—The condition appears to be what is more commonly described as adolescent kyphosis and is due to the effects of strain, especially lifting or carrying weights, in adolescence, upon a spine weakened by developmental defects or by vertebral epiphysitis. The subject was discussed in the Orthopaedic Section at the Annual Meeting of the B.M.A. at Bournemouth in 1934, and two important papers read then were reported in the *Journal*: the first by Lambriundi (*Journal*, Nov. 3, 1934, p. 800), and the second by Jacques Calvé (*Journal*, Dec. 1, 1934, p. 983). They supply an excellent review of the subject as to both aetiology and treatment. The ideal to be aimed at in treatment is to strengthen the spinal musculature by appropriate active exercises devised to develop a natural muscular "corset." A light spinal brace on the Goldthwait principle may be helpful until the muscles can be developed and trained for the purpose. No treatment is likely to reduce the kyphosis or alter the vertebral condition, but heat and massage, if not overdone, will give relief to the effects of strain. The condition is not likely to get any worse, though the further development of osteophytes—Nature's attempt to buttress the weakened structures—may lead to some lessening of spinal mobility.

Treatment of Syphilis

Q.—Is there any hope of getting a complete cure with injectio bismuthi in a person suffering from secondary syphilitic ulcers? What would be the correct dosage, and frequency, of injections? Is there any preparation of arsenic which can be given either intramuscularly or intravenously which would not cause a reaction? I have a patient who after an intravenous injection of sulpharsphenamine has a severe reaction, with syncope, vomiting, pains in the limbs, etc. What treatment would be the best?

A.—Yes! Injectio bismuthi should at any rate cause the disappearance of the lesions, though it may take a long while to reverse the serum reactions and bring about complete cure. The dosage—assuming the patient is a male of average weight—is 1 to 5 c.cm. (0.2 to 0.3 g. bismuth metal) once weekly given intramuscularly. A careful watch should be kept for gingivitis and also for albuminuria. These injections should be given in courses of 4, with intervals of four to five weeks between courses.

Sulpharsphenamine has very little therapeutic effect on syphilis when given intravenously. It should be given deep subcutaneously or intramuscularly into the buttocks in doses of 0.45 to 0.6 g. once weekly dissolved in 1 to 2 c.cm. of distilled water. These injections are unlikely to cause any general reactions and should be given concurrently with bismuth. The site of all deep subcutaneous and intramuscular injections should be massaged firmly for several minutes after withdrawal of the needle. The two drugs used concurrently should give the best results. If the patient does not prove tolerant, three courses, each consisting of 5 to 6 g. of sulpharsphenamine and 2 to 2.5 g. of bismuth metal, should be given after the blood reactions have been reversed to negative. Intervals between courses may be increased after the first six months of treatment. In view of the fact that sulpharsphenamine occasionally causes purpura it might be worth while trying neosarsphenamine intravenously, but if this is used it would be well to start with very small doses, gradually increasing according to tolerance.

The reactions described are of the nature of nitritoid crises, and may be prevented by the intramuscular injection of adrenaline 0.5 c.cm., 1 in 1,000, a few minutes before the arsenical injection.

Masturbation in Women

Q.—I have recently been consulted several times by women who, in the absence over-seas of their husbands, have developed the habit of masturbation. Although this brings them physical relief, it causes a new strain as they feel they are abnormal. I would be grateful for help in answering the following questions which they put. (1) How widespread is this practice? (2) Can it cause physical harm? (3) Can it make normal intercourse less satisfactory? (4) How can they be helped to overcome the habit?

A.—We have submitted the above question to a woman doctor with wide experience in the sexual problems of women. Her reply follows:

There could be few subjects upon which individual judgment would be more divided than upon this. It seems safe to say that the trend of present opinion is to regard a moderate degree of masturbation as not necessarily abnormal or detrimental. The majority of women may not find unaccustomed celibacy difficult to bear, but many undoubtedly do. Such women find that the condition of continuous sexual tension is liable to be very exhausting and unprofitable and many find that masturbation offers some degree of solution. The cases of masturbation which produce pathological symptoms

are the only ones which usually seek medical advice. They will be found mainly among two groups of people: (1) those who have yielded to the habit in spite of strong conscious or unconscious feelings of guilt; and (2) neurotic patients in whom the symptom is not due to pressure of sexual feeling, but is adopted (as by unhappy children) as a form of pleasure to substitute for feelings of inferiority, or for other deprivations.

Advice given should depend upon the type of case: the former group presents the lesser problem. Many such adults were brought up in nurseries where masturbation was the unforgivable sin. Children were warned that mutilation, sterility, insanity, and even death would result. The horror of such threats is usually "repressed," but their dynamics are responsible for much of the savage condemnation of masturbation, and for the advent of hysterical symptoms (e.g. exhaustion, headache, vertigo, etc.) which are so liable to follow the act in such people. It is necessary to explain these facts and reassure the individual that no physical harm can result. A normally orientated woman will run no risk of coming to prefer masturbation to marital intimacy: this occurs occasionally in people who already have neurotic difficulties which prevent their response to coitus being fully satisfactory. Coupled with such reassurance a reminder is valuable that some reasonable degree of restraint and deprivation may be more advantageous for the personality than over-ready acceptance of comfort. Energies should be directed so far as possible into work, interests, and exercise. Among the second group will be found all degrees of neurotic personality, the semi-frigid and semi-impotent being commonest; here, too, will be the neurasthenics, and often the psychotic types. The treatment of such cases would be too broad a subject for this reply, and the majority of such patients are best referred to the medical psychologist.

Fröhlich's Syndrome

Q.—A boy aged 13 weighs 12 stone, the fat being distributed chiefly about the lower abdomen, buttocks, and thighs. Pubic hair is present but localized, to the region about the symphysis. The testes are partially developed. Is hormone treatment of any value in such a case? The parents are of the working class, and I hesitate to ask them, eager as they are, to spend money on expensive preparations unless there is a reasonable chance of improvement.

A.—This appears to be a partial Fröhlich's syndrome. Testicular development could be augmented or accelerated by gonadotrophic hormone of pregnancy urine, in doses of 500 international units intramuscularly twice a week for six weeks. The adiposity could be mitigated by thyroid and diet.

Combined Diphtheria and Pertussis Prophylaxis

Q.—What in general is the opinion regarding the use of combined diphtheria and pertussis vaccine? Is it safe to use on an infant of 6 months? Would you recommend it?

A.—Combined diphtheria and pertussis vaccine has been shown experimentally to be at least as effective as either antigen used separately.¹ Similarly, combined immunization with tetanus toxoid and T.A.B. vaccine has been shown in the human to be as effective as either preparation alone. It is sometimes stated that infants do not respond well to the injection of any antigen, but Lapin² has recently shown that babies can be immunized against pertussis as effectively as older children. Pertussis is peculiar among the childhood fevers in that it has a considerable incidence among children under a year, estimated at 10 to 20%; even more important, about one-half of the deaths from pertussis occur in this age group. It is therefore advisable to begin immunization against pertussis as early as possible, and it is both safe and wise to immunize any child of six months. Diphtheria, on the other hand, has its greatest incidence later in childhood, and, while immunization may be combined with that against pertussis, it would be desirable to give the child a boosting dose of combined diphtheria and pertussis vaccine one year later.

REFERENCES

- ¹ Schürze, H.: *Lancet*, 1940, 9, 192.
- ² Lapin, J. H.: *Amer. J. Dis. Child.*, 1942, 63, 225.

Beeswax

Q.—What is the chemical composition of beeswax? Have we any ferment which render it soluble and give it food value? If indigestible, has it any action on the bowel causing constipation or diarrhoea if taken in quantity?

A.—Beeswax is a mixture of several substances. Its composition varies according to the method of preparation. The two main constituents are myricyl (melissyl) palmitate ($C_{41}H_{82}O_2$) and cerotic acid ($C_{26}H_{52}O_2$) in the approximate proportions of 6:1. In addition there are small amounts of free melissic acid ($C_{26}H_{52}O_2$), myricyl alcohol ($C_{26}H_{52}O$), ceryl alcohol ($C_{28}H_{56}O$), and two hydrocarbons—heptacosane ($C_{27}H_{54}$) and hentriacontane ($C_{31}H_{62}$). Small amounts of unsaturated fatty acids are also present. Some constants of beeswax are: specific gravity 0.961–0.968; solidification point 60.5–62° C.; iodine value 8.8–10.7; saponification value 88–96; acid value 16.8–20.6; unsaponifiable

well to recently discovered drugs. The incidence of dysentery among enemy troops, on the other hand, has been much higher, and it is said that a part at least of our success at El Alamein was due to the enfeeblement of both Germans and Italians by widespread dysentery.

All honour must be paid to the medical services of the Navy, Army, and Air Force for their successful achievements in maintaining the health and efficiency of the Services under fighting conditions, and credit is also due to the Ministries of Health and of Food and to the medical services of this country for the high standard of health—higher even than it has ever been in peacetime—of the general population. Having paid this tribute, I regard it as a duty to remind you that these health results, both in the Services and among civilians, during war have a more fundamental cause than the administration and practice of medical men. I refer, of course, to the work of those engaged in medical research, who have provided the knowledge for the maintenance of health and the methods for preventing and for curing the deadly diseases of war. So far as I am aware, in the public references made to the subject of health and disease in wartime no credit has been given and no reference has been made to this magnificent achievement of scientific research. The work of Government Departments (Service and civil), of medical men (Service or civil), and of nursing staff in controlling disease can only be as good as knowledge allows it to be, and this knowledge has come, and can only come, by medical research. I suggest that medical scientists have served this country and its fighting Services well, and in counting our blessings let us not forget the enormous debt of gratitude we owe to this small but almost unknown body of men and women, scattered about in the research institutes, universities, and hospitals, who, by devoting their lives to the search for new knowledge, have forged the weapons which have proved so effective for the maintenance and restoration of health in wartime.

The Medical Research Council

In the course of my further remarks it will be necessary for me to refer often to the Medical Research Council, and it may be well to explain what this body is. Although it is an institution of the State, financed by the Government, it is not a large self-contained Department like the Ministry of Health and other Government Departments. The Council itself is a small body which meets once a month, and is made up for the most part of men of great experience in different branches of medical science, changing partially each year. It has a small administrative staff and a larger, though still small, permanent research staff. As its object is to help and co-ordinate medical research generally, much of the work with which it is associated is done in the universities and hospitals of the country, including those of this city, by the professors, lecturers, and medical men on the staffs of these institutions. When, therefore, I talk about the Medical Research Council, this is simply a short way of referring to the organized medical research of most of those engaged professionally in this country in such labours. Any success it attains or has attained can only be regarded as a reflection of our general standard of medical research, and must largely depend also on the maintenance of the good will and active co-operation of these investigators.

Even in peacetime a large proportion of the medical research in Britain is in one way or another associated with the Medical Research Council. In war the natural trend of events makes this association closer. The reason for this is obvious. Most men engaged in research want to direct their energies to the solution of problems that benefit the war effort. A body like the Medical Research Council, working closely with the Services and other Government Departments, is more aware of the immediate problems requiring investigation. In these times, therefore, either research workers ask the Council for advice on important problems or else the Council approaches suitable workers for their help. Working committees are formed of groups of investigators in each subject, so that each worker can be kept informed of the investigations of others and the researches can be co-ordinated. About 40 research committees on different war problems have been formed, and these cover a large part of the field of medical science. Representatives of the Services are members of all war committees. It must

be emphasized that the initiative for action often comes from outside the Medical Research Council.

In peacetime the Medical Research Council does not finance research work which is exclusively of interest to the fighting Services, but from the outbreak of the present war this policy was changed, and all the resources, both of personnel and of finance, were made available for the solution of Service problems. A great reorientation of research took place, fundamental work of a long-term nature being largely replaced by investigations of a short *ad hoc* nature with immediate practical objectives. However, even in wartime, some fundamental research has continued, partly because it is not possible to place every individual worker on a war problem, and partly because some practical problems of war are always arising which can only be solved by a study of the basic principles of medical science.

Under normal peacetime conditions the Medical Research Council has no administrative duties outside the promotion and carrying out of research. On the whole this is a most salutary rule, although it has its drawbacks. For instance, it might happen that great delay in the application of new medical discoveries to the public service would be shortened if the discoverers had some say in administration. On the other hand, if a research department normally undertook administrative duties outside research it would often lead to great friction with the large administrative departments. Nor has it yet proved possible to obtain and retain the best research workers in an administrative department. These men want to work with their own kith and kin in an atmosphere of freedom, and they will not become a subsidiary part of a large administrative machine.

The general attitude of politicians and Government officials to all scientific men is that they must be "on tap" and not "on top"—*vide the Times*. Some scientists say they would not object to this position if there was any evidence that their superior administrators knew when, where, and how to turn on the tap and how to make use of the beverage (not "Beveridge") when they had got it.

If, then, a research department is outside the administrative sphere, it is obvious that it must always be prepared, when asked, to advise other Government Departments on technical matters within its competence, either by supplying information or by making the necessary investigations. As I shall show later, the advisory functions of the Medical Research Council have increased greatly during the war and a number of important actions of Government have been guided by the Council. In addition, even before the outbreak of war the pressure of events forced the Medical Research Council to break its rule and to take on administrative duties, and some of these instances will be mentioned not only because they have been very effective but also because they have filled important gaps in medical service and will probably have to continue in some form or other after the war.

No success could have been obtained had not very close and friendly relations been established in recent years between the Ministry of Health and the Medical Research Council. First let me say a few words about a new service known as the "Emergency Public Health Laboratory Service."

The Emergency Public Health Laboratory Service

The history of the establishment of this service is one of great interest, which will no doubt be told in full some day. It began with discussions between the Medical Research Council and the Committee of Imperial Defence, and more particularly with its secretary, Sir Maurice (now Lord) Hankey, who on this and many other occasions was a tower of strength and a most powerful supporter of scientific projects. The result was that a committee of the Cabinet asked the Council (with the blessing of the Ministry of Health) to organize and prepare for the establishment of this new service, to be ready on the outbreak of war. Laboratories were selected all over the country (mostly in public schools and universities), apparatus was purchased and stored, transport was arranged, and bacteriologists were chosen to take up their duties on receiving instructions. Immediately on the outbreak of war the laboratories were ready, with complete staff and equipment. Fifteen new laboratories were started and 28 other working

laboratories were brought into the scheme, and these are still functioning as one compact service.

It is not possible to disclose all the reasons for this new service, but it will be obvious that one good reason was the expectation that large-scale bombing of industrial centres would necessitate mass movement of the population, and that this, together with the interference with water and other supplies, might well result in epidemics. The fact that there have been no major epidemics during the war and that, indeed, the epidemiological health of the country has been better than in peacetime is at least partially due to this network of laboratories. It has been the constant endeavour of the staff to catch such epidemics at the beginning and, by co-operating with local health authorities, to find and eliminate the cause, and deal with the situation vigorously. By detecting the cause and eliminating it by segregation or otherwise, by determining the methods of spread and dealing with these by inoculation or other means, their efforts have been very successful. Let me give one of many examples of how this service works in dealing with an outbreak of infectious disease.

This is an excellent example of co-ordinated laboratory and field work. The occurrence of several scattered cases of typhoid fever in a certain county was investigated by one of the Emergency Laboratories, and the opinion was formed that the infecting agent had probably been carried by milk. Although most of the patients had been supplied from different dairies, all these dairies had drawn some of their milk from a particular wholesale depot. Inquiry showed that the milk coming into this depot was derived from four different sources. One of these, a group of farms in another county, came especially under suspicion, but inspection of each of the farms failed to reveal the presence of anyone with a history of typhoid fever. The quest for the original source of infection was thus held up for the time being. One point, however, was established: the strains of typhoid bacilli isolated from the patients were referred to a specialist attached to the headquarters of the Service, who found that all these strains belonged to a single bacteriophage type, D4, which had not previously been encountered in Britain. This left little doubt that all the patients had been infected from the same original source.

Months elapsed before a further group of cases occurred, this time in a different part of the county from that in which the first outbreak took place. It was found that the dairy supplying the patients had received milk from the same wholesale depot as before, and again the organisms isolated from the cases belonged to the D4 type. The clue to the puzzle was provided later, when a single case of typhoid fever occurred in the other county from which some of the depot's milk supply came. Inquiry into the source of infection in this case showed that the patient had until recently been employed as a milkman at one of the farms of the group that had been under suspicion a year earlier. A full investigation at this farm led to the discovery that the owner, although his medical history had not given rise to suspicion on the former occasion, was in fact a chronic typhoid carrier. It could therefore be concluded that, through faulty personal hygiene, he had occasionally infected the milk which he had been sending to the wholesale depot. Thus the co-operation of several laboratories with each other and with field investigators led finally to the detection of the distant source responsible for the outbreaks.

Blood Transfusion Service

The prime movers in the promotion of the Blood Transfusion Service, now so active and successful throughout the country, were a group of pathologists who independently came to the Council a year before the outbreak of war (indeed, immediately after the Munich episode) because they needed some official backing and a central organization to carry out their ideas.

The Council limited its own activities to the establishment and running of the four London blood transfusion depots, to the erection of plasma freeze-drying plant, and to helping the Navy, Army, Air Force, and Emergency Medical Service in their own efforts to supply blood or its products for transfusion, either by advice or investigation or by providing additional supplies. The spin-freeze-drying plant, for which the Wellcome Foundation supplied £20,000, is a fine example of ingenuity and skill. It is capable of drying 5,000 bottles of plasma a week (each bottle containing the blood plasma of three donors). It actually dries 2,500 bottles a week, and of these 800 bottles are for the Navy, 800 for the Army, and the remainder are distributed according to demand (Navy, Army, Air Force, and civilian). In addition the staff of this

service have carried out a great deal of research on blood compatibility and incompatibility, and have certainly improved the quality of the transfusion products. There has been a fine spirit of co-operation among all workers, both civil and Service, in this important project, and the country owes a debt of gratitude to them for providing both the civil population and the Forces with the vast amounts of material for transfusion that have been forthcoming. The lives of thousands of wounded Service men and civilians have been saved by transfusion in this war, and it is to be hoped that an organization of a similar nature, to cover the needs of the whole country, will remain in peacetime.

Pooling and Dispersal of Biological Immunizing Products

On behalf and at the request of the Government, the Medical Research Council made arrangements before the war for the pooling and distribution of emergency immunological agents to meet the partial needs of the fighting Services and the anticipated requirements of the civil population. By undertaking the provision of large stocks of such agents as tetanus antitoxin, gas-gangrene antitoxin, diphtheria toxoid, and various vaccines such as typhoid-paratyphoid, typhus vaccines, and other sera and acting as a central distributing agency, it is obvious that much expense was saved to the country, properly controlled distribution was obtained, a strict eye was kept on the potency and general excellence of the products, and new discoveries of importance were quickly brought into use in their preparation.

Registration and Allocation of Pathologists

In addition to these services the Medical Research Council set up a committee in 1938 to keep a register of and to allocate pathologists to war emergency duties. This committee has filled a most important gap in the medical services, and its very success in arranging for the supply of competent pathologists to the civil and military hospitals, both here and abroad, and also for that of laboratory assistants at a time when there is but a limited supply of such people, has hidden the difficulties of the task and even its very existence.

Advisory Functions of the M.R.C. in War

It may be well now to refer briefly to some of the more important instances in which organized medical research has been called on during the war to give advice to various Government Departments. Sometimes this advice could be given immediately on the basis of present knowledge, but often a considerable amount of *ad hoc* research had to be carried out to obtain the necessary information.

Food and Nutrition

Research workers on nutrition have had the satisfaction of seeing the adoption during wartime of some of the teachings on nutrition that they have been urging during the past 20 years or more. Among those worthy of mention are the increased consumption of milk by infants and children and by pregnant and nursing mothers also the increased consumption of potatoes and other vegetables and the change of bread made from white flour to flour of higher extraction. It would, however, be idle to think that all these changes took place because it was thought that they would be nutritionally advantageous. This was probably the reason in the case of milk but the economic and supply factors were the paramount causes in the bread and vegetable changes. It is, however, no good quibbling over the reasons; the fact is, the changes have been made and the country's health has improved accordingly.

The Medical Research Council took a strong line over the bread question almost from the beginning of the war, and published memoranda on the need for adopting an 85% extracted flour with a minimum of fibre and a maximum of wheat germ, vitamin E complex, and iron, together with additional calcium carbonate. With the excellent co-operation of the workers in the Cereals Division of the Ministry of Food, test loaves were made and detailed specifications of the desirable bread were issued. These were ultimately adopted by the Ministry, except that they halved the proposed amount of calcium carbonate. This was a pity, because the basis of this advice was most carefully considered and the proposals were unanimously made, both by scientists and by clinicians consulted by the Council. Some further improvement in the calcium content of bread has been recently made by the addition of 2 lb. of dried separated milk to 250 lb. of flour. The need for adding vitamins A and D to all margarine was also strongly pressed.

One of the paramount difficulties of mass feeding under conditions of control and restriction has been to find the best means of dealing with exceptions, such as are presented by invalids and those requiring special food. Action in this respect has been taken by the Ministries of Food and of Health on the advice of a special committee set up by the Medical Research Council known as the Food Rationing (Special Diets) Advisory Committee. Besides meeting the nutritional needs of those really requiring special consideration, this committee has to deal with people—only a small proportion of the whole, but a large number *in toto*—who think they are ill or who are full of special fads and fancies. All kinds of diseases have been catered for—diabetes, tuberculosis, steatorrhoea, dyspepsia, fevers and other acute illnesses—and the consensus of opinion is that the scheme has worked well. All individual cases, on special grounds, were considered by members of the committee and received careful attention. Any criticism there has been is largely due to misunderstanding of the problem to be faced. The view of the committee is that special feeding arrangements, in time of restriction, can only be made which aim at the rapid return of sick people to work or the retention at work of those chronically ill. It would be easy and natural to be kind to all sick and old people and give them the best of everything, but what they got in this way would clearly be at the expense of healthy people who have to carry on the work of the country and who must be kept healthy. Decisions were therefore made strictly on medical and scientific grounds with these objects in view, and compassionate grounds were not allowed to influence their advice. With very few exceptions, the medical men of the country have played their part well under difficult circumstances. Taking into account the great difficulties met with in rationing in the last war because of the claims of invalids, it cannot be considered that the labours of this committee have been in vain.

Drugs

On the whole the country has been well served with supplies of essential drugs. In the last war the Medical Research Council learned its lesson in the case of arsphenamine (salvarsan), an essential substance for the treatment of syphilis discovered by Ehrlich and supplied to us entirely by Germany. There were hardly any stocks in this country at the outbreak of the last war, and since none could be imported it fell to the Medical Research Committee (now Council) to arrange both for the study of its preparation and for large-scale manufacture. The inexplicable toxicity of some batches of the drug greatly added to the difficulty of supply. Even to this day all new batches of arsphenamine and its products are tested biologically before sale. Well before the present war, with the approval of the Committee of Imperial Defence, the Council initiated a movement which ensured that all essential foreign drugs not previously made in this country should be manufactured here if war broke out. A list of these drugs was drawn up and the Association of British Chemical Manufacturers was invited to divide the task of studying their preparation and manufacture among different firms, and so the position was secured. Except in the case of mepacrine (the German atabrin), the needs of which suddenly became enormous because of the loss of the world's main source of quinine when Japan took the Dutch East Indies, these arrangements have worked satisfactorily and, so far as supplies are concerned, no sick person has gone without the proper treatment for his condition.

As regards drugs in general, the Therapeutic Requirements Committee of the Medical Research Council has advised the Ministries of Health and of Supply on allocations when shortages of drugs were apparent, and have suggested substitutes. They also classified all drugs in categories of relative importance, so that these Ministries knew beforehand how essential each substance was in treatment and how urgent or otherwise it was that imports should be maintained or increased.

It would be possible to spend much time on this question of advice given by the Medical Research Council during war, but I must limit myself to the brief mention of two other instances. The Care of Shipwrecked Personnel Committee has advised the Navy and Ministry of War Transport on the care of shipwrecked sailors. Much research had to be carried out on the many problems raised. Most of these experiments had to be made on human beings, and it may be of interest to add that for part of this work conscientious objectors volunteered their services and cheerfully suffered a good deal of discomfort. One notable decision was made by this committee—namely, that water supplies were far more important than food supplies to shipwrecked sailors—and action was taken accordingly.

When the incidence of tuberculosis greatly increased early in the war, the Ministry of Health asked the Council to study this subject, giving its members the widest terms of reference. The committee set up to do this work not only designed a new mass-radiography apparatus, which will shortly be in general

use, and tested it on thousands of workmen and others, but also drew up a scheme for the care and treatment of tuberculous people, which was accepted by the Government and formed the basis for legislation. This was no mean achievement, and will have great repercussions on the incidence of this disease in the near future.

I have given an account of these co-operative developments of wartime because they seem to me to illustrate how a research body and administrative Government Departments should work together, and how fruitful and rapid such co-operation can be. If only this system could be continued and extended we should hear much less about the frustration of science.

Nevertheless, I should be sorry if I gave the impression that all liaison work of this nature has been as successful as the instances described. Much has been said and written during the war about the failure of Government Departments to make use of scientific help. Great improvement seems to have taken place in this respect, especially in the physical, chemical, and engineering sciences, but there are still many sad failures and delays to bring the fruits of medical science into the war effort. These are generally due to human frailties and not to wrong machinery.

Medical Research for the Fighting Services

Much of the research work previously mentioned has been concerned primarily with civil life under war conditions and only secondarily with the Services. I should like to refer briefly now to war work with greater implications to the Services and less, but still often substantial, advantage for the civil population. This has fallen into two main groups: first, work of a clinical and pathological nature on such problems as wounds, burns, fractures, infection of damaged tissues, traumatic shock, blood transfusion, and brain and nerve injuries; secondly, the study of the best means of increasing the efficiency, safety, and comfort of fighting personnel. This latter group calls for investigation mainly by physiologists and psychologists.

As regards the work centring round wounds and injuries, the two main problems are those of traumatic shock and infection, which are the factors determining death. If shock and infection can be avoided or treated satisfactorily, modern surgery can ensure recovery after the severest mutilation. Briefly, the research work on traumatic shock has been disappointing in spite of the greatest efforts both here and in America, and no doubt also in enemy countries. Between the two wars practically no advance in fundamental knowledge of the subject took place and nothing comparable to the discovery of blood transfusion that came in the last war. Methods of transfusion of blood and its products have, of course, improved, and their use has been greatly extended, but we have little or no more knowledge of the pathological process of shock, and there are still many instances of shock developing and proving fatal in spite of blood transfusion. Confusion has been introduced into the study of shock by the difficulty of defining the condition, and some research workers have been more iconoclastic than constructive in their teachings. Histamine as the curative agent, accepted in the last war, has been generally repudiated. The histamine hypothesis served its purpose well, for it was mainly instrumental in introducing the practice of treating shock by blood transfusion. A small beam of light on the subject of traumatic shock has recently appeared from a neighbouring university, but whether it will wax or wane in strength only the future can tell.

In the case of infection, both general and wound infection, quite another story must be told; it represents the greatest medical advance of the war, and will be of inestimable value to mankind at all times.

A Great Medical Advance

The astounding advance in recent years in combating generalized blood infection by chemotherapeutic drugs is so well known as to require but little emphasis. Deadly diseases like streptococcal septicaemias, cerebrospinal fever, and pneumonias have had their lethal effects greatly reduced by the sulphonamide derivatives. Great progress has been made on this subject, even during the war, and newer and better sulphonamide drugs, which are both more effective in their action

and less toxic to the patient, have been discovered. Their field of action is also being extended, and now includes excellent curative effects of the more insoluble products, sulphaguanidine and succinyl sulphathiazole, in bacillary dysenteries and probably even in the diarrhoeas of infants and young children, which account for so many deaths in this country.

Recent reports from Britain and from the U.S.A. all bear witness to the remarkable curative effects of penicillin. The great difficulties of making this substance on a large scale are gradually being overcome, but it will probably be some time before it is an easily acquirable remedy. Penicillin has important effects even in staphylococcal septicaemia, a condition which previously has not responded to treatment even with the sulphonamide drugs. In a large series of such cases in the U.S.A. treated by penicillin, previously nearly always fatal, the mortality rate came down to 20%. In chronic bone infections also, which have previously resisted all treatment for months or years, the curative effect of penicillin has proved to be very great. Penicillin has the advantage of curing infections by many sulphonamide-resisting micro-organisms. Almost every week new fields in which penicillin is effective come to light.

So far I have mentioned the use of these bacteriostatic drugs given systemically, but mention must also be made of a very important development of the war—namely, the successful local treatment of infected wounds and injuries. Many will remember that the vast experience of the last war indicated that treatment of wounds by antiseptics was regarded generally as a failure. Medical research in this war is coming to the opposite conclusion, and we are now, by the use of these substances, in the position of having much greater control of wound sepsis. The same applies to burns and industrial injuries. Lister would have been interested in this turn of the wheel.

The recent success of local treatment depends on the discovery of new antiseptics—the sulphonamides, especially sulphamamide and sulphathiazole; also penicillin, propamidine, and the amino-acridine compounds, of which proflavine (2:8-diamino-acridine) is the best-known. Almost as important in the success attained in this field is better knowledge of how to use antiseptics.

It is interesting to note that, except for the sulphonamides and in this case, also, their early clinical establishment depended largely on British research, the development of these drugs and the knowledge of their antiseptic properties in wounds has been mainly done in this country. Much of the success obtained in this recent work has depended on discoveries related to the right way of applying them, and this side of the problem still needs extending. What is required is low solubility, which allows a small but effective concentration, together with long persistent action. These conditions have been obtained with the sulphonamides, proflavine, and propamidine, which are applied to the wounds in solid or semi-solid form and allowed to act over long periods. Penicillin, while very strongly bacteriostatic, has the drawback of being too rapidly absorbed and requires constant application, but recent work indicates that it may be possible in the future to use preparations which, while themselves inactive, slowly dissociate, with the liberation of active penicillin.

Generally speaking, the advance in the treatment of infection by systemic, alimentary, and local methods has been amazing, and it looks as if, apart from virus infection, the back of this important problem is broken. The value of recent medical research in this field, both to man and to animal, cannot be exaggerated, and a victory over disease has been won which, in terms of saving life, will in a short time far surpass the losses caused even by such events as world wars.

Nothing can be more important than that the medical man, both Service and civilian, should realize his responsibility in keeping abreast of this rapid development in treating infection, both local and generalized, by these drugs. It is unpleasant to be constantly reminded that gonorrhoea is on the increase in this country, at a time when doctors have at their disposal a drug which, some experts declare, will cure 90% of such cases in three days' treatment. It is of interest to note that sulphonamide-resistant gonorrhoea cases, which, although relatively few in number, are a real social burden, can be cured in two days by penicillin.

Research on Fighting Personnel

One of the most remarkable developments of the war, which has been largely in the hands of medical scientists, has had nothing to do with the study of clinical conditions, but has been concerned with the maintenance of the safety, efficiency, and comfort of fighting personnel. With the vast mechanization of combat the tendency has been to centre most interest on instruments of war and to leave the men who had to use such instruments to get on as well as they could. Many machines were not only intricate in their nature but placed the individuals working them in such unnatural conditions that it was impossible to retain their efficiency and often, indeed, their judgment or consciousness. Many instruments of war demand the highest skill and intelligence. An aircraft, a tank, or a submarine with crews whose surroundings have lowered or deprived them of this intelligence is not much use. Again, all such instruments must be so designed as to allow the men to work them in comfort. Personnel must also be chosen who have the best natural aptitude for working them. The growing importance of these and many related problems has resulted in the setting up of three committees—the Flying Personnel Research Committee, the Military Personnel Research Committee, and the Royal Naval Personnel Research Committee. The first of these was started by the Air Ministry a year before the outbreak of war, and the Military Personnel Research Committee and the Royal Naval Personnel Research Committee are committees of the Medical Research Council, upon which the Army and Navy respectively are strongly represented, appointed during the war. Each main committee has a number of working subcommittees to investigate special problems. While it would be wrong to give the impression that this line of research is entirely novel, it is true to say that the war has tended to emphasize its importance and to crystallize the point of view of the primary need for looking after the interests of the fighting man in relation to his weapon and his environment. Both lack of time and the necessity for war secrecy prevent me from dealing with this particular aspect of war research in any detail, but probably I can best give you an idea of the work and the kind of problems to be studied by referring briefly to some of the abnormal conditions an air crew have to withstand and yet retain the fullest intelligence. As an aircraft ascends the atmosphere becomes rarified and the pressure of oxygen diminishes. Ascending from sea level, aviators breathing ordinarily would become unconscious at an altitude of 16,000 feet, and they therefore require oxygen supplied to them from cylinders and delivered to their lungs through masks well before this height is reached. Even breathing pure oxygen in this way, they would become unconscious at about 42,000 feet, and above this height must breathe it under pressure, and, since the lungs would refuse to work if the pressure were applied only through their mouths, it is necessary that the oxygen should be supplied under more complicated conditions. But oxygen is not given simply to retain consciousness in the airmen. Consciousness may well be retained, but the crew may lose their intelligence and judgment. An individual who is only partially supplied with oxygen is rather like a drunken man, and not only does not realize his incompetency but also resents being told this fact. Such a mental condition can have almost unbelievable effects on behaviour, and you may have heard stories from time to time of such incidents. One such case was related recently by Dr. Bryan Matthews, who is head of the Physiology Laboratory of the Royal Air Force. While at a great height the pilot announced to the crew through the intercommunication set that he was about to land. He thereupon guided his plane gently along the upper surface of a cloud. Descending rapidly through the cloud he then proceeded to tell the crew to get out and began to do so himself. Fortunately the navigator understood what was happening and rapidly seized the controls. There is no place for amusing episodes of this kind in an aircraft, and not only is the efficient supply of oxygen a matter of first-class importance in aviation but the varied conditions to be met make it a difficult problem to ensure this.

In addition to the provision of oxygen supplies for aviators, there are a number of other important conditions from which they have to be protected. When an aircraft turns in the air the crew and plane itself are subjected to an increase in

gravitational effect. This may be 3, 4, 5, 6, or more times ordinary gravity, according to the speed of the aircraft and curvature of the turn. At about 5 g. blood is driven from his retina and he develops the condition of "black-out"—i.e., he is momentarily blind. At about 6 g. he becomes unconscious, again only temporarily, but during these few seconds he may have covered much space and, since he may be turning to avoid action or chasing an enemy plane, it is of the greatest importance that his wits and eyesight should be perfect during the turn. The problem therefore is to provide the airman with such conditions that his threshold for blacking-out is high, and yet it must not be higher than that which the aircraft will stand. Full consciousness would be no consolation if the aircraft broke up. Another trouble aviators have to meet at high altitude is due to the nitrogen dissolved in their blood coming out of solution and forming bubbles. These cause intense pain in joints and muscles, which may pass on to collapse and unconsciousness; and the condition is known as "bends." It is now known that "bends" can be mitigated by washing out the nitrogen from the tissues before ascent.

You will see that these problems require much research, and it is the object of the physiologist to arrange his investigations so that as performance of aircraft becomes greater so also must the airman be kept provided with better means to increase his own powers of control. So far the physiologist has responded to all calls, and improvement in aircraft performance has been accompanied by equal powers of control. Submarines and tanks also have their own problems, and much work has been done to promote the efficiency of their crews under the many different conditions which may arise. It would be possible to give many other examples of investigations on personnel necessary in wartime—clothing to meet the extremes of heat and cold as met with in Persia or on an Arctic convoy respectively, the best diet for normal and extreme conditions, food for special purposes like commando operations, conditions for optimum vision in the dark. Probably I have said enough to show that this kind of research on fighting personnel is of very great importance.

Conclusion

I have now given a general survey of medical research activities during the war. I regret that, for obvious reasons, I have not been able to include in it an account of many of the more interesting discoveries that have been made, but most of these will come to light in course of time. The advance of medical science, both before and during the war, has been fantastic.

This lectureship has been instituted in memory of a man whose outstanding quality was to apply scientific knowledge to the service of man. The work I have attempted to describe is exactly of this nature, and I am sure it would meet with his approval when I express the wish that this lecture be regarded as a tribute to all those engaged on medical research in this country. Sitting as I do at the centre of all these activities I am in a position to say that this body of men and women—pathologists, bacteriologists, physiologists, biochemists, pharmacologists, and clinicians—deserve well of their country for the unsurpassed quality of their work, for their devotion to its performance, and for their complete unselfishness in carrying out their allotted tasks.

The American Society for Research in Psychosomatic Problems held its first annual meeting on May 9 to 11, when a constitution was unanimously adopted and the following ten research committees appointed: on psychosomatic problems in obstetrics and gynaecology, in early infancy and childhood, in physiological mechanisms, in war medicine, in internal medicine, and in industrial medicine; psychosomatic implications of animal experimentation; psychosomatic teaching in medical schools; psycho-analytical research in somatic problems; and the psychosomatic approach to social psychosomatic problems; and the committees will correlate and initiate and cultural problems. These committees will present an annual psychosomatic research in their different fields, present an annual report, and suggest programmes for meetings of the Society and societies. The papers read to a joint meeting of the Society and the American Psychiatric Association on May 15 discussed new methods of psychosomatic diagnosis, including new Rorschach techniques and a new electronic method for measuring and recording deviations in psychosomatic functions.

PITUITARY HYPOTHYROIDISM WITH IMPAIRED RENAL FUNCTION

BY

G. E. BEAUMONT, D.M., F.R.C.P.

Physician to the Middlesex Hospital

AND

J. D. ROBERTSON, M.D., D.Sc., D.P.H.

Clinical Chemical Pathologist, Middlesex Hospital

(From the wards and Courtauld Institute of Biochemistry, Middlesex Hospital)

The following case presented certain features suggestive of hypothyroidism and nephritis. A series of investigations confirmed the diagnosis of a clinical syndrome related to a disorder of the pituitary gland which may be called pituitary hypothyroidism. This appears to be a rare condition, and resembles in many respects the few cases of pituitary myxoedema which have been reported.

Case Report

The patient is a female, single, aged 26. The present illness began at the age of 19, and there is little of significance in the history previous to this. The signs and symptoms in order of their appearance were as follows:

Abdominal Discomfort.—This was her first symptom; and she described it as a "fullness" even after small meals (aged 19). She also had acute attacks of diarrhoea.

Thirst.—Two years later (aged 21) she had severe attacks of thirst, especially in the winter. They were periodic, and are still present.

Oliguria.—She noticed that the output of urine fell appreciably with the onset of the thirst. At times micturition was very painful.

Swelling of Legs and Face.—At the age of 23, in the winter, she complained of periodic swelling of the ankles and legs. The leg muscles would become hard "like wood," making walking very difficult. The face and wrists also swelled periodically.

Cramps and Tetany.—She complained of slight cramps in the hands and legs at the age of 25. These became so severe that a tetanic attack in the hand often followed the taking of her blood pressure.

Coma.—A few months after the onset of tetany she became very weak and drowsy, with oliguria leading almost to anuria, bradycardia, marked fullness in the abdomen, and constipation. The attack lasted about 7 days. Two months later she had another and more severe attack during which she slept for three days. She appeared to make gradual recovery from both attacks.

Throughout the course of her illness this patient was admitted to various hospitals for investigation on four occasions. Only on the last occasion was a diagnosis made and treatment instituted. She was considered to be a case of "latent nephritis" because of a diminished urea clearance (an average of 25% of normal) and a urinary protein of 0.08%. She was advised to restrict her fluid intake, avoid salt, and be sparing with protein.

She was first seen by one of us (G. E. B.) on April 10, 1941 or one month after her most recent discharge from hospital. She was then aged 26, her height 5 ft. 3 in., and her weight 84 lb (i.e., she had lost 17 lb. since the beginning of her illness). She was thin but not emaciated, and neither her mental nor her physical condition suggested anorexia nervosa or myxoedema. Her skin had been very dry, with absence of perspiration, since the age of 16. The pubic hair was of female distribution; eyebrows, axillary hair, and hair on head were normal. She had noticed more hair on the arms and legs during the last four years, and on the thighs and upper arms during the last few months. Her appetite was good. The heart was normal, the blood pressure 110/60, the arteries not thickened, and pulse 60. Micturition occurred on an average only twice a day, and the output was scanty. Her menstrual periods began at the age of 14, and were regular until she was 16. There were no periods from 16 to 17, when they recurred and were almost regular until Feb., 1942 (aged 25). She then missed one period, and had no more after May, 1942, until they returned in Jan., 1943, when she was under treatment. They have since been regular. There appeared to be little else abnormal on physical examination.

It seemed improbable that she was suffering from nephritis of such a severe type as to lower the renal function to 25% (van Slyke), when the urine showed no casts and only an occasional trace of albumin, and there was no other clinical evidence of

nephritis. The periodical swelling of the malar regions of the face and the hardening "like wood" of the leg muscles from time to time suggested the possibility of masked hypothyroidism, a condition to which attention has been drawn by Beaumont and Robertson (1939). Dodds and Robertson (1939), and Beaumont (1941). Unexplained diarrhoea is also sometimes due to this cause. The basal metabolic rate was determined, and was -21 (Aub-DuBois), and the blood cholesterol was 170 mg. per 100 c.cm. It now occurred to us that the low van Slyke reading might be due to hypothyroidism rather than to a primary affection of the kidneys. It is known that in primary myxoedema a diuretic crisis usually occurs as soon as the patient responds to thyroid administration. This suggests that renal function is impaired in myxoedema, at any rate so far as water elimination is concerned. The normal blood cholesterol figure suggested that the hypothyroidism was not primary, for in primary myxoedema the blood cholesterol is almost always raised in untreated cases.

Progress.—As she was not now considered to be suffering from nephritis she was put on a normal diet with as much salt and water as she desired, and thyroid medication was begun with gradually increasing doses, from $1/4$ gr. to 3 gr. daily. At first her condition greatly improved until she had taken 3 gr. a day for a month. She then complained of feeling very ill, with intense lassitude, dizziness, retching, diarrhoea, and acute abdominal discomfort. The pulse was 100 , and the temperature 99° to 100° F. The urine output fell to 35 oz. a day. She looked very ill, was dehydrated, and had sunken eyes, a sallow greyish complexion, and dry skin. She was admitted to hospital for further investigation. Her blood chemistry gave the following findings: urea 87 mg., plasma chlorides 450 mg., serum sodium 291 mg. per 100 c.cm. In other words the urea had risen, the chlorides and sodium had fallen—a condition typical of an impending adrenocortical crisis. The urea clearance had fallen to 13% of normal. It is known that the administration of thyroid causes acute adrenocortical failure in cases of Addison's disease and in pituitary myxoedema.

The diagnosis of simple hypothyroidism was now considered as only part of the syndrome, the condition being probably a multi-glandular deficiency with the primary lesion in the pituitary gland. When her condition had improved further tests were carried out. A radiograph of the pituitary fossa was normal, and there was no evidence of a suprarenal or renal tumour as judged by clinical abdominal examination, a direct radiograph of the abdomen, and the uroselectan test. An "insulin-tolerance curve" was carried out on the standard lines described by Himsworth (1935), Fraser, Albright, and Smith (1941), and Fraser and Smith (1941).

Blood Sugars after Intravenous Insulin (the Resting Sugar taken at 100 mg. per 100 c.cm.)

	Resting	After 5-6 Units of Insulin Intravenously						
		20 min.	30 min.	45 min.	60 min.	90 min.	120 min.	
Normal	100	45	50	70	80	95	115	
Our case .. .	100	55	55	60	60	85	80*	
Case of pituitary hypofunction*	100	55	40	40	45	75	60	

* Lerman and Stebbins.

Our case showed "hypoglycaemia unresponsiveness" and failure of the diabetogenic hormone typical of hypofunction of the pituitary gland. In other words, there is a 50% fall in the blood-sugar level in 20 or 30 minutes, and at the end of two hours the blood sugar is less than 90% of the fasting level.

Urinary System.—A series of tests was carried out on the renal function. The urea clearance was repeated, and was found to be 19% of normal. In addition there was impairment of water elimination—only 350 c.cm. of urine were excreted three hours after ingesting a litre of water—and inability to concentrate urine above a specific gravity of 1011 . Despite these signs of renal impairment the blood urea was now normal (33 mg. per 100 c.cm.), the urine contained no albumin, and no abnormalities were found microscopically in the centrifugized urinary deposit. There was no previous history of nephritis, and the blood pressure was normal.

The diagnosis of pituitary hypofunction now appeared to be established. Such a syndrome would explain a combination of a multi-glandular deficiency affecting the thyroid, adrenal, and sex glands, giving hypothyroidism, cortico-adrenal insufficiency (accentuated by thyroid therapy), and amenorrhoea. The effects of replacement therapy were then studied.

Treatment and Progress.—The treatment included sodium chloride, cortical extract of suprarenal glands (later desoxycorticosterone acetate), pregnant mares' serum, and thyroid. Sodium chloride was given by mouth in doses of 180 gr. daily. Suprarenal extract (eucortone, Allen and Hanburys) was given daily intramuscularly in doses first of 2 c.cm., increasing by 2 c.cm. every second day up to 10 c.cm. After a month this was replaced by desoxycortico-

sterone acetate (percorten, Ciba) 5 mg. intramuscularly on alternate days for 14 days. Pregnant mares' serum (gonadyl, Roussel Lab.) was given daily intramuscularly in doses of 400 mouse units for two months, and thereafter three times a week for six months: now it is being given three times a week for two weeks every month before her periods are due. Thyroid was stopped for a month in view of its effect on the adrenocortical deficiency, and now is being given in doses of $1/2$ gr. twice daily.

The patient made considerable improvement as soon as the above treatment was instituted. She felt more energetic and looked well. Menstruation restarted. After six weeks of treatment her urea clearance rose to 44% of normal, and five months later it was within normal limits, with a greatly improved water elimination. Her weight has increased by over 16 lb., and she is now (June, 1943) back at work, her periods are regular, and she is feeling very much better in every way.

Discussion

In 1914 Simmons described a syndrome which manifested itself clinically in a pronounced loss of weight, premature senility, diminished sexual functions, weakness, and loss of hair. The finding at necropsy was almost complete destruction of the anterior lobe of the pituitary gland. The clinical symptoms closely resembled anorexia nervosa, and the differentiation between these diseases was difficult. Cachexia is not now considered a characteristic feature of Simmons's disease. More recently some unusual types of a pituitary syndrome have been described. Thus Castleman and Hertz (1939) reported a case of pituitary fibrosis with myxoedema. The case looked, and was, myxoedematous, with a blood cholesterol of 374 mg. per 100 c.cm. Although not suggested by the authors, it seems probable that the Simmons's disease developed in an established case of myxoedema. The parathyroids were fatty, the adrenals and ovaries atrophic, and the anterior lobe of the pituitary and the thyroid showed fibrosis. Lerman and Stebbins (1942) have reported two cases of the pituitary type of myxoedema, with typical myxoedema and the pituitary syndrome, including hypogonadism, adrenocortical insufficiency, and decreased diabetogenic activity. In one case in which it was estimated, the cholesterol was 120 mg. per 100 c.cm.—an unusual finding in primary myxoedema.

Our case possessed the following features typical of Simmons's disease: hypogonadism, adrenocortical insufficiency, and a decreased diabetogenic activity, together with hypothyroidism. The patient did not look myxoedematous and the blood cholesterol was normal, which suggests that the hypothyroidism was not primary. The only signs of a masked hypothyroidism were the "wood-like" stiffness of the leg and arm muscles and the dry skin. The most prominent sign in our case (and not previously referred to in the literature) was evidence of renal impairment as shown by diminished urea clearance, diminished water elimination, and a urine of low specific gravity. In a further paper it will be shown that only part, and not all, of these renal signs could be due to the hypothyroidic factor. In view of the improvement of the urea clearance and in the water elimination after treatment with the various forms of therapy (thyroid, adrenocortical, and gonadal hormones) it seems probable that the renal signs were in fact a manifestation of the disease.

Summary

A case of pituitary hypothyroidism is described which presented the following signs and symptoms. (1) Renal impairment:—This was the most prominent sign, and at first suggested a diagnosis of "latent nephritis." The urea clearance and water elimination were diminished, and there was a urine of low specific gravity. (2) Hypothyroidism:—This is to be distinguished from the typical primary myxoedema, in which the blood cholesterol is usually raised. (3) Cachexia. (4) Adrenocortical insufficiency. (5) Hypogonadism. (6) Decreased diabetogenic activity.

Treatment with sodium chloride and the hormones of the thyroid, gonads, and adrenal brought about a marked improvement in the clinical condition and restored the renal function to normal.

REFERENCES

- Beaumont, G. E. (1941). *Clin. J.*, **70**, 255.
— and Robertson, J. D. (1939). *Lancet*, **1**, 65.
Castleman, B., and Hertz, S. (1939). *Arch. Pathol.*, **27**, 69.
Dodds, E. C., and Robertson, J. D. (1939). *J. Obstet. Gynaec. Brit. Emp.*, **46**, 213.
Fraser, R., Albright, F., and Smith, P. H. (1941). *J. clin. Endocrinol.*, **1**, 297.
— and Smith, P. H. (1941). *Quart. J. Med.*, **n.s.**, **10**, 297.
Himsworth, H. P. (1935). *Clin. Sci.*, **2**, 67.
Lerman, J., and Stebbins, H. D. (1942). *J. Amer. med. Ass.*, **119**, 391.
Simmons, M. (1914). *Dtsch. med. Wschr.*, **40**, 322.

HUMAN INFECTION WITH BACT.
CHOLERAEE-SUIS

A REPORT OF TWO CASES

BY

HERTA SCHWABACHER, M.R.C.S., L.R.C.P.
Central Laboratory, Sector IV, E.M.S.JOAN TAYLOR, B.Sc., M.B., B.S., D.P.H.
Emergency Public Health Laboratory, Oxford

AND

M. H. GLEESON WHITE, M.B., B.S.
Central Laboratory, Sector V, E.M.S.

First isolated by Salmon and Smith in 1885 from pigs suffering from swine fever, and subsequently reported from various parts of the world as a cause of epidemics of acute food-poisoning, *Bact. cholerae-suis*, and the *kunzendorf* variant described by Hirschfeld (1919) and MacAdam (1919), have from time to time given rise to sporadic cases of generalized infection in man. Harvey (1937) published a detailed report of 21 such cases admitted to the Johns Hopkins Hospital over a period of four years. In a wide review of the literature he was able to find only 50 other proved cases, as opposed to 1,425 of the acute food-poisoning type. Since then Ravitch and Washington (1937), Cole and Nalls (1938), Clifton and Werner (1938), Hardison and Shipley (1941), Henderson (1942), and Neter (1942) have contributed individual cases, and Goulder, Kingsland, and Janeway (1942) in a more comprehensive paper have added a further 11 cases of their own.

Although in this country 12 (3.6%) of the 331 *Salmonella* food-poisoning outbreaks studied by Scott (Reports, 1923-38) were attributed to these organisms, only 4 examples of the generalized type of infection appear to have been recorded: two by Nabarro, Bruce White, Dyke, and Scott (1929), and one each by Boycott and McNee (1936) and Guthrie (1941). It would therefore seem worth while reporting the following two recent cases.

Case I (H.S.)

A woman aged 40 was admitted to Shroddell's Hospital under the care of Dr. M. E. Roberts on April 23, 1942, with pyrexia. She had been delirious on the night before admission. There was no history of abdominal discomfort, or of gastro-intestinal disturbance in any member of the patient's household.

On admission she was lethargic, stuporous, and obviously very ill. Her general condition suggested septicaemia; temperature 102° F., pulse 140, respirations 40. There were a few small clean healing areas on her right hand, said to have been the result of chilblains. The heart sounds were poor in quality, but no murmurs were audible. Blood pressure 110/80. No abnormality was detected in the central nervous system. The abdomen was not distended or tender, and the spleen was not palpable. There was no rash. A radiograph of the chest showed that the heart was atonic and somewhat dilated, and that the lungs were hyperaemic. A blood culture was taken on admission, and while awaiting the result she was treated expectantly with sulphapyridine, pentnucleotide, and cardiac stimulants. As a result of enemata she had two normally formed stools. Her condition deteriorated steadily, and she died on the sixth day of the disease.

Laboratory Findings.—The blood culture taken into liquid broth on admission (second day) was incubated aerobically, anaerobically, in 10% CO_2 in air, and yielded an organism of the *Salmonella* group. A blood count on the same day showed W.B.C. 7,600—lymphophonuclears 90%, lymphocytes 8%, hyalines 2%. There was a "shift to the left" without an absolute leucocytosis. The bacteria were cultured on desoxycholate-citrate medium, MacConkey's medium, and by the brilliant-green enrichment technique, with negative results.

Post-mortem Examination (Dr. Vaux).—A fairly well nourished body; small scars of newly healed lesions on several fingers of the right hand. Heart moderately dilated; myocardium pale and flabby; a few petechiae on the posterior surface of the ventricles. Lungs showed considerable congestion. Stomach mucosa reddened; a little bile-stained fluid content. Mucosa of small intestine and caecum somewhat reddened; Peyer's patches not enlarged; no ulceration. Colon appeared normal. Liver (3 lb.) pale and friable; cut surface—pattern blurred. Gall-bladder contained thick dark

bile. Spleen (11 oz.) fairly firm; cut surface—dark red with conspicuous Malpighian bodies. Lymph glands: Two or three swollen glands in the transverse fissure of the liver. Urinary system and brain showed no abnormality. (Bone marrow not examined.)

Microscopical Findings.—Heart: Myocardium showed a moderate degree of fatty change and occasional focal necrosis. Liver: spleen revealed collections of mononuclear cells. Gram-negative bacilli were seen in small numbers in the spleen but not in liver. Some were found in the lymph glands.

Bacteriological Findings.—An organism of the *Salmonella* group was isolated from the heart blood, spleen, and liver, but not in cultures from the mucous surface of the small intestine.

Case II (M.H.G.W.)

A butcher's boy aged 18 was admitted to the Royal Bucks Hospital under the care of Dr. V. Lloyd Hart on Sept. 14, 1942, complaining of spasms of severe generalized abdominal pain which had been ushered in some three days previously by a vague feeling of malaise coupled with severe headache, constipation, and the vomiting on two occasions of some thin watery fluid. Previous to this he had always enjoyed perfect health. There was no one else ill in the house at the time, nor were there any other similar cases in the neighbourhood. No history of "food-poisoning" was obtained.

On admission he was febrile—temperature 104° F., pulse 90, respirations 20, somewhat confused—and he exhibited the characteristic anxious expression and incessant plucking at the bedclothes of the "typhoid state." The tongue was dry and coated. The abdomen was slightly distended and tender all over. The rectum was full of faeces. Apart from dilated pupils, nothing abnormal was found in the central nervous system or in the cardiovascular or respiratory systems. A provisional diagnosis of typhoid was made and the patient treated accordingly.

Progress.—Next day the abdomen was distended, constipation continued, and a few "rose spots" appeared on the trunk. The increased in number during the next two days, when, on the seventh day of the disease, a little fluid faeces was passed. His temperature had remained up between 101° F. and 103° F. It now rose sharply to 105° F., with pulse 120 and respirations 30, and the patient's general condition started to deteriorate. The following day he became incontinent of faeces, with much diarrhoea, and on the ninth day there was retention of urine followed by haematuria. The next day a crop of irregular pinkish blotches was observed on the dorsum of the hands and forearms. By the following day similar marks had appeared on the thighs, trunk, and face. This was the eleventh day of the disease, and he was now deeply unconscious, cyanosed, and almost pulseless, with temperature 103° F., pulse 140, and respirations 30. He died in coma a few hours later.

Laboratory Findings.—Blood cultures taken on the fifth and ninth days were incubated aerobically and yielded an organism of the *Salmonella* group. A catheter specimen of urine taken on the seventh day showed occasional pus cells in the centrifuged deposit and gave a moderately heavy growth of a similar organism. Agglutination reactions: The patient's serum taken on the ninth day showed no agglutination in dilutions of 1/40 or over with the Standards Laboratory (M.R.C.), Oxford, suspension of *Bact. paratyphosum* "H" and "O," *Bact. paratyphosum* "C" "H," polyvalent *Salmonella*, *Bact. typhi-murium*, *Bact. enteritidis* (Gaertner), *Bact. newport*, or with a formalized suspension of an 18-hour broth culture of the organism of the *Salmonella* group isolated from the patient's blood. Blood counts: Seventh day, W.B.C. 5,000 (polymorphonuclears 58%, lymphocytes 37%, monocytes 4%, eosinophils 1%); ninth day, W.B.C. 8,000 (polymorphonuclears 83%, lymphocytes 15%, monocytes 2%). No specimens of faeces were examined.

Post-mortem Examination (Dr. John Murray).—The body of a youth of about 10 st. with an irregular maculo-papular rash scattered over the face, trunk, thighs, and dorsum of hands and forearms. Right auricle dilated; numerous petechiae scattered over the visceral endothelium; marked haemolytic staining of the cardiac and aortic pericardium; heart muscle firm. Trachea showed acute inflammation, with a lustreless reddish-black leathery mucosa. A quantity of blood-stained jelly-like material was expressed from the bronchus. Oesophagus contained a little blackish vomit. Stomach normal. The small intestine and colon were grossly distended with gas and the lower part of the latter being slightly inflamed in one of fluid faeces, the mucosa of the latter being slightly inflamed in one or two places. The general appearance was not unlike that of a paralytic ileus. Liver normal. Spleen grossly enlarged and friable with complete loss of normal pattern. Kidneys: Right—typical early pyaemic kidney with recent infarcts; left—similar, but only slightly affected. (Brain and bone marrow not examined.)

Microscopical Findings.—Lungs: Advanced generalized bronchopneumonia interspersed with large areas of septic infarction.

Spleen: Marked congestion and endothelial overgrowth of a typical "septic spleen." Kidneys: Numerous small septic foci and areas of recent infarction.

Bacteriological Findings.—An organism of the *Salmonella* group was isolated from the spleen and lungs but not from the intestinal contents.

Bacteriology

The organisms of the *Salmonella* group isolated from the blood culture and from the spleen, liver, and heart blood at necropsy in Case I, and from the blood culture and urine and the spleen and lungs at necropsy in Case II, were identical, and showed the following characteristics:

Gram-negative bacillus: non-sporing; actively motile; grew well on simple laboratory media at 37° C., more slowly at 22° C.; aerobic and facultative anaerobe. Biochemical: Acid and gas in glucose, maltose, mannitol, rhamnose (24 hrs.), and dulcitol (late 7 to 10 days) on primary isolation. No change in lactose, saccharose, arabinose, trehalose, and salicin. Litmus milk, alkaline on the third day. Indole, negative. H₂S, positive.

Antigenic Analysis.—On primary isolation all strains from both cases were found to be in the non-specific phase. The specific phase of the organism was finally isolated after repeated passage in 0.3% agar to which non-specific serum (Kauffmann group E, titre 1:25,000) had been added, making a final concentration of about 1:50 serum. It was noted that a non-specific serum of the homologous (Kauffmann C) group did not result in the isolation of the specific phase. This method is a modification of that described by Craigie (1931). The antigenic analysis is: VI, VII; c; 1, 3, 4, 5. These organisms are therefore *Bact. cholerae-suis* (with one minor cultural aberration—the production of H₂S).

By definition, *Bact. cholerae-suis* var. *kunzendorf* exists only in the non-specific phase, whereas *Bact. cholerae-suis* is diphasic. So that, although all the strains from these cases on primary isolation were thought to be examples of the *kunzendorf* variety, the isolation of a specific phase showed that they were in fact *Bact. cholerae-suis*. Similarly, Gard (1937) states that he was able to isolate the specific phase from all *kunzendorf* strains he examined. Bruner and Edwards (1939) obtained similar results with eight *kunzendorf* strains, including two from the National Collection of Type Cultures (London) previously identified as such by Bruce White.

Discussion

The underlying pathological process in these sporadic cases of generalized infection with *Bact. cholerae-suis* or the *kunzendorf* variant is essentially a bacteraemia, often protracted, with a tendency to localization in the lungs, bones, or joints. Harvey (1937) notes that lung involvement, usually a bronchopneumonia, occurred in one-third of his series of 71 cases. Other lesions recorded there and elsewhere include meningitis, bacterial endocarditis, and pyelonephritis. Infections complicating surgical procedures, parturition, and occasionally tumours are also described.

Clinically, these cases are characterized by an acute onset of a typhoid-like infection with marked pyrexia, headache, anorexia, vomiting, and abdominal pain. Rigors and joint pains are not uncommon, and abdominal distension with generalized tenderness and a degree of muscle spasm has occasionally led to a fruitless laparotomy. In the majority of cases diagnosis depends entirely upon the isolation of the causal organism by blood cultures, which are often positive as late as the fourth and fifth weeks of the disease. The urine, too, should also be cultured; but the faeces have rarely given positive results, and then only late in the disease. In the early stages there is usually a leucopenia, later replaced by a leucocytosis, should localization of the infection occur. Agglutination reactions are of value from the second week onwards, and surprisingly high titres often persist for months or even years afterwards.

At necropsy there are usually a degree of splenomegaly, cloudy swelling of the liver and kidneys, and petechial haemorrhages in the serous membranes. Focal necrosis similar to that found in typhoid and paratyphoid fever is often seen in sections of the myocardium and the liver. For the rest, localization of infection produces lesions which in no way differ either

macroscopically or microscopically from lesions at similar sites due to other pyogenic organisms. The causal organisms can be isolated, often in pure culture, from these lesions as well as from the heart blood and the spleen.

Of the two cases presented in this paper, Case I is an example of an uncomplicated bacteraemia with death from toxæmia before localization of the infection had occurred. Case II is similar, but this patient lived long enough to develop lesions in the lungs and kidneys. In neither case was there any indication as to the source of infection or portal of entry. This is in agreement with the majority of published cases. With the exception of a few examples of consecutive infection in mother and child, and the occurrence of an isolated case on a farm at a time when the pigs were suffering from swine fever, little is known of the mode of infection in these sporadic cases.

The pig is the largest natural reservoir of these organisms, which are responsible for a paratyphoid fever in young pigs and are the commonest secondary invader in swine fever—a fact which led them to be regarded as the cause of this disease until it was later shown to be due to a filterable virus. Consequently, as Savage and Bruce White (1925) point out, since practically the whole pig is consumed, viscera and all, often in only a semi-cooked state, these organisms are probably ingested in man more often than any others of the *Salmonella* group.

The comparative rarity of generalized infections in man would therefore seem to be due to the inability of these organisms to establish themselves in the human host in the small numbers in which they are usually ingested, rather than to any lack of opportunity to do so. Once infection is established these organisms show towards their new host a similar degree of virulence to that shown to their natural host, the pig.

Summary

Two fatal cases of generalized infection with *Bact. cholerae-suis* are described. The cultural characteristics and antigenic analysis of the strains isolated from blood cultures, urine, and post-mortem material are given.

The general clinical and pathological features of this type of infection are described and the value of blood cultures in their diagnosis is stressed. The mode of infection in these cases remains obscure, but reasons are advanced for regarding their rarity as due to this organism's inability to establish itself in the tissues rather than to any lack of opportunity to do so.

We wish to express our thanks to Dr. J. L. Dunlop, County Medical Officer for Hertfordshire, for permission to publish Case I; also to Dr. V. Lloyd Hart and Dr. M. E. Roberts for the clinical notes, and to Dr. John Murray and Dr. D. Vaux for the post-mortem reports.

REFERENCES

- Boycott, J., and McNea, J. W. (1936). *Lancet*, 2, 741.
 Bruner, D. W., and Edwards, P. R. (1939). *Amer. J. Hyg.*, 30, 75.
 Clifton, W. M., and Werner, M. B. (1935). *Amer. J. Dis. Child.*, 55, 553.
 Cole, D. B., and Nalls, W. L. (1935). *J. Lab. clin. Med.*, 23, 1223.
 Craigie, J. (1931). *Brit. J. exp. Path.*, 12, 75.
 Gard, S. (1937). *Z. Hyg. Infektkr.*, 120, 59.
 Gouldner, N. E., Kingsland, M. F., and Janeway, C. A. (1942). *New Engl. J. Med.*, 226, 127.
 Guthrie, K. J. (1941). *Arch. Dis. Child.*, 16, 269.
 Hardison, A. E., and Shipley, A. B. (1941). *J. Amer. med. Ass.*, 116, 829.
 Harvey, A. M. (1937). *Arch. intern. Med.*, 59, 118.
 Henderson, W. C. (1942). *J. Amer. med. Ass.*, 119, 259.
 Hirschfeld, L. (1919). *Lancet*, 1, 296.
 MacAdam, W. (1919). *Ibid.*, 2, 189.
 Nabarro, D., White, P., Bruce, Dyke, S. C., and Scott, W. M. (1929). *Ibid.*, 2, 868.
 Neter, E. (1942). *Amer. J. Dis. Child.*, 84, 255.
 Ravitch, M. M., and Washington, J. A. (1937). *J. Amer. med. Ass.*, 109, 1122.
 Reports (1923-35). *Ann. Rep. Mfr. Hlth.*, London.
 Savage, W. G., and White, P. Bruce (1925). *M.R.C. Spec. Rep. Ser.*, No. 92, London.

Blalock and Duncan have previously observed that a tourniquet applied to a severely injured limb for 5 hours much diminishes the chances of survival of the animal. They now show (*Arch. Surg.*, 1943, 46, 167) that cooling the part distal to the tourniquet lessens the ill effects of shutting off and then releasing the blood supply to an injured part. They suggest, therefore, that if it is necessary to apply a tourniquet to an injured limb (and it should be avoided if possible), the temperature of the distal, ischaemic, and anemic parts should be lowered artificially.

SYMPATHECTOMY IN TREATMENT OF THE
CRYOPATHIES

BY

E. D. TELFORD, F.R.C.S.

Emeritus Professor of Surgery, University of Manchester

(From the Neurovascular Clinic, Manchester Royal Infirmary)

The cryopathies include conditions such as frostbite, immersion foot and hand, trench and shelter foot. The inclusion of these lesions in one group is justified by the fact that their pathology is identical; they differ only in the degree of damage. While exposure to cold is no doubt the main factor, prolonged immersion must play an important part. Webster (1942) reports a series of cases, some of them gangrenous, which resulted from prolonged immersion in sea-water at 60 to 70° F.

The literature is already considerable. The subject has been fully discussed in recent important papers by Ungley (1942, 1943) and Greene (1942). These and other writers insist strongly that in the treatment of these patients the temperature of the damaged parts must be raised with extreme slowness and caution. A too rapid return to normal will be disastrous, especially if it be accelerated by any form of heat. Others have advocated sympathectomy in the immediate treatment. Against this suggestion is the fact that after rescue the chilled areas become notably hyperaemic, and it is in this stage that the local damage appears to increase or at least to become more obvious. It is not easy to see how a sympathectomy is going to act in tissues where so much damage to nerves is already present, and if it did act it could hardly be good practice to increase and prolong the stage of harmful hyperaemia. An analogy can be drawn from plant life. The gardener who has had the misfortune to have a delicate plant frosted would never dream of treating it by exposure to sun or raised temperature or by flooding with tepid water. He knows that his only chance is to withhold water and to maintain the plant under cool conditions, allowing the temperature to rise only with infinite slowness and patience.

The Sequelae and their Treatment

Although the majority of cases appear to make a good recovery with no, or at the worst trivial, loss of tissue, others continue to suffer from symptoms which are due to a combination of sclerosis and deficient blood supply. The after-troubles most often found are pain of a burning or tingling type increased by warmth and exertion, persistent indurated, swelling, chronic and very painful ulcers of pulps or extremities of digital stumps, loss of movement of fingers and toes, and occasionally a sensitization to cold which results in the Raynaud phenomenon. Hyperhidrosis may also be troublesome. These end-results are in fact those of vascular occlusion, and resemble closely those found in the more chronic types of thrombo-angiitis obliterans.

It seems reasonable, therefore, to hope that for these later troubles a sympathectomy may offer some prospect of relief. I have during the last five years had the opportunity of treating the later consequences of trauma from cold by preganglionic sympathectomy in five patients. In each of these cases a very gratifying relief of symptoms has been obtained. The patients were all men, of whom four were victims of frostbite—one in the hands and three in the feet—while the fifth was a negro seaman with grave damage to both feet from immersion. Brief notes of two of these cases are as follows.

Notes on Two Cases

Case 1.—A farm labourer aged 40 had the fingers of both hands frostbitten at his work. They recovered without loss of tissue, but at the end of eighteen months he was quite unable to work owing to chronic and very painful ulcers, together with a most troublesome Raynaud phenomenon. When seen in August, 1938, he could do no outdoor work because of the cyanotic attacks, and was suffering from pain and loss of sleep from chronic ulceration of the right index and left ring fingers. A bilateral preganglionic section of the cervico-dorsal chain was done in Sept., 1938. The result was immediately satisfactory. The circulation in the fingers improved and the ulcers healed. The Raynaud phenomenon, though not entirely abolished, was much reduced in frequency and severity. He has since been seen on many occasions, and remains well and in full work.

Case 2.—A negro seaman aged 24 was adrift in an open boat the North Atlantic during ten days in Nov., 1941. He was landed and was treated for six months in hospital in Newfoundland. In June, 1942, he was seen in this clinic, complaining of pain, ulceration, and inability to walk. Both feet were swollen, hard to the touch, and completely stiff. Tenderness and excessive sweating were noted. All the toes of both feet had been partially shed, and their stumps bore small chronic ulcers; the left fifth toe was gangrenous. He complained of constant burning pain, increased by warmth and attempts to walk. A bilateral lumbar-cord ganglionectomy was done by my colleague Miss Liebert in June, 1942, and resulted in immediate relief of pain, with rapid healing of the ulcers. The gangrenous toe did not improve, and was subsequently amputated, the wound healing readily. He has since continued well and gets about without pain.

These results would seem to indicate that sympathectomy is worth while in the chronic and painful sequelae of the cryopathies.

Conclusion

In the endeavour to estimate what benefit may result from the operation in any given case recourse may be had to preliminary tests of vascular efficiency—e.g., nerve block or foreign protein. In my experience the best method for the lower extremities is to use a thermo-couple thermometer provided with 8 or 10 leads, each carrying a point for application to the skin. These points are fixed on the areas selected for observation, and a movable plug allows the current from any one point to be recorded by the reflecting galvanometer. The temperatures are recorded with the patient on the theatre table, and at the end of half an hour's observation a temperature a spinal anaesthetic is given and the temperature again recorded. The normal rise in the feet in a young healthy adult is of the order of 8 to 10° C., but in cases such as those under discussion a rise of 1° C. would justify sympathectomy which can be carried out forthwith. In the upper limb general vasodilation may be employed, although it may be that, where all fingers appear equally affected, a simple block of the ulnar nerve at the elbow will give sufficient evidence.

REFERENCES

- Greene, R. (1942). *Lancet*, 2, 695.
Ungley, C. C. (1942). *Ibid.*, 2, 447.
— (1943). *Ibid.*, 1, 681.
Webster, D. R. (1942). *J. Bone Jt. Surg.*, 24, 785.

MISUSE OF INTRAVENOUS N.A.B. FOR
VINCENT'S INFECTION

BY

ERIC C. O. JEWESBURY, D.M., M.R.C.P., D.P.M.
Acting Squadron Leader, R.A.F.V.R.

Ever since Ehrlich (1910) first reported the use of intravenous arsenic in the treatment of Vincent's angina arsenicals have continued to be advocated for this purpose. To-day, when both the available supply and the cost of such things deserve special consideration, it is worth while questioning the value of N.A.B. and its allies, particularly when given intravenously, in the treatment of this infection.

The disease, termed "trench mouth" in the last war, is a common accompaniment of wartime conditions, and the still seems to be a fairly widespread impression that in severe cases intravenous N.A.B. is the most potent method of treatment. Since N.A.B., in direct contact with the organisms, has a high spirochaetocidal power, it is at least logical to apply it locally to the lesions in the mouth. But Vincent's infection, unlike syphilis, is a purely local condition, and attempts to isolate fusospirochaetal organisms from the blood stream of infected patients have never been successful. Occasional reports of Vincent's infection occurring in patients undergoing antisyphilitic treatment have cast further doubt on the efficacy of intramuscular or intravenous arsenic in dealing with the lesions in the mouth.

Vincent's Angina after Intravenous Arsenicals

Thus, Sutton (1924) reported the case of a syphilitic woman who first developed Vincent's angina eleven days after starting intramuscular injections of sulpharsphenamine. She had many carious teeth, and direct smears obtained from typical lesions

her mouth showed numerous spirochaetes and fusiform bacilli. After regular cleansing of the mouth with hydrogen peroxide and local application of arsphenamine solution, the condition healed in a few days and the treatment for syphilis as continued. Hillsman and Driscoll (1925) similarly reported the case of a syphilitic woman who developed Vincent's infection nine days after arsphenamine injections. Local applications of arsphenamine alone gave no relief, though the condition subsequently healed satisfactorily. Williams (1929) described the case of another woman who developed Vincent's angina for the first time while undergoing antisyphilitic treatment with intravenous neoarsphenamine. Local treatment with sodium bichlorate was followed by rapid clinical recovery and disappearance of organisms. Donson (1933) described the development of Vincent's infection in a man, with considerable sepsis, who was having a course of intravenous injections of eosalvarsan and bismuth tartrate. Spirochaetes and fusiform bacilli were found in profusion in smears, and there were no symptoms suggestive of arsenic or bismuth poisoning. The condition responded immediately to local treatment. Eichmann (1926) has referred to a group of cases having had treatment for syphilis (neoarsphenamine intravenously and mercury intramuscularly) for at least two weeks previous to the first appearance of Vincent's infection. Successful relief of pain and healing occurred in a few days with local neoarsphenamine applications once a day and hydrogen peroxide mouth-washes every two hours.

Farrell and McNichols (1937) also state that they have had six patients who were receiving arsenical treatment for syphilis and who developed Vincent's infection. Goodridge (1942) has lately described a case of chronic Vincent's infection in a patient undergoing antisyphilitic treatment. Careful local treatment, including the application of 10% chromic acid, brought about rapid recovery, and smears for Vincent's organisms became negative.

Two Recent Illustrations

I have recently seen two airmen whose cases relate to this matter.

Case 1.—This patient (aged 26), whom I saw by courtesy of Squadron Leader J. V. MacGregor, was under treatment for syphilis. He had recently had a bad cold, and after his ninth intravenous injection of N.A.B. (when a total of some 5 g. had been given) he developed painful tender gums, which bled. Swallowing and chewing became very painful, and ulceration developed around the lower left molars and inner side of the left cheek. Vincent's organisms were found in a direct smear. He had a partially ruptured lower left third molar with a tender gum-flap, and there was some cervical adenitis and mild fever. He was put to bed and treated with applications of 10% chromic acid followed by hydrogen peroxide (10 vols.). He also received two-hourly mouth-washes of hydrogen peroxide and 300 mg. of nicotinic acid daily. The pain disappeared within 48 hours of starting local treatment and his improvement was rapid. The ulceration healed, and the partially ruptured tooth was in due course removed. Vincent's organisms were no longer found in smears, and his antisyphilitic course was able to be continued.

Case 2.—The second patient (aged 22) was admitted to an R.A.F. hospital on account of malaise and jaundice which had developed during antisyphilitic treatment. He had completed a first course of intravenous N.A.B. (total 5.55 g.) in Aug., 1942. He started a second course two months later, and had received a further 4.65 g. of his last injection being given on Nov. 12. On Nov. 14 he felt unwell, and on Nov. 16 was seen to be jaundiced. He was apyrexial at this time, had no sore throat, and there were no lesions in the mouth or any adenitis. On Nov. 20 a van den Bergh test showed 6 units of serum bilirubin. On Dec. 2 his temperature rose to 100.2°, and an acute ulcerative stomatitis, localized to the right side of the mouth, was present. There was an irregularly erupted lower right third molar, and some pocketing of the gums in this area was noted. The right submaxillary gland was enlarged and tender. A direct smear showed very numerous Vincent's organisms; there were no haemolytic streptococci on culture. He received local treatment with 10% chromic acid and hydrogen peroxide, as had the preceding case. Nicotinic acid was not given. The condition responded rapidly, and in two days the temperature was normal and the ulcerations were healing well. The tooth was removed on Dec. 10, and a smear taken on Dec. 18 showed no Vincent's organisms.

The interest of this case lies in the fact that a patient having had so much intravenous N.A.B. as to become jaundiced is

still able to harbour Vincent's organisms in his mouth and to develop ulcerative stomatitis. If the drug is so valueless prophylactically, scepticism as to the value of giving a single intravenous injection in the treatment of Vincent's angina becomes thereby even more justified.

Animal experiments lend further support to this view. Thus Rosebury and Foley (1939) produced local lesions in the groins of guinea-pigs by subcutaneous injections of material obtained from the mouths of patients with Vincent's angina. They state that "although intravenous administration of neoarsphenamine, under the conditions of these experiments, was ineffective in altering the course or character of experimental Vincent's infection, when the same drug was applied in direct contact with the flora there was a distinct ameliorative effect." In animals treated by the local method the exudate from the lesions became less and, microscopically, showed marked diminution in the number of organisms. On the other hand, the exudate from the lesions of animals treated intravenously showed no such decrease in its amount or in its content of Vincent's organisms; it in fact presented the characteristic picture obtained from untreated controls.

Methods of Treatment

It is a commonplace that fusiform bacilli and spirochaetes can be found in the mouths of many healthy people, and the causal relationship of these organisms to Vincent's angina has therefore been questioned. These and other anaerobes, however, are found in greater profusion in cases of poor oral hygiene, undernutrition, and chronic toxic or debilitating conditions. The so-called Vincent's organisms have therefore been aptly described as "opportunists" rather than primary pathogens.

Treatment of the disease calls primarily for treatment of the underlying condition, whether it be local or general. Nutritional deficiencies must also be remedied. Healing of the lesions in the mouth seems to be best accomplished by use of daily local applications of 10% chromic acid, followed immediately by hydrogen peroxide (10 vols.), and subsequent two-hourly mouth-washes of peroxide. In a recent series of investigations King (1943) has produced further evidence of the value of this form of local therapy, in combination with 150 mg. of nicotinic acid daily by mouth. This use of oxygen-liberating agents is a logical means of checking the growth of anaerobic organisms, and the rapid relief from discomfort is striking.

Periodontal treatment, including the cleansing of subgingival pockets, careful scaling, and removing of dental irregularities or sepsis at the appropriate time, is an important part of the treatment. It is said that Vincent's ulceration never occurs in edentulous mouths. The use of arsphenamine or allied compounds locally is at least a logical procedure, directed against the spirochaetes, although there seems to be little evidence that it is any more effective than the somewhat simpler and cheaper use of substances such as hydrogen peroxide.

Whatever form of treatment is given, however, it is to be hoped that the employment of intravenous arsenical compounds for this condition will be recognized as useless and wasteful. Hirschfield (1942) has recently referred to two instances in America "in which almost the entire hospital staff, including nurses and attendants, were subjected to a series of intravenous injections only because of 'positive' bacteriologic findings when they were examined after the appearance of a Vincent's infection in a nurse or one of the patients." Such a practice, quite apart from its prophylactic and therapeutic uselessness, is not without risk on account of possible idiosyncrasies to arsenic. Minor unpleasant effects are well known, but a very rare and severe form of reaction is an acute haemorrhagic encephalitis (or "encephalopathy"). Recent examples in syphilitics under treatment with arsenic have been reported by Nelson *et al.* (1943) and Halcrow (1943). Some 200 cases in all have been described, and the fatality rate is high. Smith and Newbill (1939) reported the case of a young man who was treated with intravenous neoarsphenamine and sulpharsphenamine for Vincent's angina. He developed severe reactions after both injections, became comatose, and died of arsenical myelo-encephalitis. It is said that 50% of these types of severe reactions occur after a second injection and that they

are more likely to occur in the presence of some active infection—of which Vincent's angina constitutes an example.

Conclusions

Vincent's infection sometimes develops in patients undergoing antisyphilitic treatment with intravenous arsenicals.

The use of intravenous arsenicals in the treatment of Vincent's infection is unsound, both on theoretical and on clinical grounds, particularly since the condition responds readily to other less expensive and less dangerous drugs.

I am indebted to Flight Lieut. S. C. Holms, R.A.F.V.R. (Dental Branch), for his help and advice.

REFERENCES

- Dowson, S. D. (1933). *Dental Cosmos*, 75, 693.
 Ehrlich, P. (1910). *Monch. med. Wschr.*, 57, 2268.
 Farrell, G. W., and McNichols, W. A. (1937). *J. Amer. med. Ass.*, 108, 630.
 Goodridge, D. L. (1942). *Brit. dental J.*, 62, 12.
 Halcrow, J. P. A. (1943). *British Medical Journal*, 1, 663.
 Hillman, J. A., and Driscoll, T. L. (1925). *Pa. med. Monthly*, 52, 312.
 Hirschfeld, I. (1942). *J. Amer. dental Ass.*, 29, 1150.
 King, J. D. (1943). *Brit. dental J.*, 74, 169.
 Nelson, R. B., McGibbon, C., and Glyn-Hughes, F. (1943). *British Medical Journal*, 1, 661.
 Reichmann, F. J. (1926). *J. Amer. dental Ass.*, 13, 1665.
 Rosebury, T., and Foley, G. (1939). *Ibid.*, 26, 1798.
 Smith, D. C., and Newbill, H. P. (1939). *Southern med. J.*, 32, 381.
 Sutton, I. C. (1924). *J. Amer. med. Ass.*, 83, 1919.
 Williams, G. A. (1929). *Arch. Derm. Syph.*, Chicago, 20, 322.

A PHYSIOLOGICAL FACTOR IN HAEMOGLOBINOMETRY

BY

E. F. MCCARTHY, M.B., B.Ch., M.Sc.

St. Thomas's Hospital Medical School, Godalming

The recent Report to the Traumatic Shock Committee of the Medical Research Council on haemoglobin estimation (1943) fulfils its purpose admirably as a survey of methods including an analysis of technical limitations and suggestions for improvement. There is, however, a physiological factor in haemoglobinometry—namely, the diurnal variation—which merits the consideration of the physician. The blood haemoglobin may vary from increase or decrease of the total blood volume due to interchange of water with the tissues or to the withdrawal or addition of erythrocytes. Dreyer, Bazett, and Pierce (1920), on the basis of hourly or bi-hourly colorimetric haemoglobin estimations, assert that the haemoglobin may vary as much as 20 to 30% of the average throughout the day. Short (1934-5), using a colorimetric method, reported a variation of 17%. Price-Jones (1931) made 100 observations with a Haldane haemoglobinometer on blood obtained from his finger in the mornings and afternoons of successive days, and stated that there was no significant difference between afternoon and evening values. Rabinowitch (1923-4) used the oxygen-capacity method on 20 subjects, and reported a maximum variation of 26%. Photometric methods may be affected by the variation of substances in the blood other than haemoglobin, such as lipids, and the gasometric apparatus used by Rabinowitch was an early and not very accurate type.

Diurnal Variations in Hb Concentration

Some years ago, in an attempt to settle this question, I took part with Dr. van Slyke (1939) in an investigation of the diurnal variation in the blood of 18 normal men. Blood was obtained by venepuncture, with precautions to avoid stasis, at intervals of from two to three hours during the day. Haemoglobin was estimated by the CO-capacity method of van Slyke and Hiller (1928), which is superior to the oxygen-capacity measurement for reasons stated in the Medical Research Council report (1943). The mean difference between duplicate analyses of our samples was 0.06 vol. %, or 0.3% on the Haldane scale. The greatest range between highest and lowest values in an individual in the day was 2.3 vols. % CO (or O₂) capacity—i.e., about 12% on the Haldane scale. The average range was 1.3 vols. %, or 7% on the Haldane scale. Observations were repeated on each of five subjects on two separate days about a week apart, and there seemed to be a tendency for the blood of each subject to follow a course characteristic for that individual. It is difficult to make any generalization concerning the direction of the change apart from the statement

that there seems to be a tendency for the haemoglobin concentration to diminish during the day, but a subject who shows this change on one day gave the opposite result on another.

I have no reason to doubt that these findings represent real changes in the haemoglobin concentration of the blood. It seems that data of similar accuracy are not available for the alterations in women and children. The diurnal variations recorded in health may be greater in abnormal conditions. Moreover, the fact that the variations recorded by most of the earlier workers on blood samples obtained by pricking the skin are higher than those obtained by us inclines one to the belief that this difference may be due to local alterations in the concentration of haemoglobin, to the interference of lipid or other substances with the photometric technique, or, more simply, to sampling errors. Price-Jones (1931) found excellent agreement between gasometric measurements and colorimetric Haldane estimations in the blood of 20 subjects. It is clear, however, from his paper whether the colorimetric estimations were made on separate samples obtained by skin puncture or on the same samples used for gas analysis which were obtained by venepuncture.

Conclusions

Haemoglobin in the blood of normal men is subject to a diurnal variation which is less than that described by Rabinowitch and other workers but higher than that reported by Price-Jones. The average range is 7% in terms of the Haldane haemoglobinometer scale. The range of any diurnal variation which may occur in the haemoglobin of normal women and children appears to merit careful investigation.

REFERENCES

- Dreyer, G., Bazett, H. C., and Pierce, H. F. (1920). *Lancet*, 2, 588.
 McCarthy, E. F., and van Slyke, D. D. (1939). *J. biol. Chem.*, 128, 567.
 Price-Jones, C. (1931). *J. Path. Bact.*, 34, 779.
 Rabinowitch, I. M. (1923-4). *J. lab. clin. Med.*, 9, 120.
 Report to Traumatic Shock Committee of the M.R.C. on Haemoglobinometry (1943). *British Medical Journal*, 1, 209.
 Short, J. J. (1934-5). *J. lab. clin. Med.*, 20, 708.
 van Slyke, D. D., and Hiller, A. (1928). *J. biol. Chem.*, 78, 807.

Medical Memoranda

Arteriosclerotic Aneurysm of Abdominal Aorta with Perforation into Upper Jejunum

In contrast to aneurysm of the thoracic aorta, aneurysm of the abdominal aorta is comparatively rare, and its diagnosis might easily be missed for years, as in the case reported below. A few days before admission the patient was seen by a consultant, who thought of a growth in the sigmoid, but after the negative x-ray evidence, considered that a small polyp in the colon might explain the rectal haemorrhages. The long-standing rectal and vaginal pain was very likely due to the aneurysm. Very often in cases of abdominal aneurysm there is pain in the upper abdomen due to pressure on the coeliac plexus. Here there was a history of "fibrositis" of the upper abdomen, but her main and more permanent complaint was of the rectal and vaginal pain. The explanation of the difference from the usual upper abdominal pain may be that the situation of an aneurysm of the abdominal aorta is usually subdiaphragmatic whereas in this case it extended down to the bifurcation, might therefore be expected to exert pressure on the inferior mesenteric ganglion and so cause the pain referred to rectum and vulva. While the usual cause of thoracic aneurysm is syphilitic disease of the aorta, aneurysms of the abdominal aorta, at least in this country, are mostly due to arteriosclerosis, as it was in this case.

CLINICAL CASE RECORD

On Jan. 20, 1943, a lady aged 79 was admitted to the County Hospital, Odley. She had a long history of suffering. Seven years ago she was in bed for 6 months, and some form of heart disease was diagnosed. While in bed she developed a thrombophlebitis followed by neuralgic pains in the vulva and rectum. Nothing local was found that would explain this latter condition and no discharge or haemorrhage of any kind. A diagnosis of "vulvitis and rectal neuralgia" was made. These pains had persisted and increased up to the time of admission, and finally invalidated her to such an extent that she had to spend the last two years in bed. Four years ago she had had a short attack of "fibrositis" in the upper half of the abdomen and in the lumbar region. Fourteen days before admission she had an unheralded rectal haemorrhage. At first she passed blood mixed with faeces and then pure blood-clots. She lost a

amount of blood. These haemorrhagic motions numbered six or eight daily, and continued up to the day before admission.

The patient was mentally alert but physically in poor shape; the slightest movement exhausted her. She was very pale and emaciated. Her peripheral arteries showed an extraordinary degree of arteriosclerosis even for her age. Pulse, respiration, temperature, and reflexes were normal. The heart showed signs of enlargement towards the left, and a systolic murmur was audible over the aortic valve.

In the upper part of the abdomen, just to the left of the midline, a tumour was palpable, approximately the size of a fist, showing expansile pulsation. It was easily possible to grasp this tumour in the examining hand, and its mobility was strictly limited to a slight lateral movement. A systolic murmur was audible on auscultation. The rest of the examination showed no abnormality. The blood pressure was 160/60 mm. Hg. The Wassermann reaction was negative.

A barium meal and enema had been given outside a few days before her admission to hospital, but failed to show any abnormality. After six days in this hospital she had a haematemesis early in the morning and died a few minutes later. The clinical diagnosis was aneurysm of the abdominal aorta, with rupture into the small intestine. Permission for an abdominal necropsy was granted, and the findings were as follows.

POST-MORTEM EXAMINATION

Advanced atheroma and arteriosclerosis. Kidneys rather smaller than normal and arteriosclerotic. A large sacular aneurysm protruded from the anterior and left aspect of the abdominal aorta immediately deep to the pancreas, which was stretched over its anterior surface. The aneurysmal dilatation measured about 4 in. by 2 in. by 2 in. A portion of jejunum was firmly adherent to the anterior surface towards its right side, and it was evident from blood in the intestine that a communication existed between the two. The aneurysm was not adherent to any other viscus. It was obviously of very long standing. The other abdominal organs were normal. A specimen consisting of the aneurysmal sac, with immediately adjacent pancreas and the adherent portion of jejunum, was sent to the County Laboratory, Wakefield, from which source the following report was received:

"On the lower portion of the abdominal aorta, and on the anterior wall, there is a large sacular aneurysm. The mouth of the sac is oval and large, and involves two-thirds of the entire circumference of the aorta. The mouth of the sac measures 7 cm. in length and 5 cm. in width, and the lower edge is situated 1 cm. above the bifurcation. The sac contains much laminated thrombus, which is fairly firmly adherent to the wall. On removing this thrombus the true shape of the sac is observed. The greatest depth is 4 cm. from the mouth, and the base shows minor sacculations. The deepest (most anterior) is on the left side in an antero-lateral direction. At this point the wall is thinned over an area roughly oval (2 by 1.8 cm.) and covered by more recent softer thrombus. There is a communication between the upper part of this sacculi and the overlying adherent jejunum. The communicating aperture is small and probably measured less than 5 mm. during life. The jejunum itself is normal and is adherent to the outer aspect of the sac, to which it forms an adventitious coat. The aorta shows atheromatous changes generally and the aneurysm is essentially of the atherosclerotic type—partially dissecting at the point of rupture."

My thanks are due to the medical superintendent, Dr. J. Norman Hill, for doing the necropsy, and for permission to publish this case; and to Dr. P. L. Suteland, county pathologist, and Dr. R. M. Hezlie of the Public Health Laboratory, Wakefield, for examination of the specimen and advice to publish.

WALTER HAUSMANN, M.D., Vienna,
R.M.O., County Hospital, Oley, Yorks.

The Medical Division of the Office of Civilian Defence in Washington has recently (July 10, 1943) issued new regulations on the treatment of burns and wound infections in air-raid casualties. When abdominal viscera are perforated the revised pamphlet recommends sodium sulphadiazine as the drug of choice for parenteral administration, this being considered preferable to oral therapy during the first 48 hours. Attention is drawn to the danger of giving sulphonamide drugs to a patient who is not excreting over 1,000 c.cm. of urine a day. If output of urine is inadequate and sulphonamide therapy is required, the urine should be examined for evidence of renal damage and the dose of the drug so adjusted that the blood concentration, determined daily, does not exceed 10 mg. per 100 c.cm. If urinary output continues to fall administration of the drug should be stopped, and fluid should be forced orally or given intravenously. If anuria results, owing to bilateral obstruction of the ureters, ureteral catheterization and lavage of the renal pelvis may be required. The revised O.C.D. pamphlet no longer recommends the use of ointments or jellies containing tannic acid in the first-aid treatment of burns. If expert treatment cannot be carried out within two hours it is advised that the patient should be given sufficient morphine to relieve pain, and that the burned surface should be covered with sterile boric acid ointment or petrolatum, over which one or two layers of gauze of fine mesh is to be smoothly applied. Over this is placed a dressing of thick sterile gauze or sterile cotton-waste, and the whole dressing is to be bandaged firmly but not tightly. As an alternative, a jelly containing 5% sulphathiazole in water-soluble base is permissible.

Reviews

OCCUPATIONAL DISEASES

Outlines of Industrial Medicine, Legislation, and Hygiene. By James Burnet, M.D., F.R.C.P.E. (Pp. 87. 7s. 6d.) Bristol: John Wright and Sons; London: Simpkin Marshall.

This small book attempts within the compass of 83 short pages to deal with three interrelated subjects, and, although in his preface the author makes no greater claim for it than that it should serve as an introduction, the title is an ambitious one. The book deals mainly with occupational diseases, the subject of hygiene being relegated to the last six pages. Chapters VI to X form the second part of the book and deal in some 22 pages with such subjects as the history of factory legislation, Workmen's Compensation Acts, the Truck Acts, the Factories Act, 1937, and incapacity for work, but these chapters are in the form of short annotations rather than of attempts at careful elucidation.

It is generally agreed that the study of occupational disease can best be made against a background of industrial hygiene, and the purpose of this publication would have been better served if the first part had been devoted to those factors of hygiene which have a special significance in industrial life. Few authorities will agree with the unqualified statement in the preface that "hygiene in factories differs very little from the hygiene of ordinary premises." The principles of hygiene may be the same, but there is a more detailed application of these principles in industry, and the directions of such application might with advantage have been stressed.

Nearly three-quarters of this manual are devoted to occupational diseases, and of this section more than one-half to poisons. The 28 pages dealing with industrial poisons are probably the best of the book, and the author, who was formerly an examiner in materia medica and therapeutics of Aberdeen University, can speak authoritatively. The chapters dealing with medical diseases contain all-too-brief references to the pneumoconioses, while in regard to silicosis the author takes no cognizance of the work of W. R. Jones, who, working in the Rand, demonstrated the importance of the fibrous silicates like sericite in the production of the disease quite apart from silicosis due to free silica.

There is a striking absence in the book of reference to such important questions as the psychoses and neuroses of industry, except in regard to occupational cramps, and the description of miner's nystagmus omits any reference to the psychoneurotic element in the later stages of the disease. Throughout the book there is no mention of the existence of accident-proneness or other factors in the production of accidents—subjects which to-day are so important. If the main intention of the book is to provide the general practitioner who occasionally sees a case of occupational disease with a handy book of reference the intention may have succeeded, more especially as it sets out in annotated form the main provisions of factory legislation which would be useful to him. When the next edition is prepared, which no doubt it will be in the near future, we suggest that the author might increase its size and incidentally its value.

ELECTROCARDIOGRAPHY

Electrocardiograms. An Elementary Atlas for Students and Practitioners. By H. Wallace Jones, M.D., M.Sc., F.R.C.P., and E. Noble Chamberlain, M.D., M.Sc., F.R.C.P. Second edition. (Pp. 56; illustrated. 5s.) Bristol: John Wright and Sons; London: Simpkin Marshall, 1943.

The Electrocardiogram and X-ray Configuration of the Heart. By Arthur M. Master, B.S., M.D., F.A.C.P. Second edition, enlarged and thoroughly revised. (Pp. 404; illustrated. 36s.) London: Henry Kimpton.

The first of these two books gives a valuable grounding for students in the interpretation of the electrocardiogram. The explanation of the mechanism of the machine is simple and to the point. The significance of the various normal complexes is clearly described. Technically the illustrations are excellent and well marked. The modern physician uses the cardiograph very largely in the diagnosis of myocardial disease, and for every tracing taken for an arrhythmia at least a dozen are taken when the rhythm is normal and only the condition of the myocardium is in question. It is perhaps surprising that

The authors devote so much space to the arrhythmias—eighteen pages—while only twenty pages have to include all the other abnormalities. The section on coronary thrombosis is pretty comprehensive, but the chest leads are not always included. The R-S-T changes in the chest leads might well be better emphasized. In anterior infarction the significance of deep Q4 and absent R4 is not mentioned, though illustrations showing these changes are printed. The tracings of posterior infarction show more T₁ and T₂ changes than is usually regarded as typical. The section on right and left ventricular preponderance does not distinguish between simple axis deviation and ventricular hypertrophy. So much has been written recently on ventricular strain changes in the cardiogram that the lack of reference even to hypertensive heart disease is noticeable. Angina of effort depends for its objective signs so often on the cardiogram alone. This book provides one tracing only of chronic coronary disease and does not helpfully correlate these changes with the changes of cardiac infarction. In spite of shortcomings, largely due to keeping the book brief, simple, and concise, this atlas will get the student and medical practitioner over the difficult initial stage of understanding the electrocardiogram. It should stimulate the student to continue the study of electrocardiography.

The second edition of Dr. Master's book has now become complete as an x-ray monograph on the heart. Written originally to instruct in the interpretation of the electrocardiogram, this edition has become a reference book in the radiological configuration of all varieties of heart disease, unique up to the present date. It is now an essential in every cardiologist's library. The book is made up of approximately 50 radiographs of varieties of heart disease, each one with the electrocardiogram on the same page. A short note on the condition with a description of the essential changes in the radiograph and cardiogram is printed on the opposite page. It is not just an atlas of cardiac radiology and electrocardiography; each section has a concise, well-referenced account of the subject to be illustrated in the succeeding pages. The knowledge of x-ray and cardiographic technique is excellent. A part of the book is devoted to varieties of non-pathological conditions. Illustrations are given of the heart in childhood, in young adults, in middle age and in old age, in obesity, in pregnancy, and during change of posture. The section devoted to pathological conditions contains nearly all the varieties of known heart disease. The section on congenital cardiac abnormalities is of particular value. The section on pulmonary disease, emphysema, pulmonary embolism, pneumothorax, and in deformities of the thoracic wall is most thoroughly and clearly described. Radiographs showing contrast visualization with diodrast will encourage further research in this new branch of x-ray diagnosis—some fine illustrations are reproduced. The only deficiency from the x-ray aspect is the small amount of information on the heart and lung fields in failure, and the change in the heart size which may occur when failure has passed. The electrocardiograms shown are clear, and the standard limb leads with I, II, III, aVR, aVL, aVF, and CF, chest leads are taken in nearly all cases. It might be criticized that the value of right pectoral, right arm lead (CR₁) is not mentioned in diagnosis of right ventricular strain. The section on the electrocardiogram in acute disease is of considerable interest and provides information not easily found elsewhere. The bibliography and reference index are excellent. This book will be widely read by those interested in heart disease.

PSYCHOPATHOLOGY

Psychopathology: A Survey of Modern Approaches. By J. Ernest Nicole, L.M.S.S.A. Third edition, revised and enlarged. (Pp. 265. 15s.) London: Baillière, Tindall and Cox. 1942.

The third edition of this compendious work appears with additions to most chapters. Its scope is surprisingly wide and inclusive; the references alone amount to 28 pages. Naturally where so much is compassed critical appraisal of the different views summarized is hardly possible, so that the main effect is to stimulate the reader to pursue his own explorations of the literature in new directions rather than to give him much information about the direction which is likely to be most profitable.

The author is too modest to think that anyone could assume the role of mentor to another in so many different fields covered by this volume. Some will think that certain schools of thought have been given undue prominence, but this is perhaps as much a matter of taste as of scientific judgment. The book serves the very useful purpose of emphasizing the great diversity of approaches which exist to the problems of psychological medicine and the remoteness of the hope of finding a master mind which will be able to synthesize them all.

Notes on Books

The Oxford University Press has published as a sixpenny pamphlet a sermon entitled *Cleanse the Leper*, preached by the Rev. P. B. Clayton to members of the University of Oxford on behalf of the British Empire Leprosy Relief Association.

No. 1 of the Research Supplements to the *International Journal of Psycho-Analysis*, edited by Dr. Edward Glover, is *A New German-English Psycho-Analytical Vocabulary*, by ALIX STRACHEY. This is essentially an enlarged and revised edition of a glossary which appeared in 1924; it is designed for the practical purpose of helping translators of psycho-analytical works, and is published for the Institute of Psycho-Analysis by Baillière, Tindall and Cox at 10s. 6d.

The *Index to the Literature of Food Investigation*, Vol. 14, No. 2, dated September, 1942, and issued by the Department of Scientific and Industrial Research, has now come to hand. The items covered are Nos. 488 to 982 inclusive, and there is an index of authors. An editorial note states that because of the urgent need for economy in paper those who wish to obtain the *Index* regularly must place orders in advance with the Sales Office, H.M. Stationery Office, York House, Kingsway, London, W.C.2, or with any bookseller.

The Association of Scientific Workers (73, High Holborn, W.C.1) has published at 2s. 6d. under the title *Planning of Science* a full report of the proceedings of the conference held last January in Caxton Hall. There were three sessions—one concerned with central direction of science, one with local organization, and the third with the future of science.

Preparations and Appliances

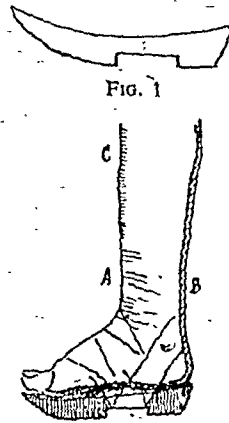
WALKING "IRON" FOR LEG PLASTERS

MR. C. DENLEY CLARK, F.R.C.S.Ed., writes from the Memorial Hospital, Shooter's Hill, S.E.5:

Major Stamm's description of the new walking iron for short leg plasters (*Journal*, July 3, p. 13) stimulates me to describe a device which we have been using. Made of wood 1½ inches thick, it is as wide and as long as the plaster foot, and its shape in side view is shown in Fig. 1. From this it will be seen that the top surface of the foot-piece is slightly hollowed longitudinally. The anterior half of the lower surface curves steeply. The heel is flat and there is a rectangular notch in the lower surface to accommodate plaster bandages for fastening the device on to the foot.

Fig. 2 shows the method of applying plaster and rocker. The plaster is reinforced at A in the lower part of the shin above the ankle, to avoid cracking; the posterior plaster slab (B) is continued under the foot. The foot-piece is preferably applied while the plaster is wet. The plaster should be padded over the upper part of the shin (C) to avoid possible pressure-sores.

This device is light and very easily made from odd pieces of timber. Being only 1½ inches thick, it can be used for above-knee as well as for below-knee plasters. The flat heel gives stability and comfort for standing. The curved anterior part permits of heel-to-toe action in walking. The patient can thus rock along in any weather. We call this appliance "the rocker."



BRITISH MEDICAL JOURNAL

LONDON

SATURDAY SEPTEMBER 18 1943

STIMULATION OF LEUCOPOIESIS

A satisfactory stimulant to leucopoiesis would have many uses, and it is no wonder that a diversity of compounds has been introduced for this purpose. A few of these, such as manganese butyrate and the pentose nucleotides, have achieved more than passing popularity, but there is little evidence that any of them produces an enduring leucocytosis. They act mainly by redistribution and mobilization of preformed leucocytes. Of the many substances tested by Das Gupta,¹ only colchicine stimulated the proliferation of cells in the marrow, and the toxic effects of this drug outweighed its advantages. Recently, however, Zondek and Bromberg² have reported the production of a leucocytosis with *p*-chloro-xylenol dissolved in methyl acetamide, which appears to be sufficiently promising to justify a more extensive therapeutic trial. The discovery was made while studying the chemotherapeutic properties of the halogenized phenols. In the course of this work, while testing the solubility of *p*-chloro-xylenol in various substances, it was noticed that methyl acetamide, unlike the other solvents, caused a moderate leucocytosis of short duration when given intramuscularly. This was much amplified when the solvent was combined with the *p*-chloro-xylenol. The leucocytosis was accompanied by the appearance of immature myeloid cells in the circulation, which suggested increased activity of the bone marrow. Further tests showed that *p*-chloro-xylenol alone had no effect, but that when it was dissolved in methyl acetamide the leucocytosis produced was more evident and better sustained than when the solvent was given alone. The effect appeared to be directly proportional to the content of *p*-chloro-xylenol.

This formed the basis for a more extensive trial with a 25% solution of *p*-chloro-xylenol (25% C.X.M.). Seventeen normal subjects received 50 c.cm. of this material over a period of three days, and were found to have a leucocytosis which began at 24 hours and lasted 10 days. The granulocytes were increased fourfold, and maximal counts of 20,000 per c.mm. were obtained. The material was also tested in four cases of typhoid, a disease particularly resistant to chemotactic substances. When 56 c.cm. of the 25% C.X.M. was given over a five-day period a leucocytosis of over 12,000 per c.mm. was obtained in each case, but it was maintained only 36 hours after the last injection. Four other cases, with local infections accompanied by a leucocytosis, were tested, and the authors claim that in these the response was quicker than in the normal subjects. A case of pyelitis is cited in which the leucocytes increased from 9,200 to 38,000 per c.mm. This admittedly a small series, but the authors have published their results in the hope that the drug will be given further trial in neutropenic conditions.

A different approach to the subject has been made by Menkin, who has published a series of experiments in which he has demonstrated the presence of a leucocytic or (L.P.F) in inflammatory exudates. Following an initial series of experiments in which he produced a discharge of immature polymorphs into the circulation by injection of various inflammatory exudates, Menkin has

made a series of chemical studies which have led him to identify the activity with a thermolabile, non-diffusible substance which he believes to be a pseudo-globulin. Recently he and Kadish³ have obtained this substance in a desiccated form. When dissolved in saline and injected by cardiac puncture into dogs, the powder caused an increase of 50 to 160% in the circulating leucocytes, which was considerably greater than the normal range of variation of 12 to 80%. With one exception a similar effect followed subcutaneous injection, but the maximum rise occurred later than with intracardiac injection. In earlier tests with this powder there was a transient leucopenia after injection, but this did not occur later, when the substance was prepared after initial removal of the euglobulin and albumin fractions from the exudates, and the leucocytic effect was even more potent than in the earlier tests. No clinical trial has as yet been made.

Working in a similar field, Turner and Miller⁴ claim to have obtained two biologically active materials from the urine and faeces of human patients with leukaemia which will produce specific myeloid and lymphoid hyperplasia respectively when injected into guinea-pigs. In 1940 Miller described myeloid hyperplasia in the bone marrow, liver, spleen, and other organs of 33 guinea-pigs after injection of concentrates from the urine of patients with chronic myeloid leukaemia. The changes were not accompanied by any increase in the circulating white cells. Since then he and Turner have subjected to repeated fractionation the urine of patients with lymphatic, myeloid, and monocytic leukaemia, as well as with Hodgkin's disease and lymphosarcoma. They have obtained two separate extracts, one containing a carboxyl group which produces a specific myeloid hyperplasia resembling that described in the original experiment, and one containing a carbonyl group which produces a specific lymphatic hyperplasia of the tissues. They further claim to be able to convert the one extract into the other, and suggest that they are closely related chemical substances which are always excreted in these diseases. As leukaemia, like cancer, is not transmissible from one species to another, we are probably justified in regarding these results also as the purely pharmacological effects of tissue extracts. Further knowledge of the chemistry of these extracts will be awaited with interest.

INADEQUATE HOSPITAL DIETS

The idea that diet should be one of the remedial services offered by hospitals has been late in arriving. Not very long ago it was the custom for the diet of in-patients, prescribed according to a rigid and primitive schedule or scale, to be supplemented by "extras" brought in by friends, and the question whether at the early breakfast, often taken at 6 a.m., an egg was added to the tea and bread and margarine depended upon such casual provision. The result was that patients not so assisted from outside might actually go short of food; others had too much for their needs at other meal-times. For a large proportion of patients the diet—such as it was, "full" or "light"—depended on the whim of a house officer ignorant of dietetics and given a free hand by his chief. There was special provision for nephritis, diabetes, and some other diseases, but, generally speaking, in those days nobody seemed to mind what the ordinary patient ate except the patient and perhaps the sister. The few physicians and surgeons who cared for such things were thought to be rather cranky by their colleagues, though students seemed anxious to learn, realizing that guidance would be expected

¹ *Ind. J. med. Res.*, 1939, 26, 647.² *Amer. J. med. Sci.*, 1943, 205, 62.³ *Amer. J. med. Sci.*, 1943, 205, 363.⁴ *J. Biol. Chem.*, 1943, 147, 573.

from them in private practice. Proof of a growing interest in the subject was given by the frequent appearance of reprints and new editions of Robert Hutchison's *Food and the Principles of Dietetics*, first published in 1900. As the author said in his preface to the first edition, the very gratifying reception accorded to these lectures to students of the London Hospital and the almost total neglect of the subject in ordinary medical education induced him to publish them in book form. This pioneer work and the enormous developments in knowledge of nutrition have borne fruit, so that there are few practising doctors to-day who are not food-conscious and alive to the significance of diet in health and sickness.

It is now becoming realized that the hospital kitchen is at least as important as the hospital dispensary, and a number of hospitals are employing dietitians. In the area of King Edward's Hospital Fund for London dietitians have been appointed in about 12% of hospitals, but in too many of these the dietitian is looked upon as a person concerned only with the comparatively small number of special diets and is not consulted about the standard of feeding in the general wards. The King's Fund has lately issued an interesting but rather disquieting memorandum¹—disquieting because it suggests to those who did not know this already that, in spite of recent improvements, including the later breakfast, hospital diet is not all it should be in quality and quantity, in nutritional standard, and in methods of preparation and service. Particulars are given in this memorandum of a survey of the diet provided for patients and nursing staff at three general hospitals of moderate size in widely separated parts of Greater London. Samples of the diet were collected and analysed each day for one week, and the results in terms of nutritive value are set out in tables. In the case of patients lying in bed little more than the basal metabolic requirements of energy are expended, and something like 1,690 calories as the daily need for an average man and 1,450 for a woman have been suggested. On this basis, in only one of the three hospitals were the food supplies adequate. In the other two the daily average of calories was, for male patients, 1,420 and 1,260, and for female patients, 1,150 and 960. At two of the hospitals the supply of protein was not up to standard, and at one the diet was deficient in calcium and iron. None of the diets appeared to reach the desired levels for vitamins A and C. The Technical Commission of the League of Nations suggested 30 mg. of vitamin C daily as necessary for health, and many authorities consider this figure too low; but at one of these hospitals the daily average was 3 mg., at another 5 mg., and at the third 13 mg. for male patients and 10 for female. As for nurses' meals, if the energy requirement of a moderately active woman be taken as 2,500 calories a day, the staff at one of these hospitals was not getting enough to eat; in none of the hospitals were adequate amounts of vitamins A and C provided in the nurses' bill of fare, and in one the iron in the diet was below the desired level. The King's Fund Subcommittee, of which Sir Charlton Briscoe is chairman, suggests a permanent committee for catering and diet in every hospital. This committee would co-ordinate the responsibilities of the catering officer or purchaser and the choice of food-stuffs advised by the dietitian. Other recommendations are that small hospitals should be grouped for central buying, that an endeavour should be made to attract first-class cooks to hospitals by offering more adequate salaries, and that ward sisters should be encouraged to regard the service of suitable and appetizing meals as a most important part of their responsibility. The job of the

dietitian should be to plan the dietary as a whole to meet nutritional standards prescribed by the medical staff. As Sir Alfred Webb-Johnson said at the recent conference on hospital meals, reported in our issue of August 7, the dietitians should have control not only of their own special kitchens but of the general hospital kitchen as well. Common sense and knowledge of human nature tell us it is not enough to plan a diet, for the best planning may be ruined by poor cooking, and good cooking may be ruined by lax service. The dietitian should consider it part of her duty to supervise or advise on the methods of cooking and the manner in which the meals are served to patients.

The King's Fund has rendered many signal services to hospitals, apart from financial help, and it proposes for itself another—namely, to give dietetic guidance to voluntary hospitals in the London area which express a wish for it. A good suggestion is that the Fund's dietetic adviser might spend two or three weeks at a hospital by invitation, surveying the dietary and the methods of cooking and serving, and then offer such advice as seems necessary and expedient.

TREATMENT OF LUPUS VULGARIS

Lupus vulgaris has always been the Cinderella of the tuberculosis services, but there are signs that at last the public conscience is beginning to be roused by the unjustifiable state of affairs in relation to the treatment of this disease. There are several reasons for the neglect which sufferers have had to bear. In the first place lupus is seldom a fatal complaint; it lasts for many years, and the patients usually die from some quite different malady. It has even been remarked that they seldom develop visceral tuberculosis, for the skin in some way seems to defend the internal organs from tuberculous infection. It does not give rise to much acute physical pain or even actual physical disability. Moreover, the sufferers from lupus vulgaris are not, fortunately, a very numerous body in this country, and hence their champions have hardly been vocal enough to catch the ear of the body politic. For the most part they are drawn from the more impecunious strata of society and therefore do not much attract the attention of the specialist engaged in private practice. The result is that those afflicted with lupus often fail to get the benefit of the modern methods of treatment to which they ought to be entitled. On the other hand, lupus is an exceedingly chronic and obstinate affection, difficult to cure even when skilfully handled and, since it most commonly attacks the face, very prone to cause the most hideous disfigurement, making its victims unable to mingle on equal terms with their fellows. The fact that such a disease is not treated with all the means that modern science has put at our disposal is a national disgrace. Probably the chief reason for this deplorable state of affairs is financial. Lupus vulgaris is one of the most expensive diseases there is to treat, and local authorities have been reluctant to face the cost. Light-treatment is the sheet anchor of lupus therapy, and since the introduction of the Finsen and the Finsen-Reyn lamps nearly 40 years ago nothing has been discovered to take their place. They are exceedingly costly appliances to run because each patient needs the undivided attention of a skilled nurse during every session of his treatment. Consequently to keep a single lamp in action day in and day out requires the whole time of one trained nurse, and the average yearly cost of a nurse, including maintenance and lodging, must amount to at least £200 to any institution. Not many patients can be dealt with by a single lamp. Many attempts have been made to avoid the necessity for this expensive form of treatment but with-

¹ Published by Geo. Barber and Son, Ltd., Fumival Street, London, E.C.4. (6d. post free.)

out success. General light baths, which are a most useful adjunct, are quite inadequate as a substitute for the concentrated local application of ultra-violet light by the Finsen method. In addition to the properly administered light-treatment the patients require adequate provision for their maintenance and occupation during its continuance. If children, they must be educated; if adults, they must be employed.

These aspects of the problem have recently been given some attention by contributors to the *Bulletin of the National Association for the Prevention of Tuberculosis*. Dr. F. S. Airey stresses the need for special lupus treatment centres to deal with the cases (he reckons that at least four centres would be required for England and Wales alone); while Sir Henry Gauvain, who has had a lifelong experience in treating all sorts of tuberculosis, including lupus, points to the advantages of carrying out the treatment in a highly specialized residential institution where the services of ancillary specialists—e.g., rhinologists and plastic surgeons—are available as required. Advanced cases in adults should be cared for in a colony where their medical, economic, and social needs can all be met. It is easy to see that Dr. Airey's and Sir Henry Gauvain's ideas should be combined. At the present time perhaps the Finsen Institute of the London Hospital, founded by Queen Alexandra in the early years of this century and organized and developed with great skill and energy by Dr. Sequeira, puts their plans into practice more nearly than any other institution. All the medical skill is certainly there, but it is impossible for a voluntary hospital, however enterprising, to cater for the economic and social needs of patients who may need treatment extended over many years, as lupus patients often do. Such a task can be undertaken only by those who have the resources of the State behind them. There are now indications that in the near future the whole tuberculosis service of the nation will undergo an overhaul. That will be the opportunity to put the treatment of lupus on a proper basis.

INFANTILE ENTERITIS AND BREAST-FEEDING IN DUBLIN

Dr. C. J. McSweeney's report for 1942 as medical superintendent of Cork Street Fever Hospital, Dublin, includes among other matters of interest a section on enteritis and gastro-enteritis in infants, which was for the second year in succession abnormally prevalent in the City of Dublin. Again the disease fell most heavily on infants under 1 year of age, and was especially fatal in the early months of life. Most of the cases came into hospital during August and September, but the peak mortality month was November. The outstanding fact is that nearly 90% of these infants admitted to the wards were bottle-fed. In all, 174 cases were treated, with 75 deaths—a case-fatality rate of 43.1%, compared with 40.7% in 1941. "There can be no doubt," writes Dr. McSweeney, "that this is by far the most fatal infectious disease affecting infants." Of the 174 children, 141 were under 1 year of age, and 65 of those died. Of 19 infants aged 1 month and under, 18 died. Only two of the 75 babies dying of gastro-enteritis were over 1 year of age. Vomiting was very rare after the acute stage; green stools persisted for weeks and sometimes months with a normal temperature. Toxaemia was completely absent, but a steady loss in weight took place with development of dehydration. Bacteriological investigations, except for a few cases in which *B. proteus* was isolated from the faeces, were negative. Early in the epidemic sulphaguandine treatment was tried; in all, 72 unselected cases had it. Of the babies given sulphaguandine, 36 (exactly 50%) died, compared with 102 not receiving the drug, of whom 39

died (38.2%). With regard to the fatal cases treated by this or other means, necropsy revealed haemorrhages into the mucous membrane of the small bowel, which were most intense in the ileum. Haemorrhages were also seen in the stomach and duodenum. The correct name for the disease would therefore appear to be gastro-enteritis, though gastric symptoms were confined to the early stages. Dr. McSweeney regards this highly fatal condition as a new clinical entity, for which so far no effective treatment has been found. The aetiology being uncertain, preventive measures for elimination of the disease cannot be finally postulated; but enough is known to lower the incidence very materially. "If all infants could be breast-fed for at least the first three months of life about 200 infants would be saved in Dublin each year. If the breast-feeding could be continued for six months gastro-enteritis as a public health problem would disappear." Dr. McSweeney urges doctors in private and dispensary practice, and especially those with large midwifery lists, and also the social workers who visit the homes of the Dublin poor, to support the activities of the maternity and child welfare authorities and the staffs of maternity hospitals in advocating breast-feeding throughout the first six months of a baby's life. But more is needed. The development of this disease in a young baby is, in Dr. McSweeney's experience, very often the direct outcome of economic conditions in the household which have caused malnutrition of the mother with a consequent failure of lactation.

DEMEROL

In 1939, in the course of a search for substitutes for the atropine series of drugs, Eisleb and Schaumann¹ reported the synthesis of the ethyl ester of 1-methyl-4-phenylpiperidine-4-carboxylic acid. This substance was originally named "dolantin" by its discoverers. It was soon shown that in addition to possessing a slight atropine-like activity, it produced also a marked morphine-like response, and it was recommended as of possible therapeutic use as an antispasmodic and analgesic. Its pharmacological actions have been studied in this country by Duguid and Heathcote,² who have confirmed its antagonism to the effects of acetylcholine on the heart and intestine; its action in this respect, however, appears to be much weaker than that of atropine. A number of clinical reports on the usefulness of the drug have also appeared, and Battermann³ has lately produced an analysis of its use in 1,119 cases presenting pain due to a variety of surgical and medical conditions. The responses of the patients to the drug, now known in America under the name of "demerol," were carefully graded, attention being paid to the psychological make-up of the subject—a point of considerable importance in work of this kind, where much of the data has of necessity to be obtained by close questioning of the patient. According to Battermann, post-operative pain is most easily controlled, though excellent results were also obtained in non-operative surgical and medical conditions. In colicky pain of biliary, renal, or gastro-intestinal origin it is thought that the antispasmodic action of demerol contributes to its analgesic properties. After parenteral administration, either subcutaneously or intramuscularly, it is claimed that the analgesic effect is apparent within 15 minutes; when administered orally the effect is less rapid and less dramatic. It is necessary to give the drug in somewhat larger doses than those of morphine, but as it appears to be relatively free from any serious toxic manifestations in therapeutic doses this is not regarded as a disadvantage; in fact its relative freedom from unpleasant or serious side-effects is

¹ *Deutsch. med. Wochs.*, 1939, 65, 567.

² *Quart. J. Pharm. Pharmacol.*, 1940, 13, 318.

³ *Arch. intern. Med.*, 1943, 71, 545.

claimed as an advantage over morphine. A more serious drawback is that the duration of action is not as long. Battermann and Mulholland⁴ have reported in greater detail on the effectiveness of the drug in the control of post-operative pain and restlessness, and conclude that for such cases demerol is actually more suitable than morphine. The advantages that they claim are its antispasmodic effect on the gastro-intestinal tract, its atropine-like drying action on mucous membrane, its lack of suppression of the cough reflex, and the rareness with which respiratory depression follows its use.

The important question of liability to addiction to demerol after its use over considerable periods of time has been studied by various observers, and the evidence suggests that physical dependence on and abuse of the drug can occur. In Battermann's series no instances of real dependence were detected, although a few of the patients expressed a desire for the drug, possibly because of its analgesic and sedative action or because of the euphoria occasionally induced; none of these patients, however, experienced any withdrawal symptoms. This is a question calling for further study, and indeed the claim to have produced a synthetic drug which can rival morphine in its analgesic potency and safety is one which on many accounts requires extensive, careful, and critical assessment before demerol can be regarded as a suitable substitute for the opiates in the relief of pain.

HYPOGLYCAEMIA AND NEUROTIC BEHAVIOUR

Within recent years there has been notable shift of interest from the psychological study of abnormal mental states to the humoral or biochemical aspect. This viewpoint has been given prominence by the work of Gjessing on schizophrenia and that of Jahn and Greving on the so-called "asthenic constitution." Of all such studies, however, those of the relation between hypoglycaemia and behaviour have attracted the widest attention and have yielded startling results. It is necessary for the psychiatrist and neurologist faced with the interpretation of, perhaps, even a common syndrome to be aware of a possible hypoglycaemic basis, and never to overlook it.

A number of papers have appeared in recent years on the clinical neuropsychiatric aspects of hypoglycaemia, and two have recently been published, the first by Rennie and Howard⁵ and the second by Romano and Coon.⁶ The latter is a comprehensive, carefully written study of a single case—

of a man aged 44, an emotionally rigid, sensitive, dependent person with much latent aggression, who exhibited recurrent episodes of confusion, dyskinetic movements, and uninhibited emotional behaviour. The initial diagnosis was of a hysterical fugue state. Further observation revealed that these phenomena were associated with hypoglycaemia due to a benign islet-cell adenoma of the pancreas. After removal of the tumour these episodes ceased, though the personality of the patient remained unchanged. This study is of value, as it correlates with precision the biochemical, neurological, and psychological disturbances. The other two authors describe a series of cases of so-called "tension depression," where the individual's disability was primarily his psychiatric condition in which the abnormal mental state was associated with hypoglycaemia. They consider that the latter is a disturbance which derives from a variety of possible factors, and they stress the fact that one of these is that of the total individual. They believe that the hypoglycaemia in their series was secondary to the psychiatric disorder, since it appeared with treatment of the psychiatric condition.

Whether this inference is justified is open to doubt; the facts are capable of alternative explanation. Be that as it may, the authors succeed in demonstrating the importance of the hypoglycaemic factor, particularly in such illnesses as they describe, and the need for keeping alive to the possibility of this relationship. Both papers show that there need be no correlation between the level of the blood sugar and the abnormal behaviour. Thus in Romano and Coon's patient there was no physiological or psychological disturbance of any degree on one occasion when the blood-sugar level was only 31 mg. per 100 c.cm. of blood. They add that this lack of correlation does not exclude the possibility that glucose may be mobilized and utilized without this being reflected in the blood-sugar values, and, further, that technical errors in the chemical assay of glucose at these levels may be considerable. Rennie and Howard point out that the usual blood-sugar norm should be interpreted with latitude; that there are wide variations in the blood-sugar level outside the accepted range of the norm which may produce little or no discomfort. The fasting level is inadequate for the determination of hypoglycaemia—a statement with which everybody with experience of this problem will agree. This was shown in several of the cases of Rennie and Howard, in which the hypoglycaemia only appeared after 4 hours' observation of a glucose-tolerance test. They noted that the relative degree of decline during the test (rather than arbitrary limits) may be more important in bringing about symptoms. Romano and Coon make again the frequently recorded observation that rapid reduction of glucose level produced disturbances in consciousness and neurological phenomena. They believe that the data so far obtained point to diminished oxygenation in the brain, probably as the result of diminished oxygen uptake. They give due weight to modern methods of psychological testing, and demonstrate the reversible impairment of intellectual function which occurs during the hypoglycaemia characterized *inter alia* by the more "concrete" type of behaviour in the sense of Goldstein.

OPHTHALMIC RESEARCH

A pamphlet entitled *Eyesight and National Health* and printed by the University Press outlines a plan for the foundation of a Department of Ophthalmology at Oxford for research, teaching, and treatment. It is sponsored by a strong body named the University of Oxford Ophthalmological Research Endowment Committee, and the cost of the appeal is being met by the National Institute for the Blind. The University appeals for funds towards the following objects: (a) the provision and equipment of laboratories, lecture rooms, a library, and a museum in connexion with the Oxford Eye Hospital, the rebuilding of which will be begun at the end of the war; (b) the provision of salaries for full-time and part-time research workers and teachers engaged in the new department; and (c) the defraying of working costs of researches which would have for their aim prevention of blindness, improved treatment of eye disease, and promotion of a higher standard of visual function throughout the country. The pamphlet sets out some facts about eyesight in general, and gives an indication of the results already achieved for the betterment of vision and of lines on which future research will proceed. The new research centre at Oxford is intended to be flexible and collaborative. The sum aimed at is £250,000 for building, equipment, and endowment. We shall have more to say about this admirable project and its implications.

We much regret to announce the sudden death in Aberdeen of Surgeon Rear-Admiral Sir William Courcy Wheeler.

⁴ Arch. Surg., 1943, 46, 404.

⁵ Psychosomatic Med., 1942, 4, 273.

⁶ Ibid., p. 283.

THE PUBLIC CORPORATION

BY

D. HARCOURT KITCHIN

Barrister-at-Law

It has been proposed that soon after the war the Government shall set up a new system of social insurance, the benefits of which shall include every variety of medical attention. If this were done, machinery would have to be established by which every insured person might be given with certainty and smoothness the medical service he needed. The Government has suggested that the medical practitioners working the scheme should be organized into a salaried State service and controlled by the medical officers of the local authorities, but this idea at once aroused widespread and determined opposition. As an alternative, some members of the profession are in favour of the establishment of a "public corporation" to administer the medical side of the social insurance scheme. The arguments in favour of this solution have been ably set out in the Interim General Report of the anonymous body, Medical Planning Research.¹

The purpose of this article is to survey the structure and functions of some of the public corporations in this country in a search for data which might help in the design of a new corporation to administer nation-wide health services. I have been greatly assisted by the thesis² of the eminent American economist, Dr. Lincoln Gordon. Unless some other source is indicated, quotations come from that work, but readers will also gain much help from the work of Dr. W. H. Robson³ and Dr. J. D. Millett.⁴

With the expansion of the country's industry, many public utility services—ports, transport, electricity, and the like—have had to be removed from individual enterprise to some form of public control. This control has often been municipal, but the usefulness of a local authority is limited to its own area and resources. It is also unduly susceptible to local political influences. On the other hand, a few public services have been administered by a central Department of State—e.g., the Post Office, Public Works, and Crown Lands. The chief objection to this arrangement lies in the shortcomings of "bureaucracy." A civil service department may be an adequate regulator of private enterprise, but it is a bad organ of positive administration. Its decisions can be made only by the men at the top, its finances are rigidly controlled by the Treasury, and it is subjected to constant political attack. It is, therefore, inevitably slow, timid, and unenterprising. Such efficiency as the Post Office has is due to the reforms of the last decade, which made its administration in some degree independent. The practice has therefore grown up of placing public services which call for creative activity and initiative—when they become too large and important to leave to individual enterprise or local authorities—under the control of bodies created *ad hoc*, designed on the model of a joint-stock company but without its profit-making incentive.

Origin and Organization

The public corporation, board, or concern, as it has been variously termed, is not peculiar to this country, but has taken here a form especially suited to our national mentality and requirements. It embodies the admirable principle that the best way to get a given job done is to appoint capable and responsible people to do it and leave them as free as possible. It is usually placed under the control of a Minister, who is responsible for it to Parliament, but he does not, nor does Parliament expect him to, interfere with its day-to-day conduct. He indicates from time to time the general policy that the Government wish it to follow, and sees that its finances are duly administered. In the way in which it appoints its staff and does its work it has almost complete autonomy within the terms of the statute or charter which created it. It may be publicly criticized in Parliament and outside, but it reacts to this criticism according to the judgment of its members. Parliament and the Minister have the ultimate power to control it, but, realizing that its value lies in its freedom, they leave

that power unused. Its organization is not hierarchical, like that of a State Department, but parallel, like that of a commercial concern. Its staff perform services, tackle problems, and take decisions according to the needs of the actual situation and without much regard to general principles or theories.

In practice, the public corporation has been outstandingly successful. It has been distinguished by initiative, enterprise, efficiency, and financial stability.

"It has . . . combined most of the advantages of State ownership with those of commercial administration. If it has not always precisely found, it has at least indicated, the location of that delicate equilibrium point between administrative freedom and public responsibility which is the fulcrum of efficient public enterprise so controlled as always to act in the public interest."

The motive of successful and creative public service has proved to be quite as dynamic as the motive of profit-making. This is not surprising, for much of the initiative and efficiency that are said to characterize private enterprise as opposed to official administration is provided by salaried workers who gain nothing material from the success of their concern.

The modern British public corporation is evolved from the autonomous local port trust. This is usually elected by ship-owners and merchants using the port and paying its dues and rates, and derives its revenue from charges on shipping and goods. It is, as Gordon points out, a public authority predominantly representative of its immediate consumers, who form a relatively compact and unchanging group. The port trust itself developed out of municipal control, and its most imposing modern descendants are the Port of London Authority, the Mersey Docks and Harbour Board, and the Clyde Navigation Trust. By no means all public corporations, however, share the representative character of these bodies. A public corporation can in practice only be representative if it serves "a geographically compact and well-organized body of direct consumers whose principal common interest accords with the most desirable general policy for the undertaking." The Metropolitan Water Board is representative, but its unwieldy governing body is designed to stress "the idea of public representation and public responsibility" (Departmental Committee on Metropolitan Water Act, 1902, Cmd. 845, 1920) rather than to secure commercial efficiency. Such a corporation exists only because no single local authority has jurisdiction over the whole area. It is slow-moving, prone to sectional conflicts, and has, in Mr. Herbert Morrison's words, "a great deal of joint and not enough authority." (House of Commons Official Report, March 23, 1931; vol. 250, col. 54.) Where the public corporation has to serve a large area and its consumers are not organized, it is far better designed as a small non-representative board appointed by a Minister.

The medical profession itself contains a clear-cut example of the representative public board in the General Medical Council. The G.M.C. would probably be considered by the majority of those members of the profession (not a numerous class) who know anything about it to fulfil its functions adequately. On the rare occasions when it is required to act in accordance with a specific policy of the Executive (as in shortening the curriculum to meet the wartime need for more doctors), the close contact between its President and the permanent officials of the Privy Council makes co-operation swift and certain. Few of its critics complain that it does not maintain a high enough standard of competence in recruits to the profession. It has been attacked for the high average age of its members, which has been placed at 67 years: if this is a handicap it could only be remedied by altering the present system of representation. The Council's contact with the licensing bodies seems to leave nothing to be desired. Its duties do not call for a very intimate contact between it and the profession at large.

The Board of Control, which supervises the management of mental defectives and persons of unsound mind, is another public board with a good deal of autonomy, and is ultimately responsible to the Minister of Health.

London's Water Supply

At the beginning of the century London's water supply came from a large number of independent undertakings, municipal and private. The inconveniences of this situation were so great that Parliament in the Metropolitan Water Act, 1902, created

¹ *Lancet*, 1942, 2, Special Supplement.² *The Public Corporation in Great Britain*, Oxford, 1938.³ *Public Enterprise*, G. Allen and Unwin, 1937.⁴ *The Unemployment Assistance Board*, G. Allen and Unwin, 1940.

and incorporated the Metropolitan Water Board to "purchase, manage, and carry on the undertakings of the existing companies and to supply water within the area." Like the G.M.C., this board is an elected body, its members being chosen by the London County Council (14), the cities of London and Westminster; the Metropolitan Boroughs, the Essex County Council, the Conservators of the Thames and Lee, and the other local authorities concerned. Like many bodies of the kind, one of its first duties was to acquire a large number of going commercial concerns. The undertaking of each of the Metropolitan water companies was transferred to the new Board and vested in it, compensation being fixed by agreement or arbitration, and paid (if so agreed) wholly or partly in water stock. The agreement, to be valid, had to be unanimous and confirmed by the Court of Arbitration which also was created by the Act and which could modify an agreement. As in all such Acts, full provision was made for the transfer of staff from the expropriated undertakings to the Board, and for their rights on superannuation, on the lines already laid down for Metropolitan authorities.

Political responsibility for the Metropolitan Water Board was laid upon the Local Government Board, and in 1919 passed to the new Ministry of Health. The Minister has power to alter the representation and the total number of members of the Board to meet variations in the population of the local authority areas supplied by it, and to include new urban districts. He may hold local inquiries at his discretion to investigate complaints and representations. The M.W.B. makes an annual report and statement of accounts to the Minister.

Port of London Authority

Another typical representative public corporation is the Port of London Authority, which was set up by the Port of London Act, 1908, to administer, preserve, and improve the Port of London, actually to bring order into a chaos which threatened to drive most of London's trade out of the country. The Authority took over the undertakings of the three existing dock companies in the port, all the functions of the Thames Conservators below Teddington, its landward limit, and all the powers of registering, licensing, control, etc., which had previously been vested in the two associations of watermen and lightermen. It was given power to acquire land and to borrow, and its revenues come from rates on goods passing through the port, a maximum yearly total being fixed. It is now governed by the Port of London (Consolidation) Act, 1920—a private Act. It chooses its own chairman and vice-chairman, who need not be members, and they may receive a salary. They are elected for three years and are eligible for re-election. Seventeen of its members are elected by the ratepayers, wharfingers, and owners of the river craft in the port, and one by the wharfingers.

The keeping of the register of voters is one of the Authority's ties, and the elections, like all the work of the Authority, supervised by the Ministry of Transport. These members serve for three years and may be re-elected. In addition, members are appointed by the Admiralty, the Ministry of Transport, the L.C.C., the City of London, and Trinity House. The Ministry and the L.C.C. must each appoint one of their members after consulting organizations representative of labour. In practice, as Gordon shows, there is no real general representation even within the broad categories. The labour representation, though apparently unsuccessful in the early days, has borne fruit as the labour members have widened their interest from the single matter of the welfare of the workpeople to include the larger problems of administration.

Legally the Port of London Authority is subject to potential control by Parliament and to more immediate control by the Board of Trade and the Ministry of Transport. Its powers and their limits are set out in minute detail in the 1920 Act, but in practice it is far more independent than it appears on paper. The Minister of Transport speaks for it in Parliament, but its doings cannot be debated on his vote, as it is financially autonomous. Members have not discussed it on the adjournment nor on a private member's motion. Its day-to-day operations are not subject to debate. In 1912 (*Official Report*, July 22, vol. 41, col. 816) a private member claimed to move to consider its alleged failure to relieve traffic congestion and "decasualize" labour, but the Speaker ruled the motion out

of order: the Board of Trade, he said, has no controlling power through its representatives on the Authority, even if it gives them instructions, and cannot compel the independent Authority to take a particular line. Ministers have since disavowed control, and said that their appointees are not delegates who act under instructions. Complaints are referred back to the Authority, and the Minister has not even general power to require it to fulfil its statutory obligations. Either the Board of Trade or the Ministry has revisory jurisdiction over nearly all the Authority's administrative functions, and limiting powers over its commercial functions. These restrictions, however, are hardly ever used, and the Minister never withholds approval unless to safeguard other interests. Ministerial action is usually quite nominal.

Similarly, the P.L.A. is immune from direct political influence. In its labour disputes, which have been many, it declines to allow the Government to interfere. "Such outside control as exists is designed merely to offset the character of the Authority as a miscellany of interests." Control is most stringent, and the Authority's independence is most liable to encroachment in the sphere of finance. The chief executive officer of the Authority is the general manager, but the Board closely supervises all non-routine matters of administration, and determines even minor questions of policy.

Forestry

The Forestry Commission is historically the first example of the non-representative public board. It was set up after the last war by the Forestry Act, 1919, to repair the damage caused by the wholesale and largely indiscriminate cutting of the country's timber. State-owned woodlands and the ancient Crown forests were transferred to the Commissioners, and the leased some plantable land from the Commissioners of Crown Lands. They executed schemes of afforestation and supervise forest workers' holdings. Briefly, their work, which they have done energetically and well in spite of many disturbances and checks due to changes in Government policy, is "to grow timber and encourage others to do the same." The Commission was originally not a corporation, but it was incorporated as an afterthought to facilitate its purchase of property.

Unlike most bodies of this kind the Commission is not supervised by a Minister. There are ten commissioners, appointed for five years each by the Crown, nominated by the Prime Minister in consultation with the Agricultural Departments. One is appointed chairman, one must be a Member of Parliament, two must have special technical attainments; not more than three may be paid. By practice, not law, each of the three chief political parties has a representative. Executive work is done by an assistant commissioner each for England and Wales and for Scotland appointed by the Commissioners. Consultative committees sit for England, Wales, and Scotland. Committees are appointed to deal respectively with personnel, estates and holdings, technical matters, and national forest parks. The Commission itself deals with policy, finance, personnel, research, education, and publications.

The Commission, though very much of a law unto itself, is subject in various ways to the control and scrutiny of Parliament. Its mouthpiece is its parliamentary commissioner, who presents its annual estimates for approval; and on this occasion its policy and actions are open for discussion. Its accounts are examined by the Comptroller and Auditor-General, and every year the Public Accounts Committee summons and questions its accounting officer. The parliamentary commissioner answers routine questions, and occasional questions on policy are answered by the Prime Minister or the Chancellor of the Exchequer. By the 1919 Act it is subject to full Treasury control, and in acquiring land it is obliged to consult with the Agricultural Departments.

Though the Commission is, on paper, an independent body, it is actually more like a small Government Department than a public board of the modern kind. Its exercise of its executive powers is subject to Treasury direction, and the appointment and remuneration of its staff to Treasury approval. Its accounts are State-audited, and any surplus in the Forestry Fund is managed by the Treasury. State control over it is, therefore, unusually extensive. Gordon explains this status by a reminder

5 Post-War Forest Policy. Report by H.M. Forestry Commissioners, Cmd. 6447, 1943, H.M. Stationery Office. (2s.)

that, broadly speaking, its policy is primarily political rather than commercial. Trees are strategically important; moreover, they take a very long time to grow. The Commission can never be self-supporting, but must draw most of its revenue from the State, which is, therefore, bound to supervise it correspondingly closely. More than that, its revenue fluctuates with variations in Government policy. Nevertheless, as a small body appointed by Ministers and combining expert, commercial, and general qualifications, it stands on the direct line of descent of the present public corporations from the port trusts.

[To be continued]

SAVING THE VOLUNTARY HOSPITALS

Surveys in North-East England

The latest report of the North-Eastern Regional Hospitals Advisory Council, representing eleven local authorities and thirty-five voluntary hospitals in Northumberland and Durham, states that at the council's request the Ministry of Health and the Nuffield Trustees have appointed two officers to make a survey of hospitals in the region. The officers appointed were Prof. J. A. Ryle (until his recent appointment at Oxford, when he was succeeded by Sir Hugh Lett) and Dr. A. E. Quine of the Ministry. All the hospitals in Newcastle, Sunderland, Middlesbrough, and the Hartlepoons have been visited and meetings have taken place with the hospital authorities in each area. A survey of pathological services has been made by Dr. Wells, and proposals for the joint operation of the three public health laboratories in the Newcastle area are being considered by the local authorities concerned and by King's College, Newcastle. The council also took the initiative in summoning a conference of local authorities and the larger voluntary hospitals to consider the establishment of a co-ordinated service for the diagnosis and treatment of cancer. The Lord Mayor of Newcastle undertook to prepare a scheme which has now been considered in detail by two further conferences. The financial position of Durham County Hospital has greatly improved with the launching of the hospital contributory scheme, the initial cost of which was met by the council, and the income from this source in 1942 amounted to £14,800. The first instalment of the Nuffield grant, amounting to £2,000, was paid to the hospital last year, and payment of the second instalment is now recommended.

Merseyside.

Last year the Merseyside Hospitals Council distributed £155,758 to the associated voluntary hospitals, £31,714 to the medical staffs fund, £14,928 to other voluntary medical institutions, £38,790 as payment for treatment in municipal hospitals, and £21,953 to civic war charities. Employees' contributions amounted to £272,585, and employers' contributions to £60,973. Owing largely to the penny-in-the-pound fund, the voluntary hospitals have doubled their income since the fund started. In order to bring the income limit for free medical treatment in the open wards of the voluntary hospitals into line with National Health Insurance, it has been arranged, with the good will and consent of the Hospitals Medical Staffs Association, to increase that limit to £420 per annum for all non-manual workers (for manual workers there is no income limit). Liverpool Corporation has entered into a new agreement with the council concerning payments for maintenance of contributors and their dependants admitted to municipal hospitals.

TREATMENT OF TUBERCULOSIS IN WALES

On Aug. 20 a deputation from the Welsh National Memorial Association, headed by Lord Davies, met the Minister of Health, Mr. Ernest Brown, to impress upon him the need for more accommodation for the treatment of tuberculosis in Wales. The deputation stated that in spite of the fact that the Ministry of Health had made available 200 beds in emergency hospitals, the association's waiting list for institutional treatment had now passed the 500 mark. Moreover, patients had had to be discharged from sanatoria before completing their course of treatment. The association therefore asked that more casualty beds should be set aside for tuberculous patients; or, if this was impracticable, a temporary sanatorium should be built in South Wales. The Minister, in reply, said that it would be possible to restore to the tuberculosis service 50 casualty beds at the Morriston Hospital, Swansea, and to make available a 30-bed block in Monmouthshire. Other possibilities of providing additional beds would be explored. The main difficulty, however, was one of staff. The Ministry of Labour was now carrying out a campaign to recruit sanatorium staff, and he hoped that soon there would be an increase in the supply of nurses and domestic staff which would relieve this pressing problem in both Wales and England.

Correspondence

Foundations of a Comprehensive Medical Service

SIR,—Permit me to comment on the most interesting letter by Dr. George F. Buchan (Aug. 28, p. 278). I will take the three foundations he presents seriatim.

1. "A Health Ministry to include all the health functions of Government Departments and with health its sole function." There will, I feel sure, be general agreement that this reform should be carried out, and the sooner the better. There is, however, one all-important matter not touched on by Dr. Buchan—admittedly he, by reason of his position in the Public Health Service, could not discuss it—namely, the constitution of the "directing body" at the Ministry of Health. At present this body includes: (a) the Minister of Health and his secretaries, (b) a staff of medical officers of health, (c) an advisory committee. Many of us are not satisfied with an "advisory committee"; we desire to see an executive body set up—in other words a "Health Council," on which would be representatives from all bodies actively engaged in medical practice in its many forms (general practice, special practice, research, nursing, etc.), and from other bodies which should naturally be represented on a Health Council. A great principle is involved in this proposal, which has been put forward from time to time by individual members of the medical profession long interested in the creation of a comprehensive medical service. The purpose is to bring those who are more especially concerned with administration into closer relationship with those more directly engaged in medical practice and research. They contend that this reform would be of benefit to both parties and make for greater efficiency in the service. Naturally the Health Council would have to be of considerable size. Special boards or committees would deal with particular problems—e.g., obstetrics would have its board or committee. The parent council and its boards or committees would be relieved of much detail by committees of the large Government areas, which is the second foundation referred to by Dr. Buchan.

2. "That local government areas of sufficient size and with adequate resources be established, in each of which the administration of a comprehensive health service could be satisfactorily carried on." Obviously this is a most desirable reform. That it will meet with opposition from many of the smaller local authorities is to be expected.

3. "That following upon 1 and 2 powers should be given to the new local government authorities to plan and develop such a comprehensive service as might be considered best for their respective areas after consultation with the local medical profession. In coming to this conclusion the society [the Society of Medical Officers of Health], while supporting a whole-time salaried service, nevertheless realized that all reasonable methods of medical practice should be tried out before any final conclusion can be reached." This appears a reasonable proposal, but my contention is that, as with the central authority so with the local authority, it is not sufficient to have a policy determined "after consultation with the local medical profession." The medical profession should have representatives on the "health boards" of local authorities, additional to the medical officers of health who *de facto* are members of these boards. This is a matter of the very greatest importance, as otherwise the advice of medical officers of health, avowedly in favour of a whole-time salaried service (as Dr. Buchan admits), will determine the policy of the health boards of local authorities. Indeed it is probable that in some areas "part-time service" might not get a fair deal—to put it quite crudely but none the less truthfully—unless the medical profession of the area have a selected number of its members on the health boards of the area.

This brings me to the question of a part-time and whole-time service. On this Dr. Buchan states rather naively: "I am unaware that any responsible body advocates the immediate adoption of a whole-time salaried service." But why not put it in the positive form, always so much stronger than the negative: "That a number of responsible bodies have made definite pronouncements against a whole-time salaried service."

The course of events in recent months has been rather interesting—a general veering off from a whole-time salaried service. At the moment the hot-headed and plausible revolutionaries (there are always these two types in a revolutionary party) have been halted; while the younger members of the profession, who were at first rather carried away by the idea of a whole-time salaried service because of the security it promised, are, on second thoughts, a little doubtful if the best comprehensive medical service for the community can be secured by so simple a device as a whole-time salaried service. All countries, including Great Britain, have certain of their medical services whole-time and salaried. But in how many are the services rendered by general practitioners and specialists whole-time and salaried? Sweden, which is often quoted as an illustration of a really well organized and educated democracy, has not a whole-time service for all practitioners.

In the course of time, should a part-time service prove disappointing and inadequate a whole-time service will have to be introduced. But a very large number of the medical profession contend that it is possible to organize a part-time service which will prove satisfactory in every respect, and will preserve the intimate relationship between doctor and patient which has been a feature of medical practice in this country, and indeed in many other countries. Nothing must be done to sacrifice that great tradition. We resent extremely the attempt made by partisans of a whole-time service to rush their policy through. All we demand is that a fair trial be given to a well-organized part-time service. In other words, that we proceed with reforms in the medical services of the country in the traditional British manner.—I am, etc.,

Canterbury.

JOHN M. MUNRO KERR.

Conditions for Effective Health Service

SIR.—The object of State service, most are agreed, is to supply a method of administration which will remove inequalities that cause widespread hardships, especially among the less affluent. These inequalities are mainly concerned with provision of our basic necessities—health, food, housing, fair play, law. Can a State medical service function effectively and fairly—i.e., can it provide the greatest benefit for the greatest number, lay and medical—while the callings responsible for the other basic needs are run on the opposite principle of individual competition and devil take the hindmost? It is doubtful. As their interests are so interdependent, would not the efficiency-ruining effects of mixing opposing principles of administration soon be apparent? The first condition of effectiveness would therefore be like administration—i.e., State service—for basic needs.

Many of us were glad, therefore, that the B.M.A. decided to withhold support for State service; we felt it would be a pity to see such a great humane idea exposed to discredit by launching it into practice in circumstances adverse to success and to the majority of the profession and public had fully considered its implications. Which brings me to the second condition.

Namely, discussion, much more discussion, between both medical and lay, especially the rank and file of the various callings, before final decision. The subject is too large and intricate for any one individual to be didactic, and too important to all, both medical and lay, for individual apathy.

Medicine and law offer probably the most useful illustration of the interdependence and need for similar administration. Two of the main human necessities, without which life is savourless, are health and fair play or justice. The means or procedure for procuring them, reason suggests, should not, therefore, be for sale or exploitable. Since mental health is necessary for physical, is not a satisfied sense of fair play the basic requirement for a nation's health of mind and contentment? From this emerges a fundamental principle and policy of health planning—namely, the best available medical and legal skill must be at the disposal of all on equal terms independent of purse. There is evidence that not only doctors but many lawyers, also sociologists, lay and clerical, are thinking so.

If this view is reasonable then medical plans are but part of a greater nation-wide one, and must be made to fit the latter like pieces in a puzzle. We should all, especially our planners, keep the design as a whole in mind. Indeed the world generally, signs daily indicate, is at last realizing that, for providing

our basic necessities, co-operation must supplant individual competition if health, fair play, and human needs are to be equitably satisfied for all. Our individual competitive urges can find outlet in less injurious ways. It would be unwise to regard this as revolutionary; is it not rather a very relevant example of that slow and more desirable method of change—evolution? Nor is it Utopia; it is common sense and decency, and is probably the good, the great and only good, which the ill wind of war is angrily blowing to our perception.—I am, etc.,

London, S.W.3.

P. K. MURPHY.

Freedom or State Control?

SIR.—One aspect of the present controversy about the future of our profession has not been brought to notice. It is a most important and fundamental point.

The 19th-century individualism has been discredited and the pendulum has swung across towards the demand for State control of life in all details. Parallel with this inevitable reaction in thought there is the demand for freedom. The correlation of these two demands has presented through the ages, and still presents, the greatest theoretical and practical difficulties. Let it not be forgotten, therefore, that during the last hundred years freedom for the individual has been won by groups and unions of trades and professions working within the Constitution for the welfare of its members, who play a double role both as citizens and as engineers, miners, doctors, teachers, and lawyers.

The present demand for a State Medical Service, which would place our profession under the direct control of the "lay public," is made more vociferously by those who would be least willing to give up their hard-earned freedom as members of a craft or trade union.—I am, etc.,

Wimbledon.

R. D. FOX.

Views of Doctors in the Services

SIR.—Now that the medical departments of the three Services have given permission for medical officers on active service to meet and discuss the future of medical practice (*vide B.M.J.*, Nov. 28, 1942) it is to be hoped that more letters from this large and important section of the profession will appear in the medical press. Hitherto any representation of their views has not been greatly in evidence.

I recently acted as chairman at a meeting of medical officers from the three Services stationed in the North of Scotland, and it is their wish that our resolutions should appear in the correspondence columns of the *Journal*. It is with their full approval that I forward this letter.

First, we wish to call the attention of our colleagues on active service to the urgent need for them to express their opinions on the vital matters which are now under consideration.

We unanimously agree with the decision of the Representative Committee to request the withdrawal of the proposals for a State service under the Minister of Health and local government boards. It is our opinion that the Government, in planning for the future health of the nation, should consider first things first. For example, as it is generally agreed that the living conditions of a large portion of the community are responsible for much ill-health, the housing problem would appear to be a more urgent matter than the reorganization of the medical profession.

We further consider that, when new propositions are placed before the profession, a questionnaire should be sent to all practitioners on active service whom it is possible to reach, and that no decision should be made until they have had time to express their views.—I am, etc.,

H. L. HOFFMAN,
Surgeon, C.M.D., R.N.V.R.

Improving Hospital Administration

SIR.—I am anxious to call attention to some matters of hospital administration which, to my mind, urgently need alteration if the main function of these institutions—namely, the complete restoration to health of their patients—is to be in the fullest sense attained.

(1) *Hours at which Patients are Awakened.*—This in many hospitals is far too early. Patients are roused by the nursing staff for the purpose of washing, etc., as early as 4 a.m. This is a harm-

ful procedure because it disturbs the sleep of sick people and starts their day, often very long and monotonous, before they are really ready for it. It not only makes their stay in hospital more irksome, but actually hinders their convalescence by interference with a very essential part of their treatment—plenty of undisturbed sleep. This very early waking is not necessary. It is carried out mainly in order to get the wards ready for the visits of doctors. Any efficient matron, with the good will of the medical and nursing staffs, can remedy this matter with little trouble. It is merely a matter of rearrangement of work. No patient should be waked earlier than 6.30 a.m. in summer or 7 a.m. in winter.

(2) *Visiting Days.*—A happy contented mind is a valuable help to rapid convalescence, and, as those of us who have been in hospital or nursing homes know, a powerful contributory factor to this state is the visit of friends or relatives, so much looked forward to by patients. Instead of the usual twice-a-week visiting day, every day should be one in which patients can receive their friends. Again nothing but a little rearrangement of hospital routine is necessary. Many hospitals have already made such concessions and have thereby earned the lasting gratitude of patients and their relatives.

(3) *Time of Waiting for Out-patient Treatment.*—Under the present system all patients, no matter how many there may be, are summoned to the out-patient department at the same time. It is a common sight to see thirty, forty, or more crowded into a room, many not even able to obtain a seat, all waiting their turn to be seen. It may be three or even as much as six hours before the last is seen. This long weary period can be got rid of by the system of out-patient appointments. It is already in operation in many hospitals with conspicuous success. The waiting period has been reduced from hours to minutes. Punctuality of attendance by the physicians and surgeons is, of course, essential. The appointment system should be part of the routine of every hospital.

(4) *Waiting Lists of Patients for Admission.*—In many hospitals there is a long list of patients waiting admission mainly for operative treatment. In one hospital the chief surgeon recently told me the list was often over one thousand. In one of our local hospitals a patient was told in July that she needed operative treatment, and that her name would be put on the list and would probably be reached by December. This is all wrong. It is very hard on patients to have this long period of anxiety. It is actually harmful and in many cases militates against the chance of cure. It is largely due to the want of beds which obtains, especially in this time of war. But it can be overcome. Other hospitals are willing to co-operate. The one with no waiting list will help those with overcrowded lists. As an example, recently a local hospital found itself with about 60 patients urgently needing treatment. With the willing and friendly assistance of a neighbouring hospital, the list was completely cleared in less than a fortnight. I know hospitals and surgeons do not like parting with their patients, and that patients do not like parting with their doctor, but the good of the sick person should come before everything. This vitally important reform—the prevention of these long lists of patients needing admission—is overdue and should be attacked seriously by all hospitals.

(5) *Rehabilitation.*—This is an old word, but I am using it in a new sense—the complete restoration to bodily and mental health of any patient treated for accident, illness, or disease. Too often the hospital, for want of facilities, is compelled to stop short of this ideal. The surgeon performs his operation brilliantly and successfully. The convalescence of the patient, whether at home or in the hospital, is a dreary wait filled with anxiety for the future. Will he ever get really fit and be able to resume his former occupation and earn his former wages? This anxiety neurosis keeps him back and too often drives him into chronic neurasthenia, invalidism, and inability to return to normal life. The remedy is a proper system of rehabilitation. By this I mean not only physiotherapy (massage, exercises, radiant heat, ultra-violet rays, etc.) but such things as occupational therapy—either remedial or diversionary—outdoor games such as cycling, swimming, and team games, and useful work such as gardening, wood-sawing, or log-splitting, all under control, with proper instructors and supervisors, and so arranged with periods of rest that the whole day of the convalescent is usefully and enjoyably occupied. Thus the patient is interested, trained, and reassured, and his return to his usual life and to useful citizenship settled and hastened. This is no impracticable ideal. Rehabilitation centres are rapidly being established and doing wonderful work. The Royal Sussex County Hospital has in operation one of these centres under the aegis of a keen and competent physician and a keen and competent sister, and is doing good work. It is making arrangements at the present time to increase and improve rehabilitation facilities and is an example of which Sussex may well be proud. Complete restoration to fitness is one of the most important parts of medical treatment. It has been, and is, too much neglected. The Ministry of Health is taking up the matter very keenly, and in the near future every hospital must have its rehabilitation department, or, if too small to be able to have its own, should arrange for facilities at a larger centre if it is to

function properly. By this means we shall be getting so much nearer the real essence of treatment—the complete return to positive health of every patient.

—I am, etc.,

Hove.

L. A. PARRY.

Aetiology of the Fibrositic Nodule

SIR,—Lieut.-Col. Copeman's suggestion (Aug. 28, p. 263) that influenza may be the underlying cause of "rheumatic nodules" and "myalgic spots" is very interesting. He quotes as exciting causes of pain and local tenderness: cold in the head, mumps, sandfly fever, glandular, undulant, and scarlet fevers, measles, and rubella. All of these share with influenza one common feature—fever.

Many individuals have rheumatic nodules of whose existence they are unaware until they become painful; when they do so examination will disclose other nodules which have not yet become painful. If such an individual is treated by artificial fever—e.g., by the pyretic bath—an almost constant experience is that the tender areas become for a short time more tender and many of the hitherto painless nodules also become tender. This appears to be a direct result of raising the body temperature. May it not be true that the role of influenza is merely to act as a similar excitant of a condition which is already present though unsuspected because it has not yet called attention to its existence by causing pain?—I am, etc.,

London, W.1.

C. E. SUNDELL.

Childhood Infection and Adolescent and Adult Phthisis

SIR,—Dr. Macpherson in the *Journal* of July 24 (p. 98) has shown that a 0.43% increased incidence of cases of pulmonary tuberculosis in young adults has been revealed by recent mass radiography. She states that according to the hypothesis in Report V these symptomless adolescents are the very people who eventually will develop manifest disease, and that in the majority of these cases the expected spread of the disease comes sooner or later after a variable interval. She has not stated how many of these symptomless young adults develop active disease, but we know that many of the adult population are infected as revealed by tuberculin tests and yet get no active disease, and that secondary healed lesions are found frequently at post-mortems. It may be argued that their tuberculin-sensitiveness is due to healed primary lesions.

Finally, it is suggested that the majority of these young adults without symptoms, physical signs, or fever, with normal gain in weight and normal blood sedimentation rate, should have immediate treatment by artificial pneumothorax. The few exceptions are those who can afford the time for prolonged home rest. I venture to suggest that this is perhaps rather too sweeping a proposal. After many years' continuous practical experience in artificial pneumothorax I feel that it should not be lightly undertaken in any individual. Each case should be judged on its merits. There is always the danger that once the pleural surfaces have been separated by an air space in any individual, that individual is exposed to one of the greatest risks in pulmonary tuberculosis—namely, the possibility of a spontaneous pneumothorax into an A.P. space, with its frequent consequences, effusion, empyema, and often death, unless, as sometimes happens, the pleural infection is arrested by various drastic methods. Possibly with expanding modern thoracic surgery the fear of this risk is less, but I do not know if that is so. One criterion before starting an A.P. should be, 'Is the disease more dangerous to the patient than the A.P. or vice versa?' Some of these symptomless adults come under the latter category. One cannot guarantee that a shallow pneumothorax will not give rise to serious complications. A shallow bilateral pneumothorax may be as easily tolerated as a unilateral one, but it doubles the risks of complications. I question whether such widespread action should follow from a mere hypothesis.

Even in symptomless cases pulmonary tuberculosis is now regarded as a local manifestation of a general disease. A.P. does not cure the latter, but assists the general defences, and is merely a local splint. It is equally important to treat the general condition, which A.P. patients, feeling secure, are apt to neglect despite supervision at refills. I think it is often a mistake to allow A.P. patients to return to work or school soon after A.P. is started, owing to risks of outside infection.

I think the proposal that the large majority of these symptomless young adult cases of pulmonary tuberculosis discovered by mass radiography require there and then to have an A.P. done should not be accepted without due consideration. If this proposal is accepted there may be many regrets in individual cases.—I am, etc.,

Edinburgh.

A. NIVEN ROBERTSON.

Tuberculosis in Childhood

SIR,—In your leader on tuberculosis in childhood reference is made to a report by a subcommittee of the British Paediatric Association. As I have not had the privilege of receiving a copy I was much interested in your leader. The recommendation that there should be some mechanism whereby children suffering from erythema nodosum or phlyctenular conjunctivitis can be brought to the notice of the tuberculosis officer surely presents no difficulties. Here in Sheffield, where the school medical service works in close liaison with the tuberculosis dispensary, every child suffering from either of the defects mentioned above is referred to the tuberculosis officer. I mention this point advisedly as it is stated the document "forms a serious indictment," and it might appear that the school medical service had not realized the need for the further examination of these children.—I am, etc.,

H. M. COHEN.

School Medical Officer.

Sheffield.

SIR,—In your leader on tuberculosis in childhood (Aug. 28, p. 270) you mention a report by the subcommittee of the British Paediatric Association. This has not yet been published, and in the form in which I saw it over a month ago it contained some recommendations—e.g., "special clinics, staffed by those with paediatric experience"—which would not, I think, be accepted by the majority of tuberculosis workers. Divorce of the discovery and follow-up of child contacts from the main tuberculosis scheme would certainly be a controversial suggestion. However, the B.P.A. has been so sensible as to consult with the bodies more directly concerned with tuberculosis, and I hope that the report when it gets the wider publicity which you desire will show some modifications.—I am, etc.,

High Wood Hospital for Children, Brentwood.

J. V. HURFORD.

** We understand that the report of the British Paediatric Association is soon to be published in full.—Ed., B.M.J.

Preventive Medicine through Breast-feeding

SIR,—Our profession of late has had a great deal to say about "positive health" and the part the practitioner should play in "preventive medicine." So distinguished a layman as Sir William Beveridge has echoed the expressions, with evident endorsement. Yet the first is undefined and the second, as used, misleading. "The prevention . . . of disease . . . by medical treatment" and "diagnosis of disease in early stages when it can be prevented" are seen to be statements of the impossible when thoughtfully considered. When first the patient ("sufferer") comes to the doctor and skilful earlyagnosis discovers the disease from which he is suffering, it is too late to "prevent" it. Prevention is a different sort of thing altogether. "Prevent us, O Lord, in all our doings with Thy most gracious favour" should be our right line of thought; and the G.P., through the nutritional advice he gives, can do something to guide some of his clients into the same. Those clients will be the mothers of present and future children. Food, its own wholesomeness and quality, is the chief factor in health. What the mothers eat forms the children. Contrast the teeth of Asiatics, breast-fed in infancy, with those of our people, and then consider the advice we give in the child welfare centres. "Lactogen doesn't suit: better try 'Cow and Gate.'" The advertisements of the patent "nutrients" adorn the walls. That is the "atmosphere" to which we invite the so-called nursing mother.

It is our own profession who bear the main and ultimate responsibility for the vital blunder of the "civilized" mammal of our genus—mammal in name but not in function. In the last war Sir Truby King was brought from New Zealand to show our people the error of their ways. He brushed aside the plaintive "I can't feed him," "My milk went when I got up," withered with his scorn the pleaders of "social duty" as an excuse for bottle-feeding, taught women whose lactation

was poor how to feed and manage themselves, reinforced the old true teaching of the Rotunda Hospital about the prevention of breast induration—would that our schools would teach it and the result of his efforts was that women who "couldn't feed their babies did, and found themselves proud to do so.

Yesterday one of us had occasion carefully to examine hundred or so children for a baby show. Seen one by one thus in a chain the links of precious metal, "the breast-fed" were recognizable: vital good-skinned, not heavier—often so heavy. One vividly recalled Truby King's story of the "bucket-fed" boots: the "Paris calf" was from the R. veal—that is, from the calf that had been suckled by the cow not so the cheaper boots—the "bucket-feds."

Do our colleagues who conduct welfare centres have such thoughts in mind? Do they recall the Chicago figures? A total of 20,061 infants attending the centre between 1924 and 1939 were closely followed for the first 9 months; 9,749 (48.5%) were wholly breast-fed, 8,605 (43%) partially, and 1,707 (8.5%) artificially fed upon a definite plan. All were attended at intervals by centre officials. Of the breast-fed 15 or 0.15% died, of the "partially" 59 or 0.7%, while of the artificial fed 144 or 8.4% died, 82 of them from respiratory infection. Will not the fifty-six times greater mortality of the artificial fed at last modify the practice of our so-called "welfare centres"?—We are, etc.,

OLIVER BLACKLAW.

LIONEL JAS. PICTON.

JOHN R. T. TURNER.

Views on Diabetes

SIR,—For some months a controversial correspondence on the treatment of diabetes mellitus has appeared in your column. To those who are accustomed to the control of this malady several points of interest arise which offer scope for investigation by physiological workers.

The blood sugar is placed on too high a level to the exclusion of other factors. It is a condition which is easily altered from day to day by worry, overwork, tobacco, and alcohol. When a patient attends a clinic all that can be known about his blood sugars is their state on one particular day when the patient arrives in a prepared state and his curve behaves like a description in a textbook. Of his habits, diet, and blood sugars for the previous three months nothing can be assumed. Because the blood-sugar percentage is regarded by many as a reliable index of the severity of the condition, all the complications such as cataract and retinitis are attributed to a raised blood sugar. Why should we not assume that these are due to a deficiency of insulin and not to a raised blood sugar?

What is the mechanism of the control of hypoglycaemia? Is it to be considered that the blood sugar is raised merely by the digestion of a carbohydrate food?—It is true that the symptoms are relieved by a carbohydrate drink or lump of sugar, but the alleviation is often so rapid (30 to 60 seconds for considerable amelioration) of symptoms is not unusual that it appears unreasonable to believe that the digestion of the carbohydrate is the only factor responsible for the rise of the blood sugar. I venture to suggest that mechanical stimulation of the gastric mucosa may play an important part.

For a number of years I have felt that the present method of the control of diabetes is based on an incorrect principle of regarding the blood sugar as the only guide in treatment. I am of the opinion that it is the insulin content of the blood which should decide the line of treatment, and, until such a time when we shall possess knowledge of the normal blood insulin, its variations, and a simple biochemical method of its assessment, we shall always rest in stagnated pond with its minor periodical waves of dissension.

I shall not enter the field of pentosuria and ask why excess of glucose in the blood is thought to lead to cataract, while excess of arabinose or xylose leaves the lenses unchanged, but it is pitiful to note that in spite of the great deal of correspondence on diabetes with the exception of a more liberal diet (and even this not by all physicians) and the development of a multiplicity of insulin compounds, the understanding of the principles of diabetes and the method of treatment have undergone very slight alteration in the last 20 years.—I am, etc.,

Edwards.

A. D. MATTHEWS.

Peripheral Arterial Embolism

SIR,—Having read Major H. Agar's article (July 24, p. 101) I am prompted to record this case of peripheral arterial embolism and successful embolectomy.

A man aged 32 was admitted to the casualty department at Ancoats Hospital about 12.30 p.m. on July 5, 1943, complaining

of severe pain in the right groin and loss of sensation in the right leg, which apparently had started quite suddenly about 8.30 a.m.—i.e., 4 hours previously—while he was setting out to work. Clinical examination revealed absence of pulsation in the dorsalis pedis, posterior tibial, and femoral arteries on the right leg, which was cold and pale. There was anaesthesia to pin-prick from toes to knee. Aortic pulsation could be felt in the abdomen. The heart, though not enlarged, showed a Stage II mitral stenosis with regular rhythm. A diagnosis of arterial embolism at the bifurcation of the common iliac artery was made and the patient admitted. He was operated on within the next hour by the resident surgical officer, Mr. I. J. Philp, who successfully removed an embolus (patient under spinal anaesthesia) which was sitting on the bifurcation of the right common iliac, with a large tongue passing into the external iliac and a very small tongue into the internal iliac. The patient recovered from the operation, has normal circulation in the leg, and was apparently quite fit when seen a few days ago—six weeks after operation.

There are three interesting features in this case. First, successful embolectomy was performed seven hours after occlusion of the vessel. Secondly, the vessels containing the clot were in spasm although a spinal anaesthetic had been given. Thirdly, the patient had mitral stenosis with regular rhythm. Subsequent x-ray examination of the chest showed no enlarged left auricle where the thrombus could have been formed, but in view of Sir Maurice Cassidy's statement that these cases are usually due to active endocarditis it will be interesting to see if the man develops any sign of the disease or any further emboli.

Finally, I would like to stress, as does Mr. Guthkelch (Aug 21, p. 245), the importance of early diagnosis, and the more widespread realization by general practitioners in particular that early operation can be successful.—I am, etc.,

B. WOLMAN,
Resident Medical Officer.

Anceats Hospital, Manchester.

Precision Method of Cephalometry and Pelvimetry

SIR.—Dr. Millington's criticisms (Sept. 11, p. 338) of the radiometrical method described by me in the *Journal of Aug. 1* (p. 196) may be summarized under three headings: (1) The method compares unfavourably with those usually employed in depth location examinations. (2) In pelvimetry the method may give as good results as others but it requires heavy exposures. (3) In cephalometry it is inaccurate, since the two shadows are cast by completely different diameters of the object. My answers to the above objections are as follows:

1. The method is designed primarily for measurement of certain diameters and is not intended to replace the well-established methods of depth location.

2. Its chief use in pelvimetry is for measurement of the transverse diameters of the inlet and outlet. I have proved by practical experiment on a dried pelvis that (in my hands) the method is more accurate than the Thoms grid method for reasons which I have already stated. It is of equal accuracy to the horizontal stereoscopic methods of Hastings and of Dippel and Delfs (U.S.A.), and its results are less affected by inadvertent errors in the tube-shifts. Moreover, it allows the calculation to be done in one stage instead of in two. I shall say more about its theoretical accuracy in the paragraph on cephalometry. In regard to exposures, there is not the slightest reason why they should be abnormally high. Accurate results are obtained with 40-in. and 30-in. tube-film distances, and as the examination can be made with the patient in the supine position the method is within the capacity of most medium-powered sets. Average exposures at these distances, using fast screens and films, are 250 and 200 milliampere-seconds at 70 kV. Distances longer than 40 in. and 30 in. are unnecessary, although they improve bone detail if adequate power is available.

3. In regard to cephalometry, I am indebted to Dr. Millington for pointing out a theoretical error as it has prompted me to calculate the error and to prove that it is negligible. Dr. Millington's diagram is, of course, not intended to be in proportion, and it makes it appear that the two false diameters are much above the true diameter. Reconstruct the diagram to correspond with normal working conditions—i.e., with the tube 40 in. and 30 in. above the film and the foetal head a circle of

4 in. diameter with its centre point 7 in. above the film—then it is at once apparent that the false diameters are very close to the true diameter. (Confirmatory evidence for this statement is given by Holmquest (*Radiology*, 1938, 31, 198), who states that "for anode-film distances employed in roentgenography the error in dimension is negligible.") In actual fact their calculated distances are 0.12 in. and 0.18 in. respectively above the diameter. The lengths of the shadows of these two diameters on the film are 4.85 in. and 5.2 in. respectively. Applying the formula, we have this sum:

$$\frac{5.2 \times 4.85 \times 10}{(5.2 \times 40) - (4.85 \times 30)} = \frac{252}{62.5} = 4.03 \text{ in.}$$

Thus the theoretical error is +0.03 in. No gynaecologist would quarrel with an error of this order. In fact, to all intents and purposes the result is dead accurate.

The above figures can be checked by calculation or graphically. Similarly, one can calculate the error in the final result supposing that the tube-film distances have been measured inaccurately. If, for instance, a careless radiographer took the films at 43 in. and 33 in., and the radiologist worked on the routine basis of 40 and 30 in., in his calculation the result would be 3.96 in. instead of 4 in., an error of only 0.04 in. Or take another example: when the tube is wrongly placed at 40 in. and 33 in., the result is 4.23 in., an error of +0.23 in. When it is realized that a similar mistake of 3 in. in setting up a horizontal tube-shift would have disastrous effects on the final result the comparative immunity to abuse of the vertical tube-shift method is striking.

Dippel and Delfs, in their excellent article on the subject in *Surgery, Gynecology and Obstetrics* (May, 1941, 72, 915), make the definite statement that "errors in tube-film distance do not produce as great technical errors as do errors in total tube-shift distance." They refer in the above sentence to lateral tube-shifts. I must therefore strongly repudiate Dr. Millington's contention that the method is liable to serious errors. On the contrary, theoretical considerations have confirmed my practical experience that it is rightly termed a method of precision. Whether or not this method of cephalometry and pelvimetry is "new" I cannot say. I have never seen any reference to it in the literature. The idea of using a vertical tube-shift was taken, as I have already indicated, from work published by Portés and Blanche in 1924, but my method differs in many respects from theirs.—I am, etc.,

Reading.

PAUL CAVE.

"The Classics"

SIR.—Dr. Clark-Kennedy has given us food for thought in his paper published on Sept. 4. For him the classics primarily mean the Greek writings, an opinion any medical scholar must incline to hold. No writer whose mother-tongue was Latin made a first-rate contribution to our science or to any other branch of science. Indeed the contribution of Rome to general literature was, in comparison with that of Greece, small. But the direct influence of, say, Virgil, Horace, and Cicero upon the thought and style of our modern predecessors has been far greater than that of their masters. There is the further point that power to read Latin is a key to the whole of medical literature down to the 19th century. Without that key, much professional literature of the 15th to 18th century is closed to us.

It is, I suggest, for educational experts to decide whether it is possible to equip young people with a reading knowledge of Latin by means of a less laborious drill than veterans remember. If it is possible, then, in my view, Latin ought to be a compulsory subject of medical pre-education. I have sometimes wondered whether the choice of authors for reading in schools is judicious. At 63 I often read Virgil, Martial seldom. At 16 Martial would have given me more pleasure than I was capable of deriving from Virgil. At the M.R.C.P. examination I was required to construe this epigram:

Languebam; sed tu comitatus protinus ad me
Venisti centum, Symmache, discipulis
Centum me tegere manus aequilone gelatae;
Non habui febrem, Symmache, nunc habeo.

The point is not very sharp but might bring home to the young that these terrible people, as Dr. Blimber's pupils not unreasonably regarded them, the Romans were natural human beings, not actors in costume plays.—I am, etc.,

MAJOR GREENWOOD.

Obituary

A. W. BYRNE, C.B.E., M.B.

An obituary notice of Dr. Austin William Byrne, expert adviser in public health to the Egyptian Government, who died on July 10, appeared in the *Journal* of Aug. 7. We are now able to print extracts from a personal appreciation written by Dr. A. Cecil Alport, F.R.C.P., professor of clinical medicine and director of the Medical Unit at Cairo University.

The death of Dr. Austin Byrne came as a shock to his many friends in Egypt. After a distinguished academic career Dr. Byrne joined the Regular R.A.M.C. and went to India, where he held various responsible posts during the last war. For his services he was mentioned in dispatches and received from the Government of India a special letter of thanks and a special souvenir. Throughout the whole of India he was well known as a sportsman and one of the best gentlemen riders in the East. He was invalided from the Army in 1919, and in 1925 was appointed as expert adviser in public health and tropical medicine to the Government of Egypt. In this post, as in all appointments he held, Austin Byrne proved to be an unqualified success. His charm of manner, his sympathetic nature, and his unfailing courtesy made him



extremely popular not only in English but also in Egyptian Government circles: he was, in fact, exactly the type of man that England requires in a position such as he held in Egypt. In August, 1941, he was appointed by the Council of Ministers to the important post of president of the International Quarantine Board and technical adviser to the Quarantine Administration of Egypt. Dr. Byrne was due to retire in 1940, but duty kept him in Egypt, and in the end he literally worked himself to death. At the outbreak of war, apart from his other duties, he became chairman of the committee which organized the groundwork of all medical arrangements for air-raid precautions in Cairo. In addition, he had in 1939 become liaison officer between the Egyptian Government Medical Services and the British and Allied Forces in Egypt. Austin Byrne's life was a full one. He died in harness, and his passing leaves a gap in the circle of his friends, both British and Egyptian, which it will be difficult to fill.

WILLIAM PASTEUR, C.B., C.M.G., M.D., F.R.C.P.

The consulting staff of the Middlesex Hospital has lost another member through the death on Sept. 1 of Dr. William Pasteur at the age of 87. He died at Tunbridge Wells, where he had made his home since retiring from active work. He was the fifth in seniority on the roll of living Fellows of the Royal College of Physicians of London.

William Pasteur was educated privately at Maidenhead and then at University College, London, and qualified in 1880 from the M.B., where he became house-physician. He took the M.D. in 1882, and proceeded M.D. in 1884, after post-graduate study in Vienna clinics. Settling in London he was elected assistant physician to the Middlesex Hospital and to the Queen's Hospital for Children in Bethnal Green; he was for many years a member of the visiting staff of both institutions, and eventually consulting physician. For nearly the whole period of the last war Dr. Pasteur served, with the temporary rank of colonel, A.M.S., as consultant physician to the British Armies in France, succeeding his senior Middlesex colleague, Sir James Kingston Fowler, at the Rouen base. For his military services he was mentioned in dispatches and created C.B. and C.M.G. He joined the British Medical Association in 1894, was a corresponding member of the Belgian Royal Society of Public Medicine, and a past-president of the Medical Society of London. He had been examiner in medicine for the Universities of London, Durham, and Birmingham, and for the English Conjoint Board during two periods. He was elected F.R.C.P. in 1891, served on the Council of the College in 1909-11, and was censor in 1915-16; he gave the Bradshaw Lecture at the College in 1908. His presidential

address to the Medical Society of London was on post-operative lung complications. Thoracic disease had long interested him, and the war of 1914-18 gave him a wide field for study of gunshot wounds of the chest, which for the first year were mainly left by the surgeons to the care of the physicians at base hospitals.

A man of inborn dignity, with a straightforward and kindly manner which reflected his true nature, Dr. William Pasteur was looked up to by all. Here, one felt, is a physician who will give his whole mind to the case and treat it with wisdom and understanding. Such clinical teachers leave the mark of their personality on a receptive student when he passes into practice.

We regret to announce the death at Gloucester, on Aug. 28, after five weeks' illness, of Dr. JOHN WILLIAM HUNT, who had won the trust and affectionate esteem of his many patients as a fellow practitioners during his ten years' work in that city a his long term of office abroad. He was educated at Oxford and then became a medical student at St. Mary's Hospital, London, qualifying M.R.C.S., L.R.C.P. in 1900 and passing his final examination for M.B. at the University of London the same year. He served for a time at the Hendon Sanatorium, after which he joined the Colonial Medical Service holding the position of house-physician at the Royal Somers Hospital, Capetown, and later of district medical officer in Fiji, where he lived for 23 years. Then he returned to England and served twice as hon. secretary of the local Branch of the B.M.A., and worked devotedly in his Gloucester practice, where his never-failing good humour, kindness, and ready sympathy gained for him staunch friends, who deeply mourn his loss. He is survived by his wife and daughter.

Universities and Colleges

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting of the Faculty held on Sept. 6, the President, Mr. James H. MacDonald, in the chair, the following were admitted Fellows of Faculty *qua* physician: C. B. Ainscow, M.B., Ch.B. A. K. Boyle, M.D., J. Manhas, M.R.C.S., V. T. Smith, M.I.C. W. Maclay, F.R.C.S., was admitted a Fellow of Faculty *qua* surgeon.

The Services

Two officers of the Indian Army Medical Corps figure among the recipients of awards for gallantry in North Africa. Capt. N. A. Subramaniam, M.B., medical officer of a battalion of the 9th Gurkha Rifles, was awarded the M.C. for outstanding bravery and devotion to duty during the Djebel Garci Hills operations in April. He not only skillfully dressed under shellfire the wound of those brought to the regimental aid post, but repeatedly moved out into the shell swept zone to attend to the casualties of his own and other units which lay there. Capt. C. Arumainayagam, attached 2nd Gurkha Rifles, was also awarded the M.C. During the operations in April in the Enfidaville sector, although on more than one occasion knocked down by blast from bursting shells, he continually moved about over a wide shell-swept area tending the wounded. "Knowledge of his presence," states the citation, "had a definite effect on the morale of the battalion."

Surg. Lieut.-Cmdr. (Acting Surg. Cmdr.) J. O. Clyde, R.N.V.R. has been awarded the R.N.V.R. Officers' Decoration.

CASUALTIES IN THE MEDICAL SERVICES

Died on Active Service.—Fl. Lieut. J. M. Barkla, M.B. F.R.C.S.Ed., R.A.F.V.R., youngest son of Dr. C. G. Barkla, F.R.S. Professor of Natural Philosophy, University of Edinburgh.

Prisoners of War.—War Subs. Capt. A. Barber, R.A.M.C., Temp. Lieut.-Col. H. C. Benson, R.A.M.C., Temp. Major P. B. Hanbury, R.A.M.C., Acting Major N. C. Lendon, R.A.M.C., Capt. J. S. McConnachie, R.A.M.C., War Subs. Capt. K. C. Matheson, R.A.M.C.

Previously Missing, now officially presumed Lost at Sea.—Capt. E. J. A. Needham, R.A.M.C.

No. 34

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital statistics in the British Isles during the week ended August 28.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) the 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	48	3	20	2	1	66	3	20	2	5
Deaths	—	—	—	—	—	—	—	—	—	—
Diphtheria	614	35	194	3	69	717	40	173	50	13
Deaths	10	—	—	—	2	16	—	—	2	1
Dysentery	129	19	95	—	—	91	16	86	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis	—	—	—	2	—	3	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	45	7	—	—	—	46	4	3
Deaths	—	—	—	—	—	—	—	—	—	—
Infective .. enteritis or ..	—	—	—	—	—	—	—	—	—	—
diarrhoea under 2	—	—	—	—	—	—	—	—	—	—
Deaths	64	2	7	253	9	54	4	19	161	8
Measles	986	61	19	15	2	3,165	273	72	13	18
Deaths	—	—	—	—	—	2	1	1	—	—
Ophthalmia neonatorum	130	7	14	—	—	94	1	16	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	7	1	1	—	—	11	1	1	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza*	337	23	8	—	2	352	20	7	—	1
Deaths (from influenza)	7	1	—	—	1	11	1	1	—	—
Pneumonia, primary	—	—	—	—	—	—	—	—	—	—
Deaths	—	13	137	12	4	—	15	97	10	8
Polio-encephalitis, acute	2	—	—	—	—	2	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	14	2	—	—	—	14	1	—	6	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	3	18	—	—	—	2	11	4	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	126	9	14	1	2	168	13	11	—	4
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	1	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1,890	215	289	49	58	1,455	100	338	41	25
Deaths	—	—	—	—	—	—	—	—	—	—
Small-pox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	16	—	—	2	—	18	1	—	5	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	1,915	139	115	44	31	1,212	107	30	82	3
Deaths	—	—	—	—	—	—	—	—	—	—
Deaths (0-1 year)	335	31	46	36	31	284	32	62	51	29
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	3,537	487	498	174	116	3,601	522	521	164	119
Annual death rate (per 1,000 persons living)	—	—	—	—	—	—	—	—	—	—
Live births	5,909	661	892	360	288	5,938	691	873	442	267
Annual rate per 1,000 persons living	—	—	—	—	—	—	—	—	—	—
Stillbirths	184	12	26	—	—	207	15	26	—	—
Rate per 1,000 total births (including stillborn)	—	—	—	—	—	—	—	—	—	—

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales increases were recorded during the week in the incidence of scarlet fever 374, diphtheria 87, and ophthalmia neonatorum 40, while notifications of whooping-cough fell by 100, dysentery by 69, and measles by 63.

The rise in the number of cases of ophthalmia neonatorum was due to an increase of 43 in Birmingham C.B. The increase in scarlet fever was general, the highest figures being for London 84 and Lancashire 50. Notifications of diphtheria were higher than for the past three months, especially in Lancashire 33 and Glamorganshire 25. The fall in the number of cases of whooping-cough was mainly confined to the North; in the South there was a slight increase, the only local variation of note being a decline in Yorks West Riding of 55. Notifications of measles fell below 1,000 for the first time for 14 years. While there were 63 fewer cases of measles in Kent, an outbreak was reported from Lincolnshire, East Elloe R.D., where notifications rose from 2 to 66.

The lower incidence of dysentery was mainly due to a decline from 57 to 13 cases in Yorks West Riding. The other centres of infection were London, Kent, and Lancashire, with 19, 13, and 11 cases respectively.

In Scotland notifications of diphtheria rose by 53, and scarlet fever (continuing a general rise) by 68. The increase in whooping-cough, 25, occurred in the Western area. Dysentery was still prevalent, the largest returns being from the cities of Glasgow 24, and Edinburgh 14.

In Eire the only region from which any cases of measles were reported was Dublin C.B. Three-quarters of the notifications of whooping-cough were recorded in two areas—Dublin C.B. 15, and Sligo R.D. 19. The apparent large increase in cases of infantile diarrhoea and enteritis was due to the inclusion in a Dublin hospital of 210 cases which occurred during the past three months.

The Week Ending September 4

The returns of infectious diseases in England and Wales during the week included: scarlet fever 2,206, whooping-cough 1,928, diphtheria 625, measles 674, acute pneumonia 304, cerebrospinal fever 43, dysentery 238, paratyphoid 14, typhoid 11.

Influenza in South Africa

During August there was an epidemic of gastric influenza in Johannesburg, chiefly among children. At one period 40% of the pupils at some of the city schools were absent.

Medical News

The annual general meeting of the Marie Curie Hospital will be held on Thursday, Sept. 23, at 3 p.m. at the Rembrandt Hotel, Thurlow Place, S.W.

The autumn programme of the Royal Sanitary Institute includes meetings in Rhyl, Leamington, London, and Bath. On Saturday, Sept. 25, at 10.30 a.m. in the Town Hall, Rhyl, Dr. A. E. Roberts will read a paper on the Government milk policy, and Mr. M. Emlyn Thomas on milk administration. On Saturday, Oct. 16, at 10.30 a.m. in the Town Hall, Leamington, papers will be read on town and country planning and on sampling under the Food and Drugs Adulteration Acts. On Wednesday, Oct. 20, at 2.30 p.m. at the Royal Sanitary Institute (20, Buckingham Palace Road, London, S.W.1) there will be a discussion on the problem of sewage disposal in rural areas. On Saturday, Nov. 6, at 10.15 a.m. in the Pump Room, Bath, papers will be read on food standards and on housing.

The London Area Committee of the Association of Scientific Workers is holding a conference at the Essex Hall, Essex Street, Strand, W.C., on Saturday, Oct. 2, at 2.30 p.m. for the purpose of surveying and discussing the many questions of medical and nutritional relief, and examining the technical measures that must be taken to deal with them. The speakers will include Prof. J. R. Marrack, Mr. F. Le Gros Clark, and Mr. Aleck Bourne.

The London School of Hygiene and Tropical Medicine has arranged a week-end course for medical practitioners on Factory Medical Services and Industrial Diseases on Saturday and Sunday, Oct. 2 and 3, at 2 p.m. The fee for the course is one guinea, and applications should be made to the Secretary of the School, at Keppel Street, Gower Street, W.C., not later than Monday, Sept. 27.

* Includes primary fever for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

This year Hospitals Day in the London area will be held on Tuesday, Oct. 5. Offers of service should be sent to the London Hospitals Street Committee, 36, Kingsway, W.C.2.

The annual general meeting of the Association of Industrial Medical Officers will be held at 11 a.m. on Saturday, Oct. 16, at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C. In the afternoon a paper will be read by Dr. M. W. Goldblatt on the investigation of toxic hazards.

The September number of the *Practitioner* opens with five articles which form a symposium on medical sociology. The first is by Sir Farquhar Buzzard, writing on social medicine and the general practitioner; the second is by Sir Arthur MacNalty, on public health and the future; the third by Prof. J. M. Mackintosh of Glasgow, on housing and health (in the form of three candid letters to a doctor); the fourth by Dr. J. A. Charles, on instruments of social medicine outside the hospital; and the fifth by Miss Margaret Roxburgh, on the work of a hospital almoner.

On June 1 Major-Gen. Norman T. Kirk became Surgeon-General of the United States Army in succession to Major-Gen. James C. Magee, who has retired.

Dr. Hermann Louis Kretschmer, a well-known urologist of Chicago, has been elected president of the American Medical Association.

News has been received from Prof. D. E. C. Mekié, F.R.C.S.Ed., of the Singapore Medical School, and from Major W. J. E. Phillips, R.A.M.C., that they are safe and prisoners of war in Japanese hands. Dr. L. John Clapham, Colonial Medical Service, is reported a prisoner in Borneo.

The Royal Medical Foundation of Epsom College announces the following vacant pensions. In November next the Conjoint Committee will make an award of £35 per annum to a spinster daughter of a medical man; candidates must be Protestants and fully 65 years of age. The Council of Epsom College will, in December next, award a "France" Pension of at least £30 per annum to a necessitous medical man, fully 55 years of age, who has been registered for five years. Forms of application for these pensions may be had from the Secretary's Office, Epsom College, Surrey, and must be completed and returned by the morning of Oct. 25.

The Minister of Health and the Secretary of State for Scotland received last week a deputation from the National Conference of Friendly Societies, accompanied by representatives of the Scottish Association of Friendly and Approved Societies, the National Conference of Industrial Assurance Approved Societies, and the Joint Committee of Approved Societies. The deputation put forward the case for the retention of approved societies in any social security scheme and made suggestions on the part they might most appropriately play. The Ministers undertook to give full consideration to the deputation's views.

Special classes in the use of exercise in the post-war rehabilitation of children in occupied countries are being conducted by the Ling Physical Education Association for the International Women's Service Groups (headquarters, 1, Cambridge Place, W.1). These classes are part of a course in pioneer training for relief work abroad. They are based on the principles laid down in the pamphlet noticed in the *Journal* of Aug. 7 (p. 170).

Letters, Notes, and Answers

communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be sent to the Secretary.

TELEPHONE NO.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES—EDITOR, Ailology Westcent, London; SECRETARY, Mediscera Westcent, London.

B.M.A. SCOTTISH OFFICE: 7, Drumshugh Gardens, Edinburgh.

ANY QUESTIONS?

Puerperal Exercises

Q.—What particular forms of exercises should a woman perform both early and late in the puerperium, in order to make a quick recovery to normal? What other forms of rehabilitation are advisable in the puerperium?

A.—On the second day after delivery the mother should be instructed in deep breathing as well as foot exercises. With the patient

lying flat on the bed without a pillow, the legs should be crossed firm adduction and all the pelvic floor muscles contracted stern. She should now turn the trunk to the right and at the same time stretch the left arm over to the right side of the bed. The trunk and arm movement is now reversed. By this means the pectoral (thus increasing circulation to the breasts), abdominal, and pelvic floor muscles are all brought into action. Perineal stitches do not preclude this exercise provided it is performed evenly and suddenly contractions are avoided. During the afternoon rest the prone position the mother should be reminded to practise pelvic floor contractions. Late in the puerperium a valuable exercise to stand against a wall with the arms well above the head, and an upward stretch of the arms a general contraction of all muscles is performed. This can also be done hanging from a bar or top of a door, and helps to correct postural defects. If exercises are practised assiduously special forms of rehabilitation are unnecessary. The ideal is for exercises during the puerperium to be supervised by a trained masseuse. Equally important are exercises (the practice of relaxation) during the ante-natal period.

Cough Medicine in Phthisis

Q.—Phthisis patients often ask for "a bottle of medicine for cough." Is there any danger that expectorants such as iodides may aggravate the tuberculosis?

A.—No, there is no danger that expectorants such as iodides might aggravate the tuberculosis. It was at one time thought that iodides broke down fibrous tissue in tuberculous foci and liberated tubercle bacilli into the sputum. Hence their administration for the purpose of diagnosis to suspected cases of pulmonary tuberculosis in which tubercle bacilli had not been found in the sputum. This view is not now accepted, the effect of the iodide being to loosen the mucus and aid in its expectoration. When phthisis patients ask for a bottle of medicine for the cough, however, it is not always wise to prescribe one. The dry, ineffective cough of pulmonary tuberculosis can be largely checked by the patient's own effort.

Bacteraemia after Tooth Extraction

Q.—I understand that patients with mitral stenosis and other anatomical defects of the heart are sometimes given sulphonamides prophylactically in order to minimize the danger of bacterial endocarditis after tooth extraction. I am likely to have a bacteraemia after an impending extraction, and would like to know of a suitable sulphonamide, its dosage, and length of course.

A.—Both sulphydrydine and sulphathiazole are known from their effect in endocarditis lenta to have an action on *Str. viridans* which although subject to variation with the strain of organism, should be adequate for prophylaxis: the latter drug is to be preferred because on account of its apparently greater activity and because its selective toxic effects are less. The bacteraemia after dental extraction is believed to be very transient, but owing to the prolonged exposure which is necessary to secure the sulphonamide effect, bacteria, medication should presumably be continued well beyond this short period. Doses of 2 and 1 g. given 4 and 2 hours respectively before extraction should secure an adequate initial blood concentration, and 1 g. administered four-hourly for a further 48 hours will maintain it for what is probably a sufficient length of time. In the absence of apical infection, the source of the bacteraemia is saliva or other material sucked into the tooth socket by the vacuum created. Another useful precaution is therefore to dry the surrounding gum thoroughly with spirit before extraction or, if pyorrhoea is present, to cauterize it.

Peptic Ulcer Pain

Q.—Has the pain of gastric ulcer been successfully treated by the use of local anaesthetics, administered by mouth?

A.—Local anaesthetics, such as benzocaine gr. 5 in a cachet have been administered by mouth for the treatment of gastric ulcer. The method is unlikely to prove successful, and is not recommended. The pain of gastric ulcer usually responds rapidly to the orthodox method of treatment by rest in bed, milky feeds, antispasmodic and neutralizing agents. If the pain persists despite adequate treatment, it indicates that the condition is more serious. The ulcer may be large, penetrating, and adherent to adjacent structures, requiring surgical treatment. Or it may be malignant.

Inheritance of Epilepsy

Q.—As there seems to be some diversity of opinion about the hereditary nature of epilepsy, could you let me know what is the present teaching on the subject? Is it advisable for an epileptic to marry and have children?

A.—Although many conditions which are not inherited may simulate it, true epilepsy is hereditary. This is proved by many pedigrees and by the fact that in the case of uniovular twins both or neither are affected. It appears to be a very incomplete dominant, and the likelihood that a given epileptic will have epileptic

children must be judged by a study of the family tree. It is probable that some will be genetically epileptic, even if they never have fits, and will transmit the condition to some of their descendants. On eugenic grounds, therefore, it is wiser for an epileptic not to have children.

Menstrual Migraine

Q.—Can you give me any advice on methods of alleviating the incapacitating "blinding" headaches suffered by a woman of 43 or about 24 hours at the start of practically every period? She is not neurotic, and at ordinary times leads a strenuous life, but when her headache is bad she simply cannot do anything. A subtotal hysterectomy for fibroids some years back has made no difference, and, so far, any treatment has failed to make her fit to run her household one day a month.

A.—If the patient is still menstruating, it is to be assumed that only a small portion of the uterus was removed at subtotal hysterectomy, and that at least one ovary was conserved. The case is one of so-called "menstrual migraine," which is thought to be due either to increased sensitivity to anterior pituitary hormone or swelling of the pituitary gland, or changes in the intracranial blood supply associated with the hormone cycle. The most severe form of these headaches occurs when the roof of the pituitary fossa is calcified, when it is presumed that enlargement of the gland is restricted. The pituitary fossa should therefore be x-rayed.

If the headache is of pituitary origin, a large dose of oestrogens (e.g., stilboestrol 1 mg. t.d.s.) should be given for two or three days premenstrually, in the hope of inhibiting the pituitary. The dose and timing may have to be varied, and the difficulty is that a dose sufficient to depress pituitary activity sometimes defers the onset of menstruation. Alternatively, try ergotamine tartrate with a view to reducing intracranial congestion. But many cases are intractable, and as a last resort deep x-ray therapy to the pituitary should be considered—particularly when the roof of the sella turcica is calcified. However, it is fraught with real risk, especially of producing side-effects such as obesity, and this should be explained to the patient beforehand.

The D Vitamins

Q.—I am slightly bewildered by references in the literature to various D vitamins, numbered 1, 2, 3, etc. Do these differ in their action on the human being, and is there any superiority in the natural vitamin over that artificially produced? I should also be glad to know the modern view on the physiological action of vitamin D if it can be given within the short compass of an answer.

A.—There are at least ten substances with a vitamin D—i.e., antirachitic—activity. For practical clinical purposes only two—D₁ and D₂—are of any importance. D₁, or calciferol, is a synthetic substance obtained by exposing ergosterol to ultra-violet irradiation. D₂ is the naturally occurring vitamin present in animal fats and fish oils, and formed on the human skin by solar radiation on 7-dehydro-cholesterol in the sebium.

So far clinical studies have been made on vitamins D₁ and D₂, only. There is complete disagreement on their relative values. Some authorities state that the antirachitic value of the two vitamins is the same; others deny this. Provided that more than the minimal dose is being taken it probably does not matter whether D₁ or D₂ is given. It must be remembered, however, that if vitamin D is given in the form of cod-liver oil, the latter also contains vitamin A, valuable fats, and iodine. Vitamin D₁ is never extracted commercially. The only commercial vitamin is D₂.

The fundamental action of vitamin D is to regulate the metabolism of calcium and phosphorus, the absorption and mobilization of which are under its control. In the absence of sufficient vitamin D, absorption of Ca and P is inadequate, excessive quantities are lost in the faeces, and the serum calcium and phosphate fall. This leads to incomplete ossification of developing bone, which becomes soft and rarefied, as seen in rickets. Ossification of developing bone is normally started by the deposition of calcium phosphate in the cartilage. It is probable that vitamin D also stimulates growth *per se* and exerts some effect on muscular and intestinal tone. There is no convincing evidence that lack of vitamin D is a factor in dental decay in human beings.

The Seborrhoeic State

Q.—Have there been any recent advances in the treatment of the seborrhoeic state, leading as it seems to do to hyperkeratosis, acne, or dermatitis, and hairfall? The local and general treatment as given in the textbooks is well known, but is there any more specific method of inhibiting the sebaceous overaction and thus getting at the cause of these complaints? Is x-ray treatment of value?

A.—There have been no striking advances in the treatment of the seborrhoeic patient, who appears to have a background of predisposing factors—inherited, nervous, endocrine, and metabolic—which constitute the so-called seborrhoeic diathesis. When some of these aspects, discussed in any modern textbook, are adequately

dealt with, good progress may result, but the most experienced dermatologist will fail to influence some of his seborrhoeic patients who exhibit an uncontrollable susceptibility to infections of their skin and mucous membranes. Seborrhoea is not an invariable clinical feature of the seborrhoeic patient, for in some cases the patients have dry, scaly skins and no evidence of overaction of their sebaceous follicles. X-ray treatment is of value, but it would be dangerous to employ it in dosages sufficient to inhibit permanently the glands of the skin.

INCOME TAX

House Furnished but Uninhabited

F. C.'s house has been uninhabited since January, 1941. He left the town until October, 1941, when he returned, but "for private and domestic reasons has since then been living in a hotel." The house is furnished and kept in reserve as an emergency surgery. F. C. is paying one-half the local rates. He was not taxed under Schedule A for two years, but has now received a demand note for "tax for the current year."

** (Tax for the current financial year is not due until Jan. 1, 1944; the demand would therefore seem likely to be for the year to April 5, 1943.) It would seem that our correspondent is not prevented—e.g., by Defence Regulations or because of authorized requests to leave the town—from making full use of the house, and as it is furnished and available for his occupation we do not know of any grounds on which he can claim relief from the tax charged.

Error in Notice of Assessment

R. W. explains that through an arithmetical error in the income-tax office the notice of assessment which he received showed the amount of tax payable as £119 15s. 9d. instead of £219 15s. 9d. His employer was similarly misinformed, so that only £59 17s. 10d. was deducted in the first half-year, and £159 17s. 10d. is now claimed in the second half-year. Can he object to the increased payment? Information is also asked for as to the amount of the personal allowance given.

** The error was clearly a bad one, but, we gather, could have been detected by R. W. by examination of the figures in the notice. In any event, however, the fact that the error was made and led to insufficient deductions in the early months of the year does not prevent the revenue authorities from arranging for collection by deduction of the full amount of the true liability. With regard to the personal allowance, R. W.'s marriage increases the amount from £80 (the single man's allowance) to £140—i.e., by £60, the tax on which, at 10s. in the £, is £30—the figure quoted to him by the income-tax office.

Inclusion of Book Debts

E. G. started practice in July, 1942. Is he liable to include unpaid book debts in calculating his profits?

** Yes. The "cash basis" is not legally correct, but is accepted as giving a sufficiently approximate result when a practice has been running for some years. In the first two or three years the full earnings are below those shown by the net cash takings. E. G. should, however, bear two points in mind. First, that it is the value of the debts which should be brought into the calculation—i.e., a deduction from the full amount can be made for an estimate of the probable loss through non-payment. Secondly, that if the inclusion of the uncollected debts makes payment of the resulting tax too serious a hardship, the collector will no doubt allow part of the tax to be paid by later instalments.

Purchase of Book Debts

G. M. has recently purchased a further share in a partnership paying £400 for outstanding book debts. Can he claim any income-tax relief in respect of this sum?

** No; the payment represents capital laid out in the purchase of further assets and cannot be regarded as an allowable deduction for income-tax purposes.

LETTERS, NOTES, ETC.

London Paste

Dr. IRWIN MOORE (London) writes in criticism of the answer given to a question about London paste under "Any Questions?" (July 31, p. 158) as follows: As solely responsible for unearthing, in a paper read before the Summer Congress of the Section of Laryngology, Royal Society of Medicine, in May, 1919, this very valuable and efficient remedy from the overlooked literature of the past and, after improvements in technique, replacing it in its proper and scientific position, I can only express my great surprise at the adverse opinion expressed by your commentator, and I accept his remarks as a direct challenge to my advocacy of this treatment, which after a life experience of the guillotine and dissection method

of surgical removal of the tonsils I can without any hesitation recommend as the most satisfactory and efficient substitute. The statement that Morell Mackenzie "does not appear [to have] attempted to destroy the tonsils with it, or [even to have] recommended [its use]" is not confirmed by the facts, for he published in 1864, in the *Medical Mirror*, his experience of 40 cases in which he had successfully used it in his private practice, and he stated that "it had succeeded far beyond any other remedies of its kind, and showed results so perfect that it was impossible to know that any treatment had been carried out." It is impossible to accept the incorrect statement of your commentator that London paste applied to the tonsils is "followed by fibrosis and scar formation which seals up the crypts and causes retention of secretion in the remainder of the tonsil," and that after such treatment dissection of the tonsil is more difficult. This implies that patients so treated require later to undergo surgical removal, which is not the case. I dispute such statements; for it is the entire absence of these disadvantages which makes this treatment stand out so conspicuously as compared with the results obtained with galvanocautery and diathermy. The case for London paste is that it has a predilection for the lymphoid tissue of the tonsil, which is the seat of the sepsis, and this is gradually destroyed by a piecemeal process of disintegration or necrosis, aseptic in character (confirmed microscopically by the late Prof. Shattock), layer by layer down to the capsule, opening up and levelling down the crypts and canals—certainly not sealing them up and encysting the secretions. There is no inflammatory reaction or formation of fibrous tissue, and the capsule is left intact, supporting the pharyngeal walls and acting as a barrier against outside infection. Far from such treatment being a discredit to the profession, my experience is that patients cannot thank one enough for saving them from the loss of time, discomfort, or pain of surgical removal and their pockets from the expense of nursing homes, etc.

Sulphanilamide and Calamine for Pyogenic Skin Infections

Dr. A. D. FRAZER (Nottingham) writes: Calamine lotion has long been used for the treatment of impetigo. A little over a year ago I started adding 4% of sulphanilamide to the lotion and found that cases cleared up much more rapidly. A series of cases was tried on 6% of sulphanilamide and a further series on 6% of sulphathiazole without improving on the results with the original strength. This sulphanilamide lotion has now been used in a large number of pyogenic skin infections, such as impetigo, septic sores, septic dermatitis, and streptococcal fissures, and has resulted in rapid cure in practically every case. Sycosis barbae is improved but not cured, but cures have been obtained in pustular folliculitis of the scalp. The lotion is very drying, and if its use is to be prolonged over one week it is wise to use a suitable ointment for one or two days before continuing. I write in the hope that others may try this method of treatment.

Bleeding after Tooth Extraction

Dr. H. THISTLETHWAITE (Sedburgh) writes: I see in the *Journal* of July 3, p. 30, advice on the treatment of bleeding after tooth extraction. My wife, who is a dental surgeon, was recently asked to extract teeth for a man with a very bad record of haemorrhages. Following information of some recent research, she gave him a short course of bloater-paste sandwiches. The bloater paste is stated to contain vitamin K. The extractions were carried out with minimal bleeding. I myself have had most gratifying results from "stypven," even in a case of arterial secondary haemorrhage four days after the extraction. No other treatment was needed.

Mycotic Nails

Dr. J. E. M. WIGLEY (London, W.1) writes: I would like to comment on the answer given to the question of the treatment of mycotic infection of the nails (Aug. 14, p. 221). It has been my almost invariable experience that simple removal of the infected nails, even when followed by the thorough cauterization recommended in your answer, does not have the desired effect of curing the condition. It also runs the obvious risk of causing an intractable dermatitis about the nail folds and surrounding tissues, thus making the cure worse than the disease. I have found that it is necessary to have the nails removed in such a way that it is made quite certain they will never grow again. My invariable practice is to request the co-operation of a surgeon, making the point of the total removal of the nails quite clear. I understand from my surgical colleagues that this operation entails the dissection of the nail bed, and that it is quite frequently necessary to remove a portion of the terminal phalanx as well. I know that this operation involves some shortening of the fingers or toes, whichever are involved, but there is practically no ensuing deformity, and nailless fingers or toes are better than infected nails. I have been told in a personal communication from a leading plastic surgeon that the finger-ends can be so dealt with that artificial nails can be worn if this is considered essential from a cosmetic point of view. My attention was first called to the real necessity for curing these cases by the appearance at one of my

hospital out-patient clinics of a man who had had mycotic infection of the finger- and toe-nails for over 20 years. His nails had been removed on at least three occasions with subsequent treatment of the nail beds, and on each occasion they had been infected on growth. Both his wife and grown-up daughter had contracted mycotic infection of their finger-nails, without doubt from him. I know it seems a drastic performance to lose the finger- or toe-nails permanently for what does not sound a very serious infection—"ringworm of the nails"—but I think my experience with the case I have just quoted, which I feel certain cannot be unique, sufficiently strong support for my point of view.

Journals for Enemy Prisoners of War

Dr. J. R. BAKER (Burnt Oak, Kidlington, Oxford) writes: I want to thank the many readers of the *British Medical Journal* who have sent journals and papers on medical and scientific subjects for enemy prisoners of war. The most useful contributions are copies of *British Medical Journal*, *Lancet*, and other journals of general medicine received within a month of publication, but of periodicals, as well as reprints and books, are gratefully received. The *Lancet* should be sent to Mr. H. V. Thompson, Department of Zoology, University Museum, Oxford, and the *British Medical Journal* and other papers to me at the address given above. It is a great help when senders write their names and addresses ("Anon") on the outside of their packages, together with letters S.P.P. (which stand for Scientific Papers for Prisoners of War). Readers who can send any journal regularly, week by week, after they have finished with it, are asked to send me a postcard, so that I may explain how it may be sent directly to a prisoners camp.

Treatment of Tapeworm

Col. S. HAUGHTON (Haddenham, Ely) writes: With reference to the answer on treatment of tapeworm given at page 157 of the *Journal* of July 31, I would like to stress that the treatment recommended, if adopted, will fail in the majority of cases of tapeworm. It is merely textbook teaching. It will not give anything like 100% cure, for this reason: the one essential of treatment is starvation of the patient, which includes starvation of the worm. The treatment recommended is a light diet for the patient but a very nourishing one for the worm. May I be emphatic and state that ideal treatment must include a minimum of 60 hours—i.e. 2½ days' complete starvation; water only. It is this:

(1) Last meal, say, Saturday evening, 7.30. Castor oil one ounce at bedtime. Bed for 3 days. (2) Sunday and Monday: Water only; nothing except sod. bicarb. ½ t.s. (3) Tuesday morning: (a) Extract male fern in capsule at 7, 7.30, 8, and 8.30 a.m.; a minimum of 90 minims, and maximum of 120 minims for adults is necessary. Note.—Only fresh extract of male fern to be used. It is useless to expect good results with extract which may have been open for months or years. (b) Castor oil one ounce 11.30 a.m. (c) Tea and bread-and-butter at 12 noon.

The above treatment starves the patient and the worm effectively so that the male fern will be absorbed by the worm. I know of no other treatment that gives 100% cure; but 60 hours' starvation is essential. I have been infected twice and have treated hosts of patients in 30 years, as above, successfully—one treatment on the head of the worm is hard to find; there may be more than one worm. There is only one criterion of cure, and that is to wait 2½ months and inspect stools daily for one month. Carbon tetrachloride cannot be compared with starvation treatment and the extract of male fern.

Midge Bites

Dr. PERCY TATCHELL (London, S.W.5) writes: Isn't the simplest remedy the best—if it works? I was stopping at a country gentleman's house and we were talking about midge bites. A former nurse said, "The best thing for that is boric acid lotion." The gardener outside was being tortured to death: his arms were a mass of bite so we gave him some. "How did you get on with that?" I asked him later. "They ain't been near me," he said, "since I put it stuff on."

Alopecia Areata

Dr. L. J. PAVILLET (London, W.2) writes: In 1924 in Essex I had as a patient a young man suffering from this unsightly trouble. His hair patched and patched until it was almost gone. I left him in the district but returned in some two years or perhaps a little more and he came to see me. The whole of the hair on his scalp had grown again thick and heavy, and he had had no treatment whatsoever. This, I understand from my readings, is what may be expected in these days.

Correction

In the debate in the House of Commons on women in national service (Aug. 21, p. 252) Dr. Edith Summerskill said that "the women in the Services paid the same rate as men were doctors." We are asked to state that women dental surgeons with the Army Dental Corps are also paid at the same rates as men.

LONDON SATURDAY SEPTEMBER 25 1943

METHODS OF ARTIFICIAL RESPIRATION

BY

D. G. CORDIER, M.D.

Professeur Agrégé de Physiologie et de Thérapeutique Générale (Alfort, Paris)

PART I

CRITERIA OF EFFICIENCY OF DIFFERENT METHODS

Recent articles in the *British Medical Journal* (Gibbens, 1942) and the *Lancet* (1943) raise the much-discussed problem of the efficiency of different methods of artificial respiration. After an examination of Table I in the article by Gibbens it seems necessary to restate the present knowledge of this subject; otherwise it is hardly possible to explain the great variations in his figures. In any case it seems better to try to give a physiological explanation than to admit that "the almost ideological frenzy in the attacks of the opposing advocates leaves the impression that it is the nationality of the promoter which determines the choice of method" (Gibbens).

General Principles

All methods must, theoretically, obey the following requirements: (1) give sufficient pulmonary ventilation—i.e., as nearly as possible the ventilation of a normal subject at rest; (2) stimulate the heart and circulation to help respiratory exchanges and transport of oxygen to tissues; (3) be harmless in themselves, easy of execution, and rapid in attaining results.

To judge the physiological efficiency of the methods various tests have been used, the most important of which are: (1) determination of pulmonary ventilation and respiratory exchange; (2) radioscopic and radiographic control; (3) manometric values of cardiac pressures during inspiration and expiration; (4) control of blood movement in the circulatory system. In this paper I deal only with the test of ventilation, the theme of recent discussions.

Nearly all investigators have held the determination of pulmonary ventilation to be a test of the utmost importance. In the table given by Gibbens the results have been obtained by quite different experimental techniques—some on subjects who had voluntarily suspended their breathing, others on subjects in apnoea, first produced by voluntarily forced breathing, and others, again, on subjects who had just died and in whom rigidity had not yet taken place.

Determinations in Voluntary Suspension of Breathing

The first part of Table I shows the widely varying results obtained by various experimenters on subjects who have voluntarily suspended their breathing while artificial respiration is applied. It was the British "Suspended Animation" Committee which, in 1903, decided that Silvester's method would produce a larger ventilation than Schäfer's. Schäfer did not believe that the techniques made it possible to judge the efficiency of the different methods. He considered it evident "that it is possible by nearly all the methods investigated to obtain an exchange of air per respiration as great as that of the tidal air." Schäfer's conclusions retain their value. Physiologists who have carefully studied respiration know that normal subjects, even when accustomed to respiratory tests, are completely incapable of neutralizing their breathing during the experiment and cannot be entirely passive all the time. This is the fundamental reason which explains the great difference in the results obtained as shown in part 1 of the table.

Determinations on Subjects in Apnoea

In order to obtain more passivity in the subjects certain experimenters applied artificial respiration during the short period of apnoea which follows a carefully studied period of voluntary forced breathing. In these conditions the quantity of air which enters the chest at each artificial respiration is

TABLE I

Experimental Conditions	Author	Lung Ventilation in c.cm.	
		Schäfer's Method	Silvester's Method
1. Subjects having voluntarily suspended their breathing	"Suspended Animation" Committee (1903) Schäfer (1904) Burton-Opitz (1922) Ploman (1906) Hamburger (1909) Liljestrand <i>et al.</i> (1913) Eve (1932) Killick and Eve (1933)	366 520 504 (average) 500-600 616 500 1,000 350-550	458 178 — 1,200-2,000 453 540 — 200
2. Subjects in apnoea	Liljestrand <i>et al.</i> (1913) Héderer (1934)	170 100-150	190 250-250
3. Non-rigid cadaver	Héderer (1934) Bruns (1927) Bruns and Thiel (1930)	40-50 20 20	200 200 200
4. Apnoeic patients in moderately deep anaesthesia	Waters and Bennett (1936)	2 females, 180 (average) 2 males, 662 (average)	214 (average) 933 (average)

shown to be much less than during artificial respiration when the subject has voluntarily suspended his breathing. Details concerning the Hering-Breuer reflex and "chemical" control of breathing can be found in the excellent work on *Respiration* by J. S. Haldane and J. B. Priestley (1935; Clarendon Press, Oxford).

The important point is that after a carefully studied period of voluntary forced breathing the passivity of the subject is much greater than when the subject voluntarily suspends his breathing. This is shown by the fact that the volume of air entering the chest at each artificial respiration is independent of the frequency of the artificial breathing, while with voluntary suspension of natural breathing the entering volume of air varies inversely with the frequency. In these conditions the results shown in part 2 of the table indicate that Silvester's method ensures a greater ventilation than Schäfer's. The technique gives better and more constant results than that which utilizes the subject who voluntarily suspends his breathing. The "Suspended Animation" Committee forty years ago observed:

"It occurred to the Committee that it might be feasible to carry out the inquiry upon the living subject, the conditions necessary being that the subject should remain completely passive for the short period of time during which the experiment might last, and that he should not, by involuntary closure of the glottis, prevent the free passage of air into or out of the lungs. The first of these conditions can be readily fulfilled if the subject immediately prior to the experiments makes several deep respirations and the *besoin de respirer* is absent. Under these circumstances it is by no means difficult to perform artificial respiration for a short time without any resistance on the part of the subject, and without his making any spontaneous movements of respiration."

Determinations on the Cadaver and in Anaesthesia

In 1908 Schäfer summed up the position with regard to artificial respiration on the cadaver by stating that the experiments were mostly futile by reason of post-mortem rigidity. Other causes besides rigidity may interfere with the results: these include pre-mortem circulatory stasis, pulmonary or non-pulmonary origin of death, abdominal meteorism, and age and corpulence of the subject. By operating on non-rigid cadavers after tracheal intubation, Bruns, Bruns and Thiel, and Héderer obtained greater ventilation with Silvester's method than with Schäfer's, as shown in part 3 of the table.

In 1936 Waters and Bennett made a comparative study of different methods of artificial respiration on males and females. They used patients brought into apnoea by exaggerated minute-volume respiratory exchange while in moderately deep anaesthesia. The low carbon dioxide content resulting from such a procedure sufficed to prevent voluntary respiratory movements while the skeletal muscles were completely relaxed. These workers obtained a greater ventilation with Silvester's technique than with Schäfer's (part 4 of table), and they believe their findings to be a definite contribution because "an apnoeic patient under deep anaesthesia . . . exactly simulates the candidate for resuscitation by artificial respiration."

Conclusions

Taking into account the different techniques which may be relied upon for the comparative study of manual methods of artificial respiration, it seems justifiable to say that all experimenters agree that Silvester's method introduces in the respiratory tract of the apparently dead subject the biggest volume of air. But it is necessary to emphasize again that the determination of ventilation is only one criterion in judging the efficiency of these methods. The choice of a method depends also on the causes of asphyxia. In previous papers I have insisted on the advantages and disadvantages of Silvester's and Schäfer's methods and their possible improvements.

PART II

TILTING STRETCHERS VERSUS MANUAL METHODS OF ARTIFICIAL RESPIRATION

In 1932 F. C. Eve published an article on a new method of artificial respiration in which the patient lay on a rocking stretcher and the weight of the abdominal contents pushed the diaphragm alternately up and down. He believed that this movement of the diaphragm was sufficient to ensure lung ventilation of normal value. More recently articles have appeared suggesting the great superiority of Eve's method over other methods of artificial respiration. Gibbens (1942) writes:

"Many otherwise uninjured men are rescued after only a short immersion and yet do not survive. This is undoubtedly because the normal methods of artificial respiration are not very efficient, need many skilled men, and are so tiring that they are not carried out thoroughly or for long enough. It was a relief to read of Eve's rocking method, which can be practised by unskilled men, efficiently and with little fatigue . . . Killick and Eve have given detailed figures which show the rocking stretcher's superiority over other methods, and it is eminently practicable at sea."

It is true that there are certain practical advantages in Eve's method, but its physiological superiority remains to be proved. The experiments so far made to demonstrate its efficiency are very few, and in my opinion fall short of proof.

Experimental Results with Eve's Rocking Method

In his article in 1932 Eve studied experimentally the effect of his rocking method on the lung ventilation of a subject voluntarily suspending his breathing. He found that each see-saw movement of the stretcher produced a lung ventilation of 1,500 c.c.m. Schäfer's method applied to the same subject produced a ventilation of 1,000 c.c.m. per respiration. The radiographic control of the chest in the subject voluntarily suspending his breathing during rocking showed a diaphragmatic excursion of 5 cm., which, according to Eve, indicates roughly a movement of 1,800 c.c.m. of air. In the following year Killick and Eve, again experimenting on subjects voluntarily suspending their breathing, found much smaller values of lung ventilation. Using the rocking method at rates approximating to the normal respiratory rate, the tidal air was 450 to 600 c.c.m. They also

found Schäfer's method less efficient than had been shown Eve a year before, and wrote that it produced a tidal air var in different subjects from 350 to 550 c.c.m.

These very different results obtained by the author of method are no more surprising than the similarly different results obtained by other experimenters who have studied efficiency of the various manual methods of artificial respiration on subjects voluntarily suspending their breathing. This technique of investigation is inconclusive because normal subjects even when accustomed to respiratory tests, are completely incapable of neutralizing their breathing during the experiment and cannot be passive all the time. The lack of passivity in subjects experimented upon by Killick and Eve is shown the fact that the volume of air entering the chest at artificial respiration varies inversely to the frequency, as brought out in Table II, drawn from the experimental results of these investigators.

TABLE II

Rate of Rocking (R) per min.	Volume of Ventilation per min. (litres)	Tidal Air in c.c.m. per See-saw
Without (R)	5.2	
6-7 (Rs)	5.4	830
10 "	6.1	610
14-15 "	6.6	450
20-22 "	8.5	400

Table III shows that results comparable to those of Kill and Eve are obtained when the rhythm of the respiratory movements is varied during artificial respiration produced manual methods in a subject voluntarily suspending his breathing. Moreover, the volume of tidal air is practically the same as that observed in normal breathing.

TABLE III

Respiratory Rate per min.	Schäfer's Method		Tidal Air (c.c.m.) Normal Breathing (Ventral Position)	Silvester's Method		Tidal Air (c.c.m.) Normal Breathing (Dorsal Position)
	Vol. of Vent. per min. (litres)	Tidal Air per Movement (c.c.m.)		Vol. of Vent. per min. (litres)	Tidal Air per Movement (c.c.m.)	
6	—	—	—	4.9	810	830
10	6.25	630	660	6.15	610	590
15	7.50	500	510	8.15	450	450
20	8.60	430	430	10.25	340	390

A glance at these tables shows that the experimental basis on which Gibbens relies as proof that the rocking method is superior to the other methods of artificial respiration is insufficient.

In 1936 Waters and Bennett studied comparatively the efficiency of the methods promoted by Eve, Schäfer, and Silvester on patients brought into apnoea by exaggerated respiratory exchange while in moderately deep anaesthesia. They stated "An apnoeic patient under deep anaesthesia, we believe exactly simulates the candidate for resuscitation by artificial respiration." Unfortunately, their experiments were carried out only on four subjects, and one single experiment was made to compare Eve's method with those of Schäfer and Silvester. This experiment was made on a woman, 47 years of age, whose vital capacity was 2,200 c.c.m., and in this subject rocking through an angle of 60 degrees (the angle of tilt in the work of Killick and Eve was 50 degrees) produced a lung ventilation of 100 c.c.m. In the same subject Schäfer's and Silvester's methods produced respectively a lung ventilation of 160 and 140 c.c.m. That single experiment during which small ventilations were obtained does not suggest the superiority of Eve's method, and should be repeated on various subjects. Nor do the results obtained by Eve and Killick on subjects voluntarily suspending their breathing permit us to state definitely that the rocking method is the best. Eve's method may be physiologically excellent, and certainly it deserves thorough study. What are the experimental criteria which enable us to judge its comparative efficiency?

Criteria of Efficiency of the Rocking Method

In judging the efficiency of Eve's method very important information can be obtained by studying lung ventilation of subjects in apnoea, on apnoeic patients in moderately deep anaesthesia, and on the non-rigid cadaver. A comparative study is necessary on each subject, using in turn the methods of Eve

Schäfer, and Silvester; and these studies, made on man, ought to be completed by experiments made on large monkeys after curarization. The comparative study of the various methods could be made (1) when the animal's breathing is stopped but cardiac activity remains, and (2) when breathing and heart-beats have stopped. The study of lung ventilation, chemical composition of expired air, gaseous exchanges, and percentage saturation of haemoglobin with oxygen in arterial and mixed venous blood would give very important indications of the efficiency of alveolar ventilation. It seems also absolutely necessary to study the influence of the angle of tilt on lung ventilation. If the weight of the abdominal contents actuates the diaphragm we may deduce that the volume of lung ventilation must be in relation with the angle of tilt.

A second criterion derives from radiosopic and radiographic study of the chest. This study must be made in the same experimental conditions as those used for the measurement of lung ventilation (subjects in apnoea, apnoeic patients in moderately deep anaesthesia, non-rigid cadaver).

One of the aims of artificial respiration is to stimulate the heart and circulation in order to produce oxygenation of the blood and to supply oxygen to the tissues. Artificial respiration creates an indirect massage of the heart, the intensity of which is shown by differences of pressure in the cardiac cavities during inspiratory and expiratory movements. The measurement of intracardiac pressure made on the non-rigid cadaver indicates that a quick see-saw flow of the blood takes place in the heart cavities, producing a true endocardiac massage. This mechanical stimulation certainly plays an important part in the restarting of the heart's activity. The various manual methods of artificial respiration are far from having the same efficiency on the cardiovascular system. Table IV shows the differences of pressure produced in the left ventricle of the non-rigid cadaver by various methods during inspiration and expiration.

TABLE IV

Method	Lung Ventilation in c.cm. (Non-rigid Cadaver)	Pressure in Left Ventricle (cm. Water)		Difference (cm. Water)
		Inspiration	Expiration	
Silvester (without expiratory compression) ..	200	-8	+1	9
Silvester (with expiratory compression) ..	250	-8	+18	26
Schäfer ..	20	+9	+13	4
Combined method: Schäfer's method with raising of elbows ..	210	-7	+15	22

A study of Table IV shows that the manœuvres of artificial respiration which mobilize the thoracic framework above and below its position of equilibrium—i.e., which provoke an active inspiratory enlargement of the chest and then an expiratory compression—are the most efficient, both on the cardiovascular and on the respiratory system. Silvester's method with expiratory compression and Schäfer's method improved by the addition of an active inspiratory movement (raising the elbows) fulfil these conditions.

The feeble action of Schäfer's method on respiration and circulation can be explained by the conditions of the respiratory system. In the cadaver (and in the apparently dead body) all the reflexes have disappeared, the muscles are slack, and the loss of tonus in the respiratory muscles brings the chest into the complete expiratory position; the diaphragm is relaxed and arches into the thorax.

As a result of these changes the lungs are almost entirely emptied of air and the capacity of the thoracic cavity is much diminished. Therefore the conditions of the respiratory system in the apparently dead body do not lend themselves to methods of artificial respiration which use only expiratory pressure on the thorax and abdomen, since the respiratory system is already in the greatest possible state of expiration. The ventral position in Schäfer's method further exaggerates the diminution of the capacity of the thoracic cavity, because the weight of the spine, shoulder, and back muscles contributes also to the collapse of the thorax. The strong pressure (+9 cm. water) registered in the left ventricle of the non-rigid cadaver lying on the abdomen and the slight manometric oscillations resulting from the manœuvres of Schäfer's method show the complete collapse

of the chest and the resulting compression of the heart. The state of collapse of the respiratory system of the apparently dead body explains completely why Schäfer's method, which compresses the abdominal viscera in the chest, utilizing the piston-like action of the diaphragm to expel the lung contents, has such a slight result on ventilation and circulation. As the rocking method is based on the same principle of stimulation of the inert diaphragm (by the weight of abdominal contents instead of abdominal compression as used in Schäfer's method), and the subject lies on the stretcher in the ventral position, it seems to me necessary to study the efficiency of Eve's method on the cardiovascular system of the apparently dead body.

The measurement of intracardiac pressure on the non-rigid cadaver during rocking and a complete study of the physiology of the circulatory system in large monkeys after curarization (measurement of arterial and venous blood pressure, circulation time, output of heart) under the same conditions as to rocking should yield information of great practical value.

Conclusions

Eve's rocking method certainly has great practical advantages, but the experimental criteria so far employed to study its physiological efficiency seem to me insufficient to prove its superiority to other methods of artificial respiration. A more complete experimental study is necessary before its efficiency can be determined.

BIBLIOGRAPHY

- Bruns, O. (1927). *Klin. Wschr.*, 6, 1548.
 — and Thiel, K. (1930). *Die Wiederbelebung*, Berlin.
 Burton-Oritz, R. (1922). *Amer. J. Physiol.*, 61, 562.
 Cordier, D. (1936a). *Les Méthodes Manuelles de Respiration Artificielle*. Edit. Masson, Paris.
 — (1936b). *Les Méthodes Manuelles de Respiration Artificielle*, Rapport à l'Académie de Médecine de Paris, 116, 193.
 — (1936c). *Bull. Soc. Thérap.*, 307.
 — (1937). *Anesthésie et Analgésie*, 3, 30.
 — (1942). *Les Méthodes de Ranimation*, Editions de la France Combattante, Ltd., 4, Carlton Gardens, S.W.1.
 Eve, F. C. (1932). *Lancet*, 2, 995.
 Gibbens, C. H. (1942). *British Medical Journal*, 2, 751.
 Haenburger, H. J. (1909). *Nederl. Tijdschr. Geneesk.*, 2, 45, 1059.
 Héjér, C. (1934). *Bull. Acad. Méd.*, 111, 849.
 — (1935). *Ibid.*, 114, 178.
 Killick, E. M., and Eve, F. C. (1933). *Lancet*, 2, 740.
 — (1943). *Ibid.*, 1, 178.
 Liljestrand, G., Wollin, G., and Nilsson, S. (1913). *Skand. Arch. Physiol.*, 29, 149.
 Ploman, K. G. (1900). *Ibid.*, 18, 57.
 Schäfer, E. A. (1904). *Proc. roy. Soc. Edin.*, 25, 39.
 — (1908). *J. Amer. med. Ass.*, 61, 801.
 "Suspended Animation" Committee Report (1903). *Med.-Chir. Trans.*, 26, Supp. 86.
 Waters, R. M., and Bennett, J. H. (1936). *Anesth. & Analges.*, 15, 151.

MANAGEMENT OF ACUTE PLEURAL EMPYEMA

BY

P. R. ALLISON, Ch.M., F.R.C.S.

Honorary Thoracic Surgeon, General Infirmary at Leeds

The treatment of pleural empyema, whether it be acute or chronic, is simple drainage, and the drainage must remain adequate for as long as there is an abscess cavity. This is a surgical principle which applies to collections of pus anywhere in the body, but it is a principle which, in the case of intrathoracic pus, is in danger of being submerged by a constant flood of new-fangled drainage tubes, new irrigation apparatus, water pumps, and electric suction. The time at which an empyema should be drained is a matter for clinical judgment. The wise surgeon does not incise an infected area until the inflammation is well localized, and this too is applicable to pleural infections. Considerations of cardio-respiratory physiology may call for relief of pressure within the chest before drainage is advisable, and in such circumstances repeated aspiration of an infected pleural effusion may be necessary. Aspiration should be performed frequently, slowly, and without air replacement. In certain cases the same conditions may call for a water-sealed intercostal drain. When an empyema is ready for draining a liberal incision should be made, at least 2 in. of rib removed-subperiosteally, and a tube inserted. Only the skin should be sutured. At operation

the pus should be evacuated and any fibrinous masses removed, so that they do not block up the tube. In such cases nothing more than an "open drain" is needed. Any system of closed drainage tends to focus attention on the apparatus rather than the empyema cavity. When drainage has been started—and that word is used advisedly—all that is required to maintain it is a piece of rubber tubing, a safety-pin, common sense, and what the gardeners call green fingers. There are many other useful devices for post-operative treatment, and the thoracic surgeon should have them all if he is to play his appointed part; but these things are no more than useful labour-saving accessories.

Why has empyema acquired such a bad reputation for false healing? Subphrenic, perirectal, and bone abscesses have a similar reputation. In all these the walls of the cavity are not equally elastic, and in three of them they are constantly being varied by the movements of the intercostal muscles, the diaphragm, or the pelvic diaphragm. In the pleural abscess there may be still further inequalities due to scarring in the underlying lung or thickening of the interlobar septum. These factors make for irregular healing and the creation of dead space, so that drainage which is adequate one week may be inadequate the next. The daily dressing of such cases is therefore a matter for a skilled and interested doctor rather than a nurse. Ideally the initial drainage operation should be done by the doctor who is prepared to do the daily dressings.

Causes of Inadequate Drainage

At any time during the post-operative period drainage may become inadequate, and an investigation into the cause of this will probably reveal one of the following:

1. Obstruction by Fibrinous Masses within the Drainage Tube

Where an intercostal drain or a minimal rib resection has been performed masses of fibrin may be left either loose or hanging to the walls of the cavity. Pieces of this may enter the lumen of the tube and block it up partially or completely. The amount of this material varies, but it is found particularly in the pneumococcal empyemas of children and those in which operation is long delayed. Sometimes the cavity is occupied by a mould of fibrin in which are lacunae filled with pus. A high solid content is also found in the empyema which results from an infected haemothorax and in the pleura after pneumonectomy that becomes infected through a bronchial fistula. Sometimes fibrinous masses form during drainage, and this is seen particularly in empyema complicating bronchiectasis. There should be no interference with drainage if the cavity is well cleared out at operation and if the tube is removed each day, sterilized, and put back. Gentle irrigation of the cavity with Dakin's solution may help, but the operator should be certain that bronchial fistula is not present. It should be done through a soft rubber catheter of such dimensions that there is ample room for the return of the displaced air between it and the sinus wall. If fluid is forced into an empyema without adequate provision for escape there is a danger of air embolism.

2. Obstruction by Granulation Tissue

One advantage of a simple open drain is that the tube may be removed, cleaned, sterilized, and replaced each day. If such a tube is left in too long healing may take place over the end and a plug of granulation tissue completely obstruct the lumen. If there are lateral holes in the tube, granulation tissue may grow into these and have a similar effect. In the same way the end of a self-retaining tube is even more likely to become obstructed, as there is a natural tendency to leave these in place much longer on account of the unpleasantness associated with repeated removal. It is not always possible to avoid such obstruction by daily irrigation, as the granulations are often in the form of a polyp, which may be temporarily displaced by irrigation only to fall back into the opening afterwards. Whatever sort of tube is used the danger of this type of obstruction is much increased by any form of suction.

3. Obstruction by Kinking of Tube

Kinking of the tube may occur where a drainage sinus is tortuous, or it may happen in the tissues of the chest wall or,

where closed drainage is used, between the chest wall and the bottle. Such an accident is particularly liable to happen at the point at which a lateral hole is cut in a tube, and is a much more frequent occurrence with the present poor-quality rubber.

4. Tube too Short to Reach the Pleura

It is not an uncommon thing for an uninstructed nurse or house-surgeon to undertake the daily duty of cutting half an inch off the drainage tube, so that in a very short time the tube no longer reaches the cavity it is meant to drain, but lies uselessly in the chest wall. At other times a tube may come out accidentally and be left out for a few hours. In this very short time the chest sinus becomes narrowed, especially in the plane of the periosteum and intercostals. The tube is then often put back as far as it will go easily and the rest cut off. Where closed drainage has been used the tubing connecting the patient to the underwater drain is often anchored to the bed in some way, and it may then happen that a sudden movement by the patient may pull the self-retaining head of the tube out of the empyema cavity into the soft tissue of the chest wall.

5. Tube through the Chest Wall but not reaching the Cavity

This happens only as a result of healing of the empyema. At first the tube may be perfectly placed, but, as a result of elevation of the diaphragm, expansion of the lung, or both, the base of the empyema may heal more rapidly than the upper part, until a cavity is left above communicating with the tube by a long narrow track which is quite inadequate for drainage. This condition is seen particularly in those large empyemas involving the apex of the pleura. In these the expansion of the lung often seems most rapid in the subapical region, so that a residual apical cavity may come to communicate with a basal drainage opening through a narrow sinus 6 or 7 in. long. In these cases the tube must be lengthened in order to pass beyond the constricting area into the cavity. The part below this may then drain through lateral holes in the tube.

6. Tube too Far into Cavity

With both a simple tube and a self-retaining tube the inner end may be so far into the cavity that pus collects below it and only drains as an overflow. In the case of the open drain it is not satisfactory to have a tube which just reaches the pleura, because of the danger of its slipping out. The safest thing is to have the tube projecting a short way into the cavity and to cut a lateral hole in it at the point at which it enters the pleura. As will be mentioned again, it is important that the length of the tube and the position of the lateral hole should be constantly reviewed in the light of changes which the draining sinus undergoes during healing. As the floor of the cavity rises the sinus becomes longer and the lateral hole becomes ineffective. The inner end of the tube may then be above a fluid collection once more. Where a self-retaining tube is used in conjunction with a water-sealed drainage system a similar state of affairs may be produced in a different way. When the tube is first inserted a safety-pin should be passed through it at the skin level or at least in such a way as to allow a small thickness of gauze between the pin and the skin. If this is not done the tube easily works upwards with the movements of the patient and pus collects in the bottom of the cavity. Even when a pin is inserted it needs frequent changing in order that the skin round the wound may be properly cleaned, and it sometimes happens that a patient may lean on the tube while the pin is out, and so push it further into the cavity. Unless it is pulled down before the pin is inserted pus will collect around the stem of the tube.

7. Part of the Cavity Below the Drainage Opening

Where an empyema cavity has a broad base it is often difficult to decide on the best position for the tube. Sometimes the floor of the cavity is curved so that the anterior and posterior ends are both on a lower level than the middle. In such a case it may be wise to insert two tubes—one in front and one behind. Where only one is used either the anterior or the posterior end may remain dependent and be occupied by a puddle of pus which never drains away completely. Similar conditions sometimes occur because the drainage tube is not inserted with a view to the ultimate position of the

patient sitting up in bed or walking about the ward. The finding of a dependent part of the cavity is not, however, always a reflection on the placing of the tube, for it may result from the way in which the empyema heals. One example of this may be described. An empyema cavity heals from the edge centripetally. All along the line of junction of visceral and parietal pleura adhesion takes place, gradually pulling out the lung to the chest wall. If the empyema involves the diaphragmatic surface, and if it does so more in front than behind, then the line of junction will reach the chest wall behind first and continue to climb up the chest here while in front it reaches the chest wall later and so lags behind, the front part then becomes dependent from the drainage sinus. The condition can easily be diagnosed by tilting the patient into various positions and finding at what angle the pus starts

resection operation than to use any force in the dilatation of such a sinus. Where force is used there is danger of air embolus, temporary paralysis, or cerebral abscess. When the drainage tube is removed there may be an immediate flow of pus, and this indicates that the tube is too long. It is better in such circumstances to cut a series of lateral holes in the tube rather than to shorten it until a radiograph is available. It is sometimes possible to measure the length of the sinus by passing in a coude gum-elastic catheter and gently withdrawing it until the bent end catches on the rim of the sinus opening into the cavity, but it is simpler still to explore with an instrument that I have had made by the Genito-Urinary Mfg. Co., which can be passed through the sinus straight and be bent when in the cavity: this I call an "articulated empyema sound" (see Fig.).



The sound is passed into the cavity straight. The end is then bent as in the dotted line and the sound gently withdrawn to the rim of the cavity. The length of the sinus is then measured on the staff of the instrument. The length of tube required to drain the cavity is estimated from this.

to drain, or, more graphically, by injecting an opaque oil into the cavity and taking radiographs in the upright position. When the exact position of the dependent part has been located a second tube should be inserted here. It is usually wise in such a case to retain the original drain as well.

It must be remembered that from the point of view of an empyema the diaphragm forms part of the chest wall. Where the diaphragm is involved in an empyema the drainage opening must be placed lower than usual, and in fact the tube may often have to be placed in the usually forbidden zone of the costo-phrenic sinus. In such cases especial care must be taken to see that the tube is lengthened during healing, to prevent the diaphragm from becoming adherent to the chest wall over the end of the tube and leaving a cavity above. Such truly basal empyemas are sometimes, but not always, secondary to a peritoneal infection.

8. Loculation

When an empyema forms in a pleural cavity intersected by adhesions multilocular cavities may occur. This condition is not met with as often as might be expected. The loculi may be entirely separate, be joined through a very narrow channel, or have a fairly wide communication. In the first and second events drainage may be unsatisfactory from the first, but in the third it may become so by expansion of the lung at the waist of the hour-glass. This is a further reason for wide initial opening of an empyema, with careful note of its shape and size and the presence of any narrow channels, rather than the rib resection which is considered sufficient so long as pus is found and a tube inserted.

Tests for Cause of Unsatisfactory Progress

When an empyema is not progressing satisfactorily, therefore, what simple clinical tests can be made to find the cause? This is a problem which frequently faces the thoracic surgeon, often in conditions in which radiographic facilities are poor or absent. First, the patient should be sat upright in bed and the wound inspected. The presence of a sore skin, a rusty safety-pin, and large oedematous polyps of granulation tissue round the tube indicates neglect, and it can be assumed that the inside of the chest is equally unsatisfactory. The tube should be removed. If it is 1½ in. long and falls out easily it is certainly not in the cavity except in the case of small infants. In these circumstances a firm well-greased rubber catheter about size 10 should be passed into the sinus. This may find its way into a cavity without damage to tissues and with relief of pus. A series of catheters can then be passed gently until the sinus is wide enough to take a small rubber drainage tube. The length of catheter in the chest when pus flows is an indication of the length of the tube needed, but it is often safer to make the tube a little longer and cut a lateral hole at the measured length. It is unwise to probe such a sinus with metal or rigid gum-elastic probes except with the greatest gentleness and caution. It is better to subject the patient to a fresh rib-

If no pus drains away when the tube is removed the patient should be tilted into various positions to see if there are any dependent pockets. Another useful guide is to inject a known amount of saline into the cavity when the patient is lying on the good side, sit him upright, and measure the amount of fluid that drains away. There may be some resistance to the withdrawal of the drainage tube, and then it suddenly comes away. The lumen of the tube is found to be filled with wet granulations and the sinus bleeds from the tearing off of this unhealthy tissue. Pus may then drain freely, or it may be necessary to pass a catheter through terminal granulations to effect this.

Just as the experienced operator knows when a needle enters an empyema cavity even when the pus is too thick to be withdrawn, so the same fingers will learn much about a drained empyema by the simple passing of a soft rubber catheter. This is not something which can be passed on to house-surgeons, but something that they must learn for themselves. They should be encouraged to keep constant digital contact with their empyemas and only to use radiographs to verify their findings and to solve problems which exist after the simple clinical tests have been applied. Nothing that has been said must be taken to minimize the most valuable information that can be obtained by radiography. All thoracic surgeons are aware of the immense help obtained from radiographs in the treatment of empyema. In the first place straight radiographs in the upright position, both postero-anterior and lateral, are taken. These will show residual fluid levels, residual opacities, and their relation to the drainage tube. The next step is to fill the cavity with an opaque oil, close the drainage tube, and take further pictures. Finally the tube is allowed to drain in the upright position and further pictures are taken to see if drainage has been complete, or, if not, the position of dependent portions. The size, shape, and position of the cavity in relation to the drain are then known. The presence of bronchial fistulae, disease in the underlying lung, or undrained loculi can also be seen.

An uncomplicated acute empyema, kept properly drained and properly dressed, should pursue an uninterrupted course to recovery. With the help of the physiotherapist trained in thoracic work this should occur without skeletal deformity or impaired cardio-respiratory function. If such steady progress is interrupted by a febrile attack it would seem obvious that it is the responsibility of the surgeon to find the cause of the temperature. Too often, however, is the patient put on a course of sulphonamides, and many valuable weeks of convalescence are wasted and much unnecessary ill-health and discomfort caused. If a patient whose empyema has been drained becomes febrile the most likely explanation is that the drainage has become inadequate. There are other possible causes: cellulitis of the chest wall, which usually results from stitching up the muscles round the tube after rib resection; deep abscess of the chest wall following pre-operative aspiration; or a tube which is "ulcerating" into the lung itself. In

this last case it usually happens that the lung expands and impales itself on the end of the tube. The correct treatment may be either to remove the tube altogether or, if a cavity is still present, to put a longer one in past the site of ulceration. A lung will never ulcerate through contact with the smooth curved side of a tube, but only with the end of a simple tube or the relatively sharp projecting rim of a self-retaining tube. Other causes of temperature may be disease in the lungs or, very rarely, the development of another empyema, or some cause remote from the chest such as a sore throat. Fortunately are complications are meningitis, encephalitis, and brain abscess, but these things should be kept in mind during the investigation of a case.

Physiotherapy

Next in importance to the maintenance of adequate drainage through the whole course of treatment is the prevention of chest and spinal deformities with their resulting bad posture and impaired respiratory function. The picture of a deformed and rigid chest, with shortness of breath on exertion, dizziness, lassitude, lack of appetite, and even clubbing of the fingers, may closely simulate a chronic empyema and yet the lung may be uniformly adherent to the chest wall. I have seen all these signs and symptoms, including the finger-clubbing, disappear after a month's spinal and breathing exercises. Physical training, starting in a small way, should begin the day after operation. Special exercises have now attained a high degree of perfection. Those who have no highly trained personnel available to carry out this work should remember that any exercise which works the skeleton on the affected side is good. The lung should be forgotten and attention focused on the pectorales major and minor, the latissimus dorsi, the serratus magnus, intercostal, diaphragm, and abdominal muscles. Voluntary deep breathing is only followed by apnoea, but the deep breathing of healthy exercise is good, and for this reason the open drain is better than the closed, for it allows of long walks and hard work.

Placing of the Drainage Tube

When an acute empyema is ready to be drained by open operation the limits of the cavity should be ascertained as accurately as possible by aspiration of pus and the introduction of a little air. In this way a fluid level is formed, and radiological examination will show the exact position of the cavity. The tube should be placed so that it is approximately half-way between the anterior and posterior margins of the cavity, and the case of the more common basal empyema about level with the dome of the diaphragm. Though this position may be a little above the lowest point at which pus can be aspirated, it avoids placing a tube in the narrow costo-phrenic sinus, and it rapidly becomes occluded. The main exception to this is the one already mentioned in which the diaphragm is extensively involved in the empyema. Apical and axillary empyemas should be drained 1 in. above their lowest points. Chronic empyema should always be drained at its most dependent part.

Infected Haemothorax

A small infected haemothorax differs very little from the pneumonic empyema, but under war conditions it is not usual to find the whole pleural cavity involved. The very early infected haemothorax is generally the result of improper treatment of the original condition. Blood and bloody fluid in the chest which result from trauma should be aspirated out air replacement. They should be aspirated repeatedly frequently, so that if infection occurs it involves only a small area of pleura. The introduction of air serves no useful purpose and only increases the size of the pleural cavity which eventually needs drainage. When a lung has collapsed with a large infected haemothorax it may take as long as years to expand. It must be remembered that where infection takes place in a haemothorax loculi of fluid may form, some of these may be infected and some sterile, so that drainage in numerous places may be necessary. When infection is once established the chest should be opened, all clot removed, and adequate drainage established. The subsequent management is the same as for a post-pneumonic empyema. Healing may be delayed by scarring of the underlying lung tissue at the time of the injury.

EAR, NOSE, AND THROAT CASUALTIES IN A GENERAL HOSPITAL IN THE MIDDLE EAST

BY

E. G. COLLINS, F.R.C.S.Ed.

Major, R.A.M.C.

Every medical officer has two main duties. The first is to use every means in his power to practise prophylaxis; the second is to ensure that when disease does arise the maximum number of his patients return to a state of health which will fit them for all forms of active service in the shortest possible time. Such a policy applies equally to the specialist as to the unit medical officer, and it was felt that a detailed analysis of the casualties attending the ear, nose, and throat department of a general hospital in the Middle East might form the basis for some constructive suggestions as to how the incidence of the more prevalent conditions might be diminished, the period of admission to hospital decreased, and more adequate treatment in general instituted.

The period chosen was from Sept. 20, 1940, to Feb. 20, 1941 (approximately five months), and, though it is admitted that a longer period would have been preferable, further experience showed that, with the exception of war injuries, no appreciable variation occurred over two years. During the months under review war injuries affecting the ear, nose, or throat were few in number, and the type of disease encountered bore a close resemblance to that found in the ear, nose, and throat department of any hospital in the British Isles. There was, however, a definite alteration in incidence. Statistics make dry reading and for the purpose of this article it is proposed to abstract the more prevalent diseases only from the detailed analysis that was made of all the cases.

Out-patients

The number of out-patients who attended for the first time was 517. As the numbers in the area were constantly changing no useful information is obtainable from a comparison of attendance in the different months. The more prevalent diseases were:

(a) Aural Diseases

Disease	% Aural Cases	% Total Out-patients
Otitis externa, acute	20.70	10.25
" " " chronic	11.72	5.80
" " " media, acute	7.03	3.48
" " " chronic	27.73	13.73
(Ruptured tympanic membrane ..)	2.73	1.55

It will be noted that the gross percentages of otitis externa and otitis media are approximately equal.

(b) Nasal Diseases

Disease	% Nasal Cases	% Total Out-patients
Deflected septum	12.65	4.06
Sinus infection	66.87	20.31

Of the sinus cases 74% yielded to treatment by conservative measures, which included short-wave diathermy and repeated proof-puncture.

(c) Throat Diseases

Disease	% Throat Cases	% Total Out-patients
Tonsillitis, acute and subacute ..	54.65	10.25
" " " chronic	36.91	6.91

A large number of the subacute cases were patients sent down from the medical wards for an opinion on the advisability of operation. In a further 18% of out-patients who came up for different complaints some degree of chronic tonsillitis was noted, but not sufficient to warrant operation.

In-patients

It was found that the total number of in-patients admitted for ear, nose, and throat diseases was 11.35% of the total admissions to the hospital, and comparison with figures obtained from a military

hospital in peacetime showed that there was no relative increase as might have been expected during a war. The only comment that might be made is that the cases admitted were more of an emergency character. The admissions were analysed as follows: Total number of in-patients with ear, nose, and throat diseases, 537; admitted to medical wards, 350 (65%). Practically all of these were cases of acute tonsillitis. Admitted to ear, nose, and throat ward, 187 (35%). The cases comprised: otitis externa (acute and chronic), 19%; otitis media (acute), 16%; otitis media (chronic), 24%; sinusitis (acute), 11%; sinusitis (chronic), 6%; miscellaneous, 24%. Only three cases of ruptured tympanic membranes were admitted to the ear, nose, and throat ward, but many others were seen in the general surgical wards. Of these there is unfortunately no record available.

Operations.—The total number of operations performed was 171. Of these, 77 were for dissection of tonsils, 7 for cortical mastoid, and 6 for a radical or modified radical mastoid (3 had a fistula of the external semicircular canal). In addition intranasal drainage of the sinuses was performed on 18 patients, and 1 patient had a radical antrum operation (Caldwell-Luc).

It is proposed to discuss these various conditions in greater detail. Some of the suggestions made are already in force in the Middle East; others are purely personal, and have resulted from discussion of the problems with other otologists. These might be modified with further experience and information, but for the sake of obtaining a complete picture all have been included.

Otitis Externa

There is no doubt that the frequency of this disease is increased by service in the Middle East. As has already been shown, the cases of otitis externa and of otitis media are approximately equal in number. It is in its acute form that the disease interferes with the efficiency of the soldier, but there is no sharp line of demarcation between the acute and the chronic phase. With the least provocation the latter is liable to flare up and become acute. Especially is this the case when an associated chronic suppurative otitis media is also present and when the soldier is posted for service in the Western Desert. The aetiology of the disease still remains obscure. Dust, heat with its concomitant sweating, bathing, and, in the Western Desert, lack of water for personal ablution have all been mentioned as factors in its causation. Other possible causes are the high salt concentration of the water and an allergic origin due to focal sepsis. These aspects have been well reviewed by Daggett in an excellent article on cases which occurred at Malta. It seems possible that not one factor alone, but several, may be responsible, and that anything which favours the growth of organisms and the maceration of the skin may play a part. In a series of aural swabs examined the organisms found were diphtheroids, *B. proteus*, and *B. pyocyaneus*. The last-named was very difficult to eradicate. *Staph. aureus* was present in a greater proportion than was noticed in the Malta series, and the streptococcus was infrequent.

In acute otitis externa the soldier experiences very severe pain in the ear, there is scanty aural discharge, and the meatus is greatly narrowed and often pin-hole. It was noticed that there is often a deficiency of true waxy secretion, and the return of normal soft wax was regarded as one of the signs of cure, but whether this is of any practical significance is undetermined. Frequently there is an associated adenitis with considerable constitutional disturbance. In its chronic stage the disease is very resistant to treatment and apt to recur.

Treatment.—Many acute cases could be prevented or aborted if the soldier reported to the medical officer at the first sign of any aural discharge. The following suggestions are offered as prophylactic measures with some reserve, owing to our present lack of knowledge. It did, however, appear that some protection was afforded by the use of vaselined cotton-wool plugs inserted in the ears while bathing. Another important point is that great care should be taken in drying out the ears with any rough towel after bathing, and, if possible, it is better to use a pencil of cotton-wool. Bathing in swimming-baths appeared to be more harmful than bathing in the sea. Where there is an associated seborrhoeic dermatitis of the scalp it must be treated, but this was infrequent in the patients seen. It is not the purpose of this article to discuss local treatment in detail, but thorough cleansing of the external auditory meatus, and especially the recess near the antero-inferior part of the tympanic membrane, is an essential for success. Two applica-

tions that proved of value in the acute form were 10% ichthylol in glycerin, and 8% solution of aluminium acetate (Burow's). The latter was, however, practically unobtainable, and good results were reported from the use of 5% lead acetate. Medication is applied by means of a gauze wick. In the more chronic form a hydrarg. oxi-flav. paste was used with benefit. Ointments are contraindicated in a hot climate. A 4% solution of sulphanimide in sodium bicarbonate met with some success, though this would not be expected with the type of organism present. It is possible that when penicillin is available on a commercial scale we shall have a useful addition to our medication. When the disease frequently recurs or where there are gross hypertrophic changes in the meatus it is better for the otologist to board the patient for base or home service, as desert warfare is definitely contraindicated.

Otitis Media

Acute otitis media did not form a large proportion of the cases during the period under review, but there was a definite increase during the summer months—probably attributable to the greater use of the swimming-baths. The prophylactic measures include the avoidance of diving and of swimming under water when the soldier has a cold. The use of dirty handkerchiefs and incorrect blowing of the nose are other obvious causes: but perhaps the average "Tommy" is less liable to err than the officer, as he usually adopts the more physiological method of clearing his nose by sniffing rather than blowing. Treatment was greatly influenced by the oral administration of sulphonamides, and it was necessary to submit only 6 patients out of a total of 47 cases of acute otitis media to a cortical mastoid operation. This was undertaken more because of the continuation of the discharge than because of the acuteness of the symptoms. Chronic suppurative otitis media proved a more difficult problem. Whereas, in civil life, the soldier could carry out his work easily without paying much attention to aural discharge, on active service in the Middle East other factors proved important. His efficiency may be impaired by (a) deafness, which may be progressive in character, leading to the misinterpretation of orders; (b) the association of chronic suppurative otitis media with acute otitis externa; and (c) the occurrence of intracranial complications. Furthermore, a certain number of patients with chronic otitis media experience considerable pain or tinnitus on exposure to continuous rifle-fire, gun-fire, or explosions; but this is not a constant feature, and there appears to be an individual sensitivity. It would be more satisfactory if patients suffering from this disease were excluded from service in the Middle East, but as for various reasons this has proved impossible some scheme must be devised for their treatment. The following contains many suggestions that were already in force in the Middle East.

Scheme for the Treatment of Chronic Suppurative Otitis Media

1. **Role of the Otologist.**—(a) All patients with chronic suppurative otitis media should be seen at least once by an otologist, who would decide which patients needed recategorization, admission to hospital, "self-treatment" under the supervision of the unit medical officer, or treatment at an aural treatment centre.

(b) With regard to recategorization, considerable latitude was allowed the otologists in the Middle East, and it was possible to "board" a soldier for a period of three months for base duties only without resorting to a medical board. The actual fighting in the Western Desert was very mobile, and it must be recognized that in the middle of a battle the unit medical officer is not able to attend to the cleaning out of a patient's ears. Often his ambulance car or truck is never properly set up, and there is no established M.I. room. Consequently, more patients were graded for base duties than would have been the case in static warfare. This does not necessarily imply that every case of chronic suppurative otitis media should be graded for base service only, as the question of man-power must receive careful consideration. Some of the patients can clean out their ears quite well themselves if they have had a proper training. It is the duty of the otologist to decide which of these cases are suitable for this front-line method of "self-treatment."

2. **Role of the Unit Medical Officer.**—For some reason medical officers seem very much afraid of ear diseases, and it is a frequent occurrence for patients to be sent to the otologist without any attempt at a diagnosis. Perhaps this may in part be due to lack of equipment, but a certain amount is due to lack of knowledge and interest. Yet the ultimate responsibility for the condition of fitness of these patients rests with the medical officer. It is suggested:

(a) That a circular should be sent round to all unit medical officers containing an outline of the more common ear, nose, and throat diseases and established methods of treatment. This was done in the Middle East.

(b) That a short clinical course should be held at the ear, nose, and throat departments of the larger hospitals in the area. Not more than three officers should be attached to one hospital at a time, otherwise difficulty would be experienced in providing proper tuition.

(c) That it is the duty of the medical officer personally to instruct his patients in the proper method of "self-treatment." The procedure to be carried out would be included in the circular. In addition, it is suggested that the unit medical officer should be provided with "self-treatment" sets for distribution to his patients. These would contain 1/4 lb. cotton-wool (fine fibre), 2 dozen wood-wool applicators, and a 2-oz. bottle of boric acid in spirit drops with pipette, in a cardboard box. Instructions for use would be printed on the lids.

3. *Role of the Hospital.*—It is maintained that chronic suppurative otitis media is an "out-patient" disease and that any extensive "in-patient" treatment at hospital has a bad psychological effect, besides leading to a great wastage of valuable man-hours. Admission to hospital should be reserved for those cases in which the otologist considers the aural condition endangers the patient's life; others with obvious nasopharyngeal sepsis, the removal of which will give a reasonable chance of a dry ear; and a much smaller group of patients which the otologist desires to keep under observation for the treatment of aural granulations or polyps.

4. *Role of the Aural Treatment Centre.*—It has been shown that in 40 to 50% of chronic suppurative otitis media the aural discharge will clear up if adequate conservative measures are taken. At a meeting of otologists in the Middle East it was suggested that aural treatment centres should be established at the larger base camps. The centres would be staffed by a medical orderly who had received six months' training by the otologist at the ear, nose, and throat department of a general hospital and who was capable of using a forehead mirror. This may appear to be a counsel of perfection, but personal experience has shown that, provided a keen and intelligent orderly is chosen at the start, complete reliance can be placed on him to carry out the treatment properly. His capabilities will depend on how much trouble the otologist takes to train him. The centres would be under the supervision of the Ear, Nose, and Throat Adviser to the area, who would visit them at stated intervals, and adequate equipment would be provided. So far as was possible, units would be treated by appointment. The establishment of these centres would have the advantage of avoiding waste of man-hours and would counteract the difficulties of supplying the necessary equipment to every unit medical officer. In addition treatment should be more thorough, as all too often treatment is delegated by the medical officer to an untrained orderly who has neither the knowledge nor the equipment to carry it out efficiently. Many patients who have attended such a centre should in time be fit to be graded A, and others be able to carry out "self-treatment" once the ear has reached a more healthy condition.

5. *Forward Otological Service.*—This was established in the Middle East, and that it was necessary is shown by the fact that over 200 cases of chronic suppurative otitis media were seen at Tobruk every quarter. Some of these patients had escaped the net at the base, while others had been sent up on draft from the infantry case depot although graded B. There is a considerable amount of ear, nose, and throat work to be done in a forward area, and if the otologist possesses some knowledge of general surgery he can make himself useful when the battle starts.

Treatment.—It is necessary to emphasize that prophylaxis consists in the proper and adequate treatment of every case of acute otitis media. In local treatment it matters little whether the "wet" or the "dry" method is used so long as the ear is cleaned out thoroughly before any drops are instilled. The otologist should bear in mind that radical mastoid cavities are slow to heal in the Middle East and are difficult to keep clean. The modified radical mastoid operation is, where possible, the method of choice, but in all treatment as conservative a policy as possible should be pursued.

Finally, it is emphasized that the success of any scheme will depend on the full co-operation of the units concerned.

Acute Tonsillitis

Prophylaxis consists essentially in isolation. It is suggested that, in spite of the difficulties, every effort should be made to carry this out near the front line, and that only cases of frequently recurrent attacks of tonsillitis should be sent back to base. At a base hospital a special ward should be available for cases of tonsillitis only, even at the cost of empty beds. This ward should be in the charge of a medical officer who

is under the direct supervision of the ear, nose, and throat specialist—not, as at present, under the control of the medical side. Many patients are already referred to the specialist for the advisability of operation, and also, in a considerable number of cases, there is an associated "missed" sinusitis which leads to frequent recurrent attacks of tonsillitis, with readmission to hospital. It is suggested that there should be a small dark room attached to the tonsillitis ward with simple examination equipment available. It would be the duty of the ear, nose, and throat specialist to instruct the officer in charge of the ward in the methods of sinus investigation. Every case of acute tonsillitis should have the ears and sinuses thoroughly examined before discharge, and "missed" complications should not occur.

Treatment.—The infecting organism in the majority of cases in this area was *Str. viridans*; but in spite of this fact the administration of sulphanilamide definitely decreased the length of stay in hospital. Local treatment followed the usual line. Operation by dissection of tonsils was undertaken in 17% of cases. Care was exercised in reaching a decision, and only those patients who had suffered from three or four severe attacks were regarded as suitable candidates. Because of the difficulty in regaining contact with a patient once he has been discharged, operation was undertaken early (i.e., a fortnight to three weeks after the start of the attack). Experience showed that, while the incidence of secondary or reactionary haemorrhage was slightly increased, this was never sufficient to endanger life, and in only one case during the five months was it necessary to give a second anaesthetic to control the haemorrhage. It is maintained that the benefit derived from this extra week in hospital more than compensated for the time lost through frequent recurrences, and, in addition, the long waiting list was abolished. There is no doubt of the benefit in health received by the soldier in the removal of the toxic focus.

Sinusitis

The figures for this disease strongly suggest that there is a high incidence of sinus infection in the Middle East. Part of this must be attributed to the infected dust-laden atmosphere as there was a noticeable increase during a dust storm. Bathing in the swimming-baths appeared to have a deleterious effect, as even if the bacillary content was low the heavy chlorination practised had a harmful effect on ciliary activity in the nose. The prophylactic measures to be followed are outlined under the section on acute otitis media. Some doubt has been expressed as to whether Sluder's "vacuum" sinus headache is a real clinical entity. It can only be stated that this type of case was met with again and again in the Western Desert, where there were no clinical signs beyond a reddening of the mucosa of the middle turbinate and some tenderness on pressure over the sinus. The headache was definitely referable to one or other of the sinuses, and, even after exclusion of ocular, general, and psychological causes, a considerable number of patients remained. Clinically it did not resemble "vasomotor rhinitis," but an allergic factor may have been present.

Treatment.—A strong plea is put forward for conservative methods, such as inhalations with the use of ephedrine in saline sprays, headlight baths, short-wave diathermy, and repeated proof-puncture. It was found that 74% were cured by these means, and later experience in the desert confirmed the fact that operated cases did badly. It is probable that fewer cases still would have been submitted to operation had this experience been available at the start. Many in-patients with so-called "vacuum" sinus disease were improved by rest in bed and the ordinary conservative treatment of acute sinusitis, but the condition remained a definite problem.

Addenda

The following notes on some conditions are of interest:

1. *War Injuries.*—The number of war injuries seen during this period was small. It was noted, however, that there was a considerable proportion of war injuries to the ear among the general surgical cases, and an investigation was undertaken. The results, however, are not yet available.

2. *Deviated Septum.*—The opinion is held that during war the septum operation should be regarded as a "luxury"

measure except in the case of gross nasal obstruction or where forms a contributory factor in the causation of catarrhal eafness or sinusitis.

3. *Diphtheria*.—This was treated at one central hospital where there were special nursing facilities. The cases seen here, though few in number, were of marked virulence, and although antidiphtheritic serum was given early in adequate doses it did not appear to have the usual effect. Peripheral leucitis seemed much more common and severe.

Summary

An analysis is made of ear, nose, and throat casualties occurring at a general hospital in the Middle East.

The commonest diseases were acute tonsillitis, otitis media, otitis externa, and sinusitis.

Suggestions are made by which (a) the incidence of these diseases may be lowered; (b) the period of admission to hospital decreased; (c) more adequate treatment in general instituted.

Miscellaneous notes connected with ear, nose, and throat work are included.

My thanks are due to Col. H. J. A. Longmore, A.M.S., for permission to make use of this clinical material.

REFERENCE

Daggett, W. I. (1942). *J. Laryngol. Otol.*, 57, 427.

LOW SPINAL ANAESTHESIA DURING LABOUR IN CASES OF CARDIAC FAILURE

BY

HAROLD BURTON, B.M., B.Ch., D.R.C.O.G.

Resident Obstetrical Officer and Deputy Medical Superintendent,
Stoke-on-Trent Hospital

Most authorities are now of the opinion that it is not justifiable to perform a Caesarean section on a cardiac case merely for the sake of sterilizing the patient at the same time. If, therefore, normal labour is to be allowed in these cases, it is the aim of this paper to show that by far the safest method for it to take place is under low spinal anaesthesia.

It is generally accepted that the dangerous stage of labour in a cardiac case is the second. During this stage, with its attendant bearing-down and straining on the part of the patient, the heart is put to its severest trial, as can readily be observed in the labour ward. The patient is seen to become cyanosed and her pulse to falter during these bearing-down efforts. The method of anaesthesia here described depends essentially upon cutting out these bearing-down efforts while otherwise allowing labour to proceed normally. The essential stimulus to bearing-down is the pressure of the presenting part on the pelvic floor and perineum. The low spinal method anaesthetizes just these parts, and these only, and thus breaks the bearing-down reflex on the afferent side of the reflex arc.

The usual objection to the use of spinal anaesthesia for cardiac and other patients is that it causes the blood pressure to fall. This is true of routine spinal anaesthesia, but not of low spinal anaesthesia. A glance at the anatomy and physiology of the sympathetic system will explain this. The sympathetic outflow from the cord, which is chiefly responsible for the tone of the smaller vessels and therefore the blood pressure, comes from all the thoracic and the upper two lumbar segments. Any spinal anaesthetic, therefore, which acts below the second lumbar segment has no effect on the blood pressure. This was confirmed in all cases by taking routine blood-pressure readings at half-hourly intervals before and after the spinal injection. The use and technique of low spinal anaesthesia depend upon this fact.

The Method

The technique is simple. Heavy percaïne is used because it has been found that its effect is more lasting than that of other heavy spinal anaesthetics. The dose is 0.6 c.cm. The patient's back is prepared in the usual manner, and she is then sat up on the bed. The anaesthetic is given in the

ordinary way between the third and fourth lumbar vertebrae, and the patient is kept sitting up for at least ten minutes to enable the anaesthetic to fix. The anaesthetic drops down to the bottom of the spinal theca. The sacral nerves only are anaesthetized, and a saddleback area of anaesthesia is produced over the perineum.

The anaesthetic is given just before full dilatation of the os, so that when the presenting part is pressing on the perineum bearing-down will be obviated. It is noteworthy that the ordinary labour pains in the abdomen and back can still be felt by the patient. These pains, however, do not cause her to strain: they merely cause discomfort. If the dosage has been correct neither the abdominal walls nor the thighs will be affected.

In order to develop the technique fully, about a hundred normal cases were delivered by means of low spinal anaesthesia. About half of them delivered themselves spontaneously and almost painlessly, and the rest were delivered by a low forceps extraction without further anaesthetic up to as long as six hours after the low spinal anaesthetic had been given.

Even for a normal patient and labour this method has advantages—i.e., by allowing normal labour to proceed without any feeling of perineal distension. Women thus anaesthetized, if told to do so, can bear down by reason of their abdominal musculature being left intact. If a perineal repair or a forceps delivery is subsequently necessary it can be performed without any further anaesthetic within six hours. My aim, however, is not to discuss this mode of anaesthesia with reference to normal labour, because here, although rendering the labour easy and painless, it is open to the objection that it is an undue interference in a normal case. But this objection does not apply to cardiac cases. These patients, instead of suffering the shock of an abdominal section under local anaesthesia, can have a normal labour without any extra strain upon their heart.

Any case of longitudinal lie can be treated by this method. Naturally the patient should have been at rest and her heart compensated so far as is possible, with or without digitalis, before labour. The discomfort of the first-stage pains should be reduced by the use of morphine-scopolamine analgesia.

Illustrative Cases

Case 1.—Mrs. M. is an example of a vertex presentation. She had had a premature labour two years previously and was extremely anxious to have a living child with this pregnancy. She attended the ante-natal clinic on Jan. 18, 1943, when she was 22 weeks pregnant. She was dyspnoeic even at rest. Her apex beat was very irregular, varying between 70 and 150 a minute. The pulse showed many dropped beats. An electrocardiogram on Jan. 26 showed a grossly irregular action due to a nodal rhythm. The patient was brought into hospital and digitalis therapy started, but by the second day her apex beat had dropped to 40 and the digitalis was discontinued. It was decided, after consultation with Dr. Boyd, the consultant physician, to keep the patient at complete rest until normal labour began. She started having pains on May 18. Morphine and scopolamine were given during the first stage. Her blood pressure was 110/80; the pulse rate varied between 70 and 140, and was irregular. At this stage, when the os was almost fully dilated, a low spinal anaesthetic was given. The blood pressure remained constant at 120/80. The patient was delivered one hour later by low forceps. At no time during the labour was she distressed beyond feeling the pains of uterine contractions. The puerperium was uneventful.

Case 2.—Mrs. H., a primigravida aged 22. Breech presentation due July 13, 1942; sent into hospital with cardiac decompensation on July 2. She was a case of classical mitral stenosis with pre-systolic murmur. There was dyspnoea at the slightest exertion. She had had a haemoptysis for a week before admission. Pulse rate, 120 at rest. Complete rest was ordered and digitalis therapy was started immediately. After a week she was fairly well compensated, with a pulse rate between 70 and 80. Pains started at 3 a.m. on July 21, and she was kept under morphine and scopolamine. The blood pressure at this stage was 125/80. The os was almost fully dilated at 6.45 a.m. Heavy percaïne 0.6 c.cm. was given. The blood pressure remained constant. At 9.30 a.m. the breech was presenting. Episiotomy was performed and the child delivered normally. At no time was there the slightest distress.

Many other similar cases have been delivered by this method without any fatality. These patients are usually asked to attend a birth control clinic after discharge and to return later for

sterilization. This can then be performed when the heart has not the added burden of the placental circulation with which to cope.

One complication of the method must be mentioned. A spinal headache seems to occur much more frequently in pregnant than in non-pregnant patients. The headache often lasts for as long as a week. Several methods have been tried both to prevent and to relieve this spinal headache; but none of them is uniformly successful, and these methods are beyond the aims of this paper.

I wish to thank Mr. C. Gordon Lewis, F.R.C.S.Ed., medical superintendent, and Dr. J. Lindsay Boyd, consulting physician, of the Stoke-on-Trent Hospital, for their help and consideration.

EFFECT OF DIET ON THE CONCENTRATION OF CHOLESTEROL IN BLOOD AND BILE

BY

NANCY GOUGH, B.Sc.

(From the Clinical Laboratory, Royal Infirmary, Edinburgh)

It is widely believed that the level of cholesterol in the blood and bile is influenced by the intake of cholesterol in the food, and for this reason the diet of patients with disorders of the biliary system has commonly been restricted to food low in cholesterol. The following investigations suggest that this irksome restriction may be unnecessary, since the concentrations of cholesterol in the blood and in the bile do not appear to be significantly affected by the ingestion of comparatively large amounts of cholesterol.

Effect of High- and Low-cholesterol Diets on the Blood Cholesterol

Hospital patients whose metabolism was supposedly normal were fed on low-cholesterol diets containing about 300 mg. of cholesterol a day for a fortnight, and blood specimens were analysed for cholesterol at intervals of three days, all blood samples being taken at the same time of day. Then the cholesterol content of the diet was increased by the daily addition of 900 mg. of pure cholesterol, three eggs (approximately 1,100 mg. of pure cholesterol a day), or 50 g. of sheep's brain (approximately 2,170 mg. cholesterol a day), the cholesterol content of the blood again being determined at intervals of three days.

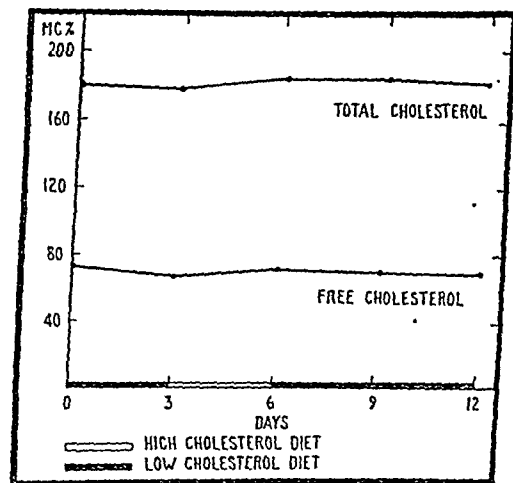


FIG. 1.—Relation between cholesterol content of diet and concentration of cholesterol in plasma. The low-cholesterol diet contained approximately 300 mg. cholesterol and the high-cholesterol diet approximately 2,170 mg. a day, given as 50 g. of brain.

Of 10 such cases in which the estimations were made by the colorimetric method of Myers and Wardell, 8 showed the plasma cholesterol unaffected by diet, while in 2 cases the plasma cholesterol was definitely raised by the addition of

900 mg. of cholesterol a day to the basic diet, and also the daily addition of three eggs. Of another 10 cases, in which the estimations were made by the *digitonin-precipitation* method of Okey, in no instance did a *marked* elevation of the plasma cholesterol. The accompanying graph shows a typical result in a normal person (Fig. 1).

Cholesterol Absorption

Experiments on the effect of a single dose of cholesterol on the blood cholesterol were carried out on four normal subjects who had been fasting for twelve hours before each experiment. The estimations were made by Okey's *digitonin-precipitation* method. A cholesterol-free, fat-free meal supplemented by 5 g. of pure cholesterol was given, and a blood cholesterol curve constructed over a period of six hours. The blood cholesterol curves did not differ significantly from those obtained from the same subjects when given the same meal without the added cholesterol. As it was thought possible that the absorption of crystalline cholesterol is dependent on the presence of adequate fat in the intestine, this experiment was repeated 50 g. of fat as margarine being added to the test meal. Again no significant difference was observed. Fig. 2 shows the result in the case of two of these subjects.

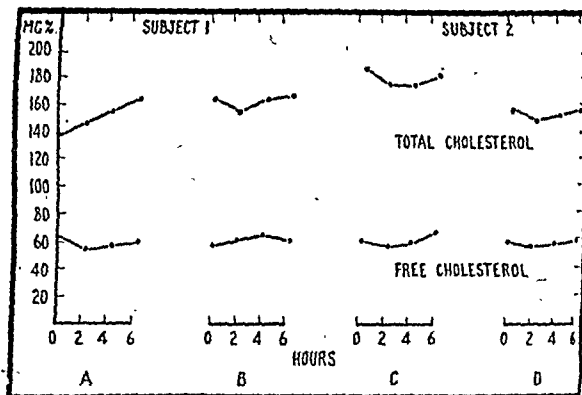


FIG. 2.—Plasma cholesterol curves over a period of six hours. A=Test-meal (cholesterol-free, fat-free). B=Test-meal + 5 g. cholesterol. C=Test-meal + 50 g. fat. D=Test-meal + 50 g. fat and 5 g. cholesterol.

The conclusion from these experiments appears to be that 5 g. of crystalline cholesterol by mouth has no effect in raising the free or esterified cholesterol in blood. Whether these findings can be explained by a failure in absorption of crystalline cholesterol, or by some mechanism whereby it is removed from the blood or altered into some compound not detected by the analytical method employed, is uncertain.

Effect of High- and Low-cholesterol Diets on the Cholesterol Content of the Bile

These experiments were carried out on 10 patients with biliary fistulae. The clinical condition of 4 of the patients did not permit the giving of experimental diets, and they were therefore kept on a light ward diet, which has a fairly constant low-cholesterol content of approximately 300 mg. a day. The remaining 6 patients were given a special low-cholesterol diet containing less than 300 mg. of cholesterol. After a period of two or three days they were given a diet with a high content of cholesterol, as the pure substance or as brain, for a further period of three days. Bile was collected from the fistula or alternate days. The cholesterol content of the bile was invariably very low immediately after the operation, but rose gradually, presumably as the liver damage lessened, although there was considerable day-to-day variation. This variation was most pronounced (10 mg. to 45 mg. per 100 c.cm.) in a case with severe hepatic damage (gross jaundice). There was also a great daily variation in the volume of bile which drained externally.

In human beings with a biliary fistula it is impossible to determine what proportion of the bile is draining externally and what is draining into the intestine via the common duct; hence no calculation can be made of the total secretion of bile

cholesterol. But it is possible to compare the concentration of cholesterol in a given sample of bile with the cholesterol ingested in the diet.

Of 10 patients with biliary fistulae, 1 showed a distinct rise in the bile cholesterol concentration on a diet containing a high content of cholesterol (about 2,000 mg., given as 50 g. of sheep's brain a day); 1 a rise when the high-cholesterol diet was first given, with a subsequent return to the original level (the patient still on the high-cholesterol diet); and 2 a fall in the cholesterol concentration of the bile on a low-cholesterol diet. In 6 no significant or sustained changes in the bile cholesterol concentration coincided with changes in the cholesterol content of the diet. The results in one of these six cases are shown in Fig. 3. The duration of these experiments was limited by the short period of time during which the fistulae remained open.

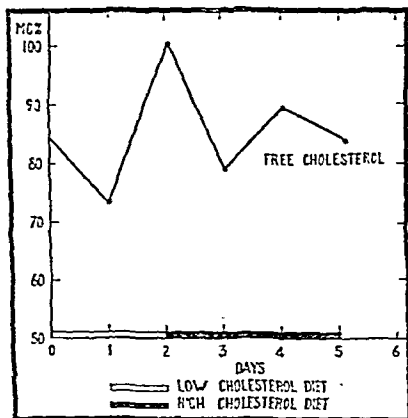


FIG. 3.—Concentration of cholesterol (free) in bile of a patient with biliary fistula. The low-cholesterol diet contained approximately 300 mg. a day, and the high-cholesterol diet 2 g. given as the pure substance.

To overcome the difficulty mentioned above with regard to determining the total output of cholesterol in the bile recourse must be had to operations on animals. Prof. Learmonth inserted a tube into the common duct of a dog so that all the bile drained externally. The animal remained in excellent condition for one month, the absence of bile in the intestine being compensated by giving 1 g. of sodium taurocholate by mouth every day. The total volume and the cholesterol concentration of the bile were measured daily; for the first three days insufficient bile was secreted for analysis, but thereafter it increased, although there was considerable fluctuation both in the volume and in the cholesterol content. After about ten days these became fairly constant (concentration of cholesterol in bile 13 to 14 mg. per 100 c.c.m., and total bile cholesterol excreted about 20 mg. a day). Approximately 2 g. of cholesterol was then fed in the form of 50 g. of sheep's brain, and there was an immediate rise in the bile cholesterol (27 mg. per 100 c.c.m. and total bile cholesterol 38 mg.), which was maintained for 48 hours; but subsequently both concentration and total output of cholesterol in the bile returned to the original level, although the high cholesterol content of the diet was maintained.

Conclusion

Further experimental work on animals is obviously required before any definite conclusion can be reached as to the effect of diet on the total output of bile and cholesterol, but the evidence of the foregoing experiments on human beings seems to indicate that there is no direct correlation between the intake of cholesterol and its level in the blood and bile. These observations give no support to the contention that foods rich in cholesterol should be prohibited in the diet of patients with cholecystitis and cholelithiasis. The exclusion of butter, fat, eggs, and liver from the diet of patients with diseases of the biliary tract is based essentially on the hypothesis that gallstones are formed from cholesterol, and that a reduction in the intake of cholesterol accordingly reduces the liability to

gall-stone formation. Such a low-fat, low-cholesterol diet is unphysiological because fat is the natural stimulant to biliary contraction and drainage, and has the further disadvantage of being unpalatable, monotonous, and low in fat-soluble vitamins.

My thanks are due to Prof. L. S. P. Davidson and Dr. C. P. Stewart, under whose direction this work was done, and to Prof. J. R. Learmonth, who carried out the necessary animal surgery. Part of the expenses were defrayed by a grant from the Medical Research Council to Prof. Davidson.

Medical Memoranda

Contramine for Herpes

Herpes is very prevalent in this locality and is often of great severity; in some cases the acute stage has lasted for months and the after-effects for years. Hence my satisfaction when I stumbled on a specific which provided a rapid cure of this painful malady. By means of this treatment, if given early, the acute pain is often relieved in a matter of hours, the vesicles disappear in a week or so without pitting, and there are no after-effects.

Some time ago, while attending an elderly lady for rheumatoid arthritis, I gave a course of injections of contramine. When visiting her to administer the second injection she complained of acute pain in the right supraorbital region. The next day I had an urgent summons, and found a very extensive herpes rash present. To my surprise this completely disappeared in five days. On the assumption that the contramine cured rather than caused the herpes, I have in the last twelve months treated 15 cases by this method.

The results may be summarized as follows: Average duration of pain before case diagnosable, 4 days; average time between irruption and injection, 16 hours; average duration of irruption, 7½ days. In a few cases among elderly patients of the residential class there was some neuritic pain for a further week after the skin was normal.

The efficacy of the treatment was most pronounced in those cases in which the injection was given within a few hours of the first appearance of the spots, especially in the pre-vesicular stage. The following cases may serve as examples, taken in more detail:

REPORTS OF CASES

Case 1.—On Sept. 5, 1942, a single lady aged 70 consulted me about an acute pain which she referred to the eye. On the following evening I received an urgent message to visit her, as she had fainted with the pain, which was of a spasmodic character. I then arranged with a consultant ophthalmic surgeon to see her the following afternoon. The next morning I witnessed an acute attack severe enough to make her pulseless. By this time I suspected an acute herpes, which was confirmed by the consultant in the afternoon. Contramine was then given, with the result that there was no further pain, nor did any rash develop, and apart from a few days' weakness the patient was well.

Case 2.—On Dec. 24, 1942, a man aged 76 complained of violent occipital neuritis, and two days after this a slight rash appeared from occiput to orbit. Contramine was given, and the vesicles never fully developed but formed dry scabs. This would undoubtedly have been a very severe case, but he was well in a fortnight.

Case 3.—A working man aged 52 complained of an increasingly severe pain in the chest and loss of sleep for two nights. His work was hard, and as it was essential he wished to carry on, but doubted whether he could. On examination an early shingles rash was found over the whole of the left chest. An injection was given, and two days later he reported that the pain had ceased entirely in four hours. All symptoms had gone in four days.

In five cases drawn from the working-class similar results were obtained—much better than in elderly, and wealthier, patients.

ITS USE IN CHICKEN-POX

I have reason to believe that the treatment is equally effective for chicken-pox. Of the three cases in which I have used it details of one may be of interest—the only early case.

A boy aged 16, living at a hostel for evacuees, most of whom had not had this complaint, had an attack with a severe onset, and was injected with contramine 12 hours after the appearance of the rash. On the third day, being quite well, he was allowed up, did gardening, and mixed with the other children. None of these were infected.

COMMENT

The injection intramuscularly of 1 c.c.m. (0.125 g.) of contramine (B.D.H.) gives a dramatic result in early cases of herpes, and is of great value in chicken-pox. In no case was pitting or

scarring of the skin visible after recovery, nor was there a long-continued irritation. In a few cases a second injection was given, especially if the first was given late and the rash was well developed.

Its use in chicken-pox, especially in young children, has not yet been investigated fully.

I should be interested to receive reports from other medical men who might be disposed to try this treatment.

Budleigh Salterton,

EWART S. HAWKES, M.B., Ch.B.

Vomiting Sickness in Jamaica

For some years now, beginning in the autumn and continuing through the winter, with the peak in January, a condition termed "vomiting sickness" for lack of a more appropriate name claims many lives of the people of Jamaica, especially the lower class. For some time the ackee, a local fruit, has been thought to be the source. Had it been so the population would have been greatly reduced, since it is a very cheap article of diet and eaten by all. Children eat even the uncooked fruit without any untoward results. The local authorities have done little, if anything, to probe the cause in spite of its yearly toll. Sometimes two, three, or even four children in the same household fall to this malady within a day or two. In many instances the attack is severe and causes fear and concern among the community. The recent outbreak was widespread and claimed many lives. The clinical features are dramatic and acute. The majority of fatal cases seldom last longer than a day, in some instances hours. The doctor is generally called when the condition is well on the way: in some cases the patient is dying. The history is usually "bad feeling" in the abdomen and epigastrium, anorexia, vomiting (sometimes bile-stained, sometimes glairy and rosy). Clinical signs are mainly restlessness without anxiety, dehydration, eyelids usually closed, contracted pupils which are finally dilated, rapid—sometimes full—pulse, slight increase of temperature. By this time the patient is often unconscious. Sometimes the vomiting follows a meal without any previous warning.

Varying clinical symptoms dominate the picture. These are exemplified in the following cases:

ILLUSTRATIVE CASES

Case 1.—A boy aged 12 "was well until the day before, when he did not have his dinner," and complained of pain (cutting and gripping) in the abdomen (chiefly in the umbilical and epigastric regions). He soon became unconscious, with locked jaws; there were periodical states of irritability and restlessness, and stiffness of some extensor muscles. He was dehydrated. Response to symptomatic treatment was good.

Case 2.—Boy 7 years old—apparently well "this morning"—had a sudden "bad feeling" in the abdomen and epigastrium, followed by vomiting and fits. He soon became unconscious and comatose, with stiff extensor muscles, marked opisthotonos, locked jaws, severe dehydration, rapid full pulse, and slightly increased temperature. Death occurred a few hours later.

Many other cases were observed in which abdominal symptoms were more pronounced than the above. In my opinion there are many factors which undoubtedly contribute to this "vomiting sickness." It may have had its origin in the previous dry season. The children are usually anaemic, poorly clad, in unhygienic surroundings, generally malnourished, and in some instances worm-infested. The high temperature in the summer, fresh fruits, green vegetables, etc., seem to tide them over till winter, when all these are absent; then the effects show themselves in "vomiting," "abdominal pain," etc.

The condition usually appears with malaise and abdominal pain. The port of entry seems to be in the epithelial lining of small intestine. Is it that the condition has brought about greater permeability of the epithelial cells due to the lack of certain constituents of the blood causing substances or toxin in the gut to be absorbed in the circulation; or is there actual damage of the cells themselves?

In the case of worms the multiple sites of attachment may be important. Is the abdominal pain peristaltic in nature? The general symptoms would suggest circulatory invasion of some form of toxin. Clinically, sometimes there are evidences of meningeal irritation, stimulation of the centres in the medulla—respiratory, vasomotor, vomiting, etc. What, then, is the composition of the toxin, sapotoxin, split-proteins, or bacteria concerned? The laboratory must decide.

From the above one could say that the following conditions contribute much to the cause of "vomiting sickness": (1) a certain lack of nutritional and vitamin requirements; (2) exposure to (and ? shock from) sudden variations in temperature; (3) toxæmia from a possible intestinal origin. These three conditions usually are experienced by a certain class of the population with a very poor economic background.

Frankfield, Jamaica.

A. A. WRIGHT, M.D., B.Sc.

Reviews

THE DYSENTERIES

The Dysenteric Disorders: The Diagnosis and Treatment of Dysentery, Sprue, Colitis and Other Diarrhoeas in General Practice. By Sir Philip Manson-Bahr, C.M.G., D.S.O., M.D., F.R.C.P. Second edition. (Pp. 629; Illustrated. 30s.) London: Cassell and Co. 1943.

The first edition of this book, published four years ago, has been widely read. It has supplied medical men with invaluable information on the diagnosis and treatment of those most troublesome intestinal infections which may be grouped together as the dysenteries, including sprue, colitis, and diarrhoea. Since the outbreak of the present war certain advances have been made, the most remarkable of which is the application of the sulphonamides in the form of sulphaguanidine to the treatment of bacillary dysentery, which in the last war was responsible for so much sickness and death among the troops. In this war it is perhaps safe to say that so far bacillary dysentery has played but a minor part compared with ravages in the last war. One would ask: Is this the result of a specific therapy or is it wholly or in part due to improvements in Army sanitation, or possibly to some change in the virulence of the causative organisms? Whatever may be the real explanation there is no doubt that bacillary dysentery still occurs, while acute cases of virulent Shiga infections are by no means uncommon. It is in the last that sulphaguanidine is of such value, for its immediate use in full dosage rapidly cuts short the disease in the majority of cases. The use of this drug is fully discussed by the author, this section being the most valuable addition to the second edition of his book.

The author's development of his views on the nature of sprue as a complex nutritional disorder has necessitated a new chapter on pellagra, which serves as an introduction to a section on the steatorrhoeas. Another specific remedy, already noted in the first edition, is atebirin as an almost certain cure for giardiasis, that rather mysterious infection of the upper intestinal tract. Further evidence of its activity has accumulated, and this has been duly recognized in the new edition. In several other minor respects the book has been modified but its general arrangement is the same and it still retains its high position as the standard work of reference on the disorders with which it deals.

DERMATOLOGY

Diseases of the Skin. By Oliver S. Ormsby, M.D., and Hamilton Montgomery, M.D. Sixth edition, thoroughly revised. (Pp. 1,360; Illustrated. 70s.) London: Henry Kimpton.

This book maintains in its newest edition its place as one of the leading American treatises on dermatology. Only a few years have elapsed since the fifth edition appeared, but in order to combine modernity of outlook with economy of print the authors "have regrouped a large number of diseases, added two new classes, eliminated much material rendered obsolete through recent discoveries, added twenty-two diseases not previously included, and rewritten the accounts of many others." We quote from the preface. Certainly this is a remarkably complete handbook of dermatology, but while rare diseases or museum pieces receive mention the common cutaneous afflictions with which the practising doctor is chiefly concerned are given space which is proportionate to their greater importance. For example, there is a very good chapter on cutaneous syphilis and its treatment, including a discussion of the comparatively new method known as the massive five-day intravenous drip. The drug used for this purpose was at first neoarsphenamine (American for neosalvarsan), but this was found to be less satisfactory than mapharsen, and is now always substituted for the older preparation. In circumstances the advantage of compressing the whole of the necessary and adequate treatment for syphilis into five days is obvious, though it is not every patient who would tolerate an intravenous drip into the vein for ten to twelve days for five successive days. It is not entirely without interest that in 1,600 cases studied by the U.S.A. Public Health Service there were five deaths—nearly 1 in 300.

There is a full discussion on eczema and the various forms of ringworm, an infection which has recently assumed so much importance among eruptions on the hands and feet. The authors are perhaps most deeply interested in neoplasms, and the chapter devoted to this important subject is very interesting and full. They employ a term which is new to us—"lymphoblastoma"—and they use it to include mycosis fungoides, various types of leukaemia cutis, Hodgkin's disease, and lymphosarcoma of the skin. All these conditions have been long thought to be pathogenetically related, even though their exact connexions may not yet have been worked out, and it is convenient to have a single term to comprehend them all.

In short it may be said that this is a very good textbook of dermatology well worthy of the medical school of Chicago and of the Mayo Foundation from which it has sprung. It is well illustrated with excellent photographs, and the only criticism of its format we make is that it would be easier to handle if it were divided into two volumes.

REVIEW OF PHYSIOLOGY

Annual Review of Physiology. Volume V. Editor, James Murray Luck; Associate Editor, Victor E. Hall. (Pp. 613. 55.00 or 31s. 6d.) California: American Physiological Society and Annual Reviews, Inc.; London: H. K. Lewis and Co. 1943.

Several of the reviews in this excellent publication, the standard of which is well sustained by the present edition, will be of use to clinical investigators as well as to physiologists. It need hardly be said that physiologists will find the volume as valuable as its predecessors have been.

Reviews which will be valuable for reference in fields in which it is not easy to collect information are the ones on "Physiological and Pathological Effects of Ultraviolet Radiation," by H. F. Blum; "Physiological Aspects of Genetics," by C. V. Taylor; "Visceral Functions of the Nervous System," by H. W. Magoun; "Temperature Regulation," by L. P. Herrington and A. P. Gagge; "Metabolic Functions of the Endocrine System," by B. A. Houssay and V. Deulofeu; "Physiology of Mammalian Semen," by J. MacLeod; "Endocrinology of Reproduction," by C. A. Pfeiffer; "Physiological Psychology," by N. Cameron and H. F. Harlow; and "Biological Assay," by C. I. Bliss and M. Cattell. The last-named is a particularly critical article, which deals with a topic of growing importance; it is well digested and full of information.

Other articles of general value to the physiologist are the ones on "Physical Properties of Protoplasm," by C. V. Taylor; "Developmental Physiology," by W. F. Windle; "Physiology of Bone," by F. C. McLean; "Energy Metabolism," by E. B. Forbes and L. Voris; "The Respiratory System," by C. L. Gemmill; "Muscle," by E. Fischer; "The Digestive System," by R. C. Herrin; "Blood," by H. D. Bruner; "The Lymphatic System," by P. D. McMaster; "Heart," by F. D. Johnston and F. N. Wilson; "Nerve and Synaptic Transmission," by B. Renshaw; "Liver and Bile," by J. L. Bollman; and "Sense Organs," by H. Davis and S. H. Bartley.

The subjects of temperature regulation, respiration, sense organs, heart, and biological assay are now much to the fore, and workers in many fields will find those contributions useful. Three of the articles intended have, for one reason or another, had to be omitted; in view of the present situation this is a surprisingly small number. But, as the editors say, "What a flood of discovery will be revealed in the first few years of the post-war world when the present barriers to intellectual co-operation melt away!" Yes, indeed.

WAR WOUNDS AND INJURIES

War Wounds and Injuries. Edited by R. Maingot, M.R.C.S., E. G. Steinger, M.S., F.R.C.S., and Ernest Fletcher, M.B., M.R.C.P. With foreword by Lord Horder. Second edition. (Pp. 499; illustrated. 35s.) London: Edward Arnold, 1943.

The second edition of this compilation on war injuries has been largely reconstructed. Two new editors share the responsibility and many new contributors have been drawn in. The work now gives a fair representation of the views on war surgery at home. It is noticeable that none of the contributors have had active experience in the Middle East. The articles on peripheral nerve injuries by Highet and that on the chest by Tudor Edwards are perhaps of most outstanding value. All

the other articles offer sound advice by those who have had practical experience of the subjects dealt with. In the section on burns the treatment described, though advised by the Navy, is not in line with the current ideas of the Army and of the Air Force. The book is well produced, and the illustrations, which are mainly photographic, show fair detail. Both the size and price of this edition have been approximately doubled.

Notes on Books

The Advancement of Science, No. 8, just published at 5s., completes the second volume of this, the official publication of the British Association for the Advancement of Science (Burlington House, London, W.). It was established by the Association shortly before the war as a quarterly, of which four parts made a yearly volume. In wartime the quarterly issue was found inexpedient, and the volume now completed covers the period since September, 1941, when the Association's Division for the Social and International Relations of Science held its conference on Science and World Order. That conference directed attention to a whole series of post-war problems bearing upon the impacts of science on society. Of particular interest in the present series of papers is the address on the Public Understanding of Science by Sir Henry Dale given on March 20, 1943, and Sir Richard Gregory's address on Science and the Press given on March 21.

A sixth edition of Prof. F. J. BROWNE'S *Advice to the Expectant Mother on the Care of her Health and that of her Child*, which first appeared in 1926, has been published by E. and S. Livingstone of Edinburgh at 6d., plus 21d. postage. The booklet has been revised throughout, and there is a new short chapter on pregnancy and labour to help the expectant mother to co-operate with midwife or doctor.

Dr. W. GORDON SEARS, medical superintendent of the Mile End Hospital, has prepared a small work *Materia Medica for Nurses*, his object being to link up drugs and therapeutics with physiology and to give enough information to be useful to the nurse for reference after passing her examinations. Some stress is laid on therapeutic procedures, signs of overdosage, and points which the nurse can observe or has to carry out for herself. The guidance of a competent teacher is presupposed throughout the text, which is clearly written and practical in range. Edward Arnold and Co. publish the book at 5s.

Save the Children of Belgium is the title of an 8-page leaflet in which M. Emile Cammaerts (3, Hillside Road, Radlett, Herts) has collected available information on the food and health conditions (based on medical reports) of the children of Belgium. He also describes the scheme for restricted medical relief proposed by the Famine Relief Committee. Much of this material has already appeared in these columns, but brought together it makes out (from the medical point of view) an unanswerable case for sending a small monthly shipment of food concentrates to that stricken country.

Preparations and Appliances

HEAD TERMINALS FOR CONVULSIVE ELECTROTHERAPY

Dr. E. FRETSON SKINNER (Sheffield) writes: One of the minor difficulties of convulsive electrotherapy is that of easy application and removal of the head terminals. The usual method of a rubber band and pads is awkward of adjustment and time-consuming if large numbers of cases are to be dealt with, while the heavy caliper type of headpiece supplied by one firm is too heavy and cumbersome as well as alarming to the patient. For two years now I have been using a very simple home-made piece of apparatus, consisting of an adaptation of wireless head-phones in which the microphones are replaced by solid disks of fibre, into one face of which a metal plate is let and connected by a screw terminal going through to the other side of the disk with the necessary leads. The springs on the head-phones have been reinforced by two steel strip springs bound to the phone-springs with elastoplast strapping. The whole apparatus can be made for a few shillings and is extremely handy, as it can be slipped on to the head and removed in a moment.

Joseph E. Smadel (*J. clin. Invest.*, 1943, 22, 57) found that 10 out of 45 sporadic cases of atypical pneumonia were caused by infection with strains of the virus of psittacosis. In no instance was the virus of lymphocytic choriomeningitis associated with the illness of individuals in the group, and in only two instances was influenza virus suspected as a possible aetiological agent.

MISLEADING MALARIA

BY

Sir MALCOLM WATSON, M.D., F.R.F.P.&S.

In view of the danger from malaria to our Armies operating in Southern Europe and other malarial areas Capt. Birks's paper, "Symptomatology of Malaria," in the issue of the *Journal* of June 26 is a timely warning of some of the ways in which malaria attacks without causing febrile symptoms, and so may mislead the physician. There are other ways in which "malaria kills, not in the hot blood of a fever, but in cold blood, masquerading as some non-febrile disease." The following is a summary of a paper, "Some Clinical Features of Quartan Malaria," by myself, which appeared in the *Malayan Medical Journal* in 1904 and the *Indian Medical Gazette* in 1905.

Quartan malaria rarely kills as a febrile disease, and is especially suitable for the study of chronic malaria.

In 18% of 66 cases pyrexia was absent
In 18% " 66 " " occurred at long intervals
In 32% " 83 " oedema was a prominent feature
In 18% " 83 " " overshadowed all other features

In some cases the combination of normal temperature, dense albumin in the urine, with blood and tube casts, had led to a diagnosis of acute nephritis until the discovery of quartan malaria parasites. This condition is much less common with the other parasites. In 20 of 83 cases it was diarrhoea or dysentery which brought the patient into hospital, and there was no complaint of fever. In 5 out of 83 cases there were abscesses—some large, multiple, and painless. In nearly all cases cough was common; in some there was severe bronchitis. It was the failure of an ulcer to heal that first put me on to the track of afebrile quartan malaria, and thence to afebrile malaria generally.

In an article entitled "Rare Nervous Symptoms produced by Malaria" (Watson, 1908) I drew attention to epileptiform attacks in B.T. malaria and paralysis of the sixth nerve, presumably the early symptom of malaria coma.

In a "Note on the Parasites of a Case of Malignant Malaria, with a Discussion of the Development of the Crescent" (Watson, 1903) I wrote, describing a peripheral blood film: "In many places groups of as many as 30 almost fully developed parasites were counted, reminding one of what is occasionally seen in cerebral and other capillaries. This suggested that red corpuscles infected by M.T. parasites develop adhesiveness, which accounts for the blockage of capillaries, and might explain the 'generalized disease of arterioles and capillaries' suggested by Capt. Birks as the cause of the symptoms in his cases.

The full significance of unrecognized malaria I did not realize until, as a result of antimalaria work begun in 1901, the following figures were compiled:

Number of Deaths in Kland and Port Swettenham corrected for Deaths Occurring in Hospital

	1900	1901	1902	1903
Fever	259	368	59	46
Other diseases ..	215	214	85	69
Totals	474	582	144	115

Further experience of successful antimalaria work has consistently shown a decrease in "other diseases" such as diarrhoea, dysentery, convulsions, and anaemia.

Quinine Injections

Normally, quinine by mouth is sufficient, but there are many exceptions to the rule. A medical friend staying with me relapsed from B.T. malaria. His tongue became dry. He was given quin. bihydrochlor. 7 gr. t.i.d. At the end of 48 hours he still had fever and parasites. Meyer's reagent showed no quinine in the urine. Intramuscular injections produced the desired result.

When quinine is injected intramuscularly it is safer to limit the amount injected in one place to 5 gr., and less painful to the patient. In 1933 I carried out a series of experiments with guinea-pigs and rabbits. As the dose of quinine bihydrochloride was raised from 1 gr. to 5 gr. the oedema and redness, seen on cutting into the site of the injection 48 hours later,

increased. On injecting 8 gr. extensive sloughing was observed. A patient came to me with both thighs puckered in different places. She had had a course of injections.

An injection of morphine, with a good sleep, is appreciated by the patient after sleepless nights and severe headache. Doctors themselves will find if they contract malaria.

Hyperpyrexia

When I first went to the Tropics I wondered how I would treat hyperpyrexia in malaria in the absence of ice. True that the temperature in B.T. malaria often rises to 104° and over, but I have never seen hyperpyrexia endanger a patient's life. The late Dr. C. W. Daniels, who had a long experience of malaria, both clinical and pathological, told me that this was his experience also in uncomplicated malaria. I thought the textbooks had inherited the heading from the microscope days, when typhomalarial fever was a common diagnosis. When I did meet hyperpyrexia in other diseases it was easily controlled by sponging with or pouring on water at a temperature about 80° F., to the great comfort of the patient.

REFERENCES

- Birks, P. H. (1943). *British Medical Journal*, 1, 784.
Watson, M. (1903). "Note on the Parasites of a Case of Malignant Malaria," *British Medical Journal*, 1, 221.
" (1908). "Rare Nervous Symptoms produced by Malaria," *British Medical Journal*, 1, 1358.

SCOTLAND'S HEALTH

It says much for the work of the Ministry of Food that the Department of Health for Scotland in the fourth year of its work can place "the nutritional basis of food rationing" second only to the Department's own efforts in the factor responsible for the satisfactory state of the public health during 1942. Other contributing causes are stated in the annual summary report of the Department to be the increased employment and purchasing power of the working classes (though it is difficult to see how the latter plays a part when consumer goods are so limited) and the mild winter. As in England, however, there was no absence of health problems.

The incidence of tuberculosis was higher than it has been for some years—9,126 notifications, as against 8,302 in 1941 and 7,498 in 1938. Deaths were 80 per 100,000 of the population, as compared with 83 in 1941 and 69 in 1938. New cases of venereal diseases treated at Scottish centres numbered 10,999, compared with 10,531 in 1941 and 6,929 in 1939; there were more cases of syphilis and fewer of gonorrhoea. The report states that it is too early yet to judge the effect of Regulation 33B, but "common" sources of infection named so far have been few. The only other disease the increase in which can be attributed to war conditions is cerebrospinal fever. The number of confirmed cases (1,621) was 247 fewer than in 1941, but it was still over five times greater than the figure for 1938 and 1939.

The infant mortality rate, which was 69.3 for the year under review, has only once been lower, and that was in 1939, when the rate was 68.5. The report of the subcommittee of the Department which has been examining this problem is expected shortly. Scotland now has 99 wartime nurseries for 4,353 children, as compared with 29 for 1,180 a year ago. About 1,000,000 people were vaccinated in Scotland during the small-pox outbreaks last year; eight deaths were recorded in each of the three principal centres of outbreak—Glasgow, Fife, and Edinburgh. References are made in the report to the successful "Clyde Basin Experiment," under which 3,758 workers have been medically examined, many by the specialist service provided, and 1,523 admitted to hospitals or convalescent homes.

On the subject of the Beveridge report there is the following comment: "The adoption of the proposals would involve the supersession of the present scheme of National Health Insurance, with its segregation of the insured population in financially separate approved societies and branches, charged with the administration of sickness, disablement, and maternity benefits. The present restriction of medical benefit to insured persons and the administration of this benefit by insurance committees would likewise disappear." The Department, like the Ministry of Health in England, is discussing the future of the medical services with representatives of doctors, hospitals, and local authorities. The Committee on Post-war Hospital Problems (chairman, Sir Hector Heitherington) is expected to report at an early date, and hospital surveys, which should be completed in the autumn, are being carried out by special commissioners.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY SEPTEMBER 25 1943

PNEUMOKONIOSIS AND WORKING CONDITIONS IN COAL MINES

A twofold problem confronted the Medical Research Council's Committee on Industrial Pulmonary Disease when it undertook to investigate chronic disease of the lungs of South Wales coal-miners. First, the nature of the disease and its occupational and geographical distribution in the South Wales coalfield had to be examined. Secondly, the effect of environment in the causation of the disease had to be determined, and preventive measures devised on this basis. The first part of the problem was medical and pathological; the second part required the study of the many factors in the working environment. A report on the first was published a year ago.¹ A second volume, containing reports by the teams who have been studying the environmental aspects of the problem, has now been issued.²

It was shown in the first report that the incidence of pulmonary abnormality, as judged by x-ray evidence, was related to the rank of coal being mined. The incidence and severity of the disease were greatest among those working at the coal face of anthracite mines, least in colliers employed in bituminous coal mines, and intermediate among those who mined steam coal. Within the anthracite area there were distinct local variations in incidence. That the chronic lung disease of South Wales coal-miners is due to the inhalation of "dust was clearly shown. The committee recommended that it should be recognized as an industrial disease under the name "pneumokoniosis of coal-workers," and that the diagnostic criteria required for purposes of compensation should be extended to include the various lung changes of this disease discovered by the medical survey. The Workmen's Compensation Act, 1943, gives power to make compensation schemes on the basis of those recommendations.

The second report considers fully the concentration of dust in the air breathed by the collier at the coal face, the size of the dust particles and their nature, the composition and characteristics of the strata from which the dust is derived, the concentration in the air of the nitrous fumes from shot-firing, and the temperature and humidity of the air to which the miner is exposed when at work and during his journey to the surface at the end of the shift. As such an investigation was laborious it was not possible to study in detail the working conditions in all the mines included in the medical survey. A difficulty in an investigation of this sort is that conditions of work tend to change with the passage of time. For example, since the last war machine-mining has increased greatly in Britain. Pneumokoniosis may take years to develop, and the disease manifest now may have begun in the circumstances prevailing ten, twenty, or more years ago. An attempt was therefore made to select for investigation mines in which conditions had not changed much.

Mass concentrations of air-borne dust in a number of collieries in the anthracite, steam coal, and bituminous coal areas were determined by Briscoe and his colleagues. Their samples were later ignited and the ash was weighed ;

the mass concentrations of the whole dust and of the ash, and the percentage of ash in the dust, were thus ascertained. The incidence of pulmonary x-ray abnormalities was found to be significantly and positively correlated with the average ash concentration. High ash concentrations tend to be associated with high concentrations of the whole dust, and this probably accounts for the apparent correlation between the incidence of lung trouble and the total dust concentration. The incidence of pneumokoniosis does not appear to be related to the ash percentage *per se*. The findings of Briscoe and his team may be compared with Belt's conclusion in the earlier report that the dust-reticulation and fibrosis were due to silica, whether as free silica or silicates, rather than to coal. Estimations of the number and size of the air-borne dust particles by Bedford and Warner pointed to an association between the incidence of pneumokoniosis and the mass concentration of particles, particularly those below 5 microns in size, both of coal and of mineral matter other than coal. This evidence is quantitative and confirms that the incidence of lung disease is related to the amount of dust inhaled. Chemical and x-ray diffraction analyses of the mineral matter of the coal seams, of the air-borne dusts at the coal face, and of certain screened fractions of run-of-mine coal, were made by Hicks and Nagelschmidt. The dusts and screened fractions were all closely alike. The proportions of quartz in the rocks and air-borne dusts vary, but there is no clear relation to rank of coal or to incidence of pneumokoniosis, except that in the anthracite area the dusts generally have more quartz in the mines in which the incidence of lung disease is high than in those in which it is low. On an average, in all the mines the proportion of quartz in the dusts is 2%. Petrological examinations of the rock strata overlying the coal in different mines, made by Brammall and Leech, reveal a contrast between the shales in the anthracite and bituminous coal areas. Owing to the effects of compaction and metamorphism there are in the anthracite area an increase in the content of secondary quartz and mica, and a differentiation in the ground mass, or ultimate cement substance, of the shale. Hydrated ferric oxide and alumina, both of which depress the solubility of silica, are less evident in the shales of the anthracite area than in those of the bituminous area. Whether directly or indirectly, the incidence of pneumokoniosis appears to be associated with these geological changes brought about by pressure.

Although the lung disease of the coal-face workers differed in certain respects from the silicosis resulting from exposure to dust containing a very high proportion of quartz, that of the anthracite colliers was generally believed to arise from the inhalation of dust. Yet some held that exposure to dust was of secondary importance. Access to anthracite mines is usually by a slant driven in from the surface, not by a vertical shaft, and men are conveyed to and from work in spake trains. Bronchitis from chill during spake-riding was thought to facilitate the adverse effect on the lung of the air-borne dust at the coal face. Miners attributed the disease mostly to the irritant effect of the nitrous fumes due to shot-firing. The thermal conditions in seven of the mines were examined by Bedford and Warner. It appears that the incidence of lung trouble is influenced neither by the temperature nor by the humidity of the air at the coal face. As the miners ride in spake trains from workings to the surface they chill down, and there may be some association between this and the incidence of pneumokoniosis. But spake-riding seems at most to be but a contributory factor. As to nitrous fumes, Graham and Runnicles show that the average concentration liberated during shot-firing rarely exceeds 6 parts per million by volume in samples taken during the period of a shift, or 4 parts per million over a 24-hour period. Although no direct relation can be found

¹ British Medical Journal, 1942, 9, 43.² M.R.C. Spec. Rep. Ser., No. 244, London, 1943.

between the concentration of nitrous fumes and the incidence of lung disease, it is prudent to regard low concentrations of these fumes as a possible contributory factor. Relegation of shot-firing to a non-coal-getting shift would reduce exposure to fumes, and also the risk of exposure to exceptionally high concentrations of dust.

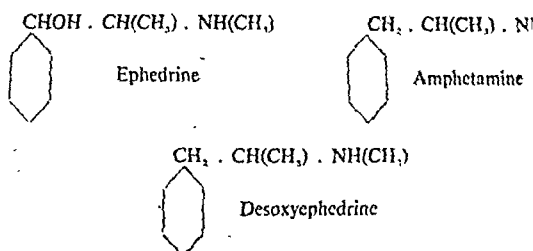
American workers have shown that dust concentrations can be reduced a good deal when all hewn material, coal or rock, is copiously sprayed with water before it is shovelled or otherwise handled. There are practical objections to the excessive use of water at the coal face, but spraying the hewn material with modest quantities of water from A.R.P. stirrup pumps has been shown by Bedford and Warner to be highly effective. High standards of maximum permissible dustiness cannot yet be laid down, but Bedford and Warner put forward standards which, the committee agrees, might well be taken as the target for to-day. It is suggested that minerals other than coal should not exceed 1 mg. per cubic metre, and coal 10 mg. per cubic metre, both these figures referring to particles 5 microns or less in size (larger particles are probably of relatively little pathogenic importance). Such concentrations cannot be measured directly by the ordinary gravimetric methods, but they can be estimated from the numerical concentrations of dust particles. With the thermal precipitator—an inconvenient instrument for routine work—as the sampling instrument the mass concentrations named above represent 60 particles of minerals other than coal and 700 particles of coal per c.cm., all particles below 1 micron in size being ignored. Various methods of dust sampling give widely divergent results, and before other instruments can be used to apply the suggested standards, study of the comparative sampling efficiencies of the instruments under actual mining conditions will be necessary. This work should be carried out without delay.

The apparent relation between incidence of pneumokoniosis and dust concentration, even in the bituminous mines of South Wales, makes one wonder what will be the effect of the widespread adoption of mechanized methods of mining, for some of the mechanical devices employed produce much dust. High dust concentrations have been reported in mines in other British coalfields. Actuated mainly by the desire to prevent coal-dust explosions, mining engineers have for some time been testing and applying various methods of dust reduction at loading points and other specially dusty localities. The findings of this report should be a stimulus to increased activity in that direction. Despite the large amount of work recorded in this symposium, the Committee on Industrial Pulmonary Disease has been unable to draw final conclusions on the causation of the pneumokoniosis or the differences in incidence observed in the South Wales coalfield. For some reason the dust of anthracite mines is more dangerous than that of bituminous mines, and a similar state of affairs exists in the U.S.A. and the U.S.S.R. The difference may lie in the quantity of dust or in its character, or both factors may be involved. The work now reported gives little support to the view that quartz is the main hazard, yet it does not make it possible entirely to exclude the quartz theory. Animal experiments still in progress may help to resolve this point. But whatever may be the ultimate reason for the greater danger of the dust in anthracite mines, a reduction in the amount of dust breathed by the miner is the one immediate measure which is likely to diminish the incidence of pneumokoniosis. To this end the committee advocates: (1) the maintenance of adequate ventilation; (2) the systematic use of water at the coal face to prevent the dispersion of dust; (3) the allaying of dust in roadways and at loading points; (4) reduction of shot-firing to a minimum, and the firing of shots when the fewest men are

exposed; (5) the relegation of all the processes of ripping to a back-shift. A further recommendation is that suitable means to prevent chill should be used during special journeys.

A STIRRUP CUP FOR THE PANZERS

No pharmacological innovation is so likely to catch the popular imagination as that which claims, in the words of Macbeth, "to raze out the written troubles of the brain" and this explains the stir caused by amphetamine in 19 years immediately before the war. On the Continent a substance known as "pervitin" became as popular as as much abused. Pervitin, or *d*-desoxyephedrine hydrochloride, the properties of which have recently been reviewed by Ivy and Goetzl,¹ is of special interest because it is apparently being used by the German armed Forces. This substance, marketed as methedrine in this country related to ephedrine and amphetamine, and in its pharmacological properties closely resembles the latter.



Its topical interest derives from the fact that, like amphetamine, desoxyephedrine causes a temporary increase in efficiency and initiative, with elation, lessened fatigue, an increased ability to concentrate. This may lead to irritability and sleeplessness, and, as with amphetamine, prolonged medication has a dwindling effect because of accumulation of the need to rest. So far as intelligence tests are concerned, Jacobsen and his co-workers² found that these substances increased the speed of work without changing its accuracy, and there seemed little difference between amphetamine and desoxyephedrine. Although published data on the effect of desoxyephedrine on physical performance are inadequate, it is probable that the drug, by lessening the sense of fatigue, increases output at expense of physical reserves. It will not, therefore, increase the total work capacity over a long period of time, the same of the German workers suggest that the depressive effects of fatigue can be counteracted for about two weeks. Its use has been recommended for such persons as engine drivers and night watchmen, as well as for the personnel of armoured units. It has also been used for raising the morale of patients after operation or in the last stages of chronic or malignant disease. Almost every German clinician with experience of the drug values it in this connexion for it seems to counteract the depression caused by morphine without impairing its analgesic properties.

The therapeutic dose recommended is 3 to 6 mg. by mouth; the optimal dose is nearer 9 mg., but side-effects may be experienced at this level. The German authorities claim; though their evidence is not well supported, that desoxyephedrine is superior to amphetamine because the difference between the therapeutic and toxic dose is greater. This explains their concentration on this particular compound. The dextrorotatory form is very much more active than the laevorotatory, and in both animal and human experience *d*-desoxyephedrine hydrochloride is slightly

¹ *War Medicine*, 1943, 3, 60.

² *Acta med. scand.*, 1939, 100, 159, 183, 203.

³ *Fortschr. Therap.*, 1941, 17, 37, 90; *Med. Welt*, 1941, 15, 122; *Deutsch. Wochschr.*, 1939, 65, 754.

more active than amphetamine sulphate, weight for weight. No deaths or serious intoxication have been reported, even with a dose as high as 200 mg.; this, however, will cause excitement, sleeplessness, mydriasis, nausea, vomiting, tachycardia, and a rise in blood pressure. No habit formation or addiction has been observed in the strict sense of the word; tolerance to the psychological effect is readily acquired, as with amphetamine. Various authors have suggested that the development of tolerance in patients of weak character may lead to increased and protracted medication to stave off for as long as possible the accumulated fatigue; for on withdrawal of the drug after a large increase of the dosage the patient may sleep for several days. The dangers of this drug are therefore the same as those of amphetamine, in that stiffening of the dose leads to undesirable cardiovascular and metabolic reactions. The German Government placed it under the narcotic law in 1941. The contraindications to its use include cardiovascular disease, thyrotoxicosis, and insomnia.

Desoxyephedrine has also been tried in nearly every condition for which amphetamine is used. As an analeptic or stimulant in narcosis it has much the same effect as amphetamine; but both drugs are inferior to picROTOXIN in barbiturate poisoning, and their general use is not recommended in the absence of further evidence. Dodd and Prescott⁴ have compared desoxyephedrine with other pressor agents in a series of 54 surgical operations. They found that with 10 to 20 mg. intravenously or 15 to 30 mg. intramuscularly there was a very satisfactory return of the blood pressure to normal, maintained over several hours. Desoxyephedrine was thought to be more efficient than even pholedrine or neosynephrin. Animal experiments have shown that in common with many other sympathomimetic agents desoxyephedrine causes tachyphylaxis (subsequent injections causing a smaller rise in blood pressure than the first one); this will certainly not exclude its use over a limited period of time, but it is well to bear the phenomenon in mind. It may be argued that the drug is contraindicated in surgery because its analeptic action may lead to the use of more anaesthetic; certainly the dose used by Dodd and Prescott would be greater than that desirable for an unanaesthetized patient. It is hoped that further experience will show whether these disadvantages are theoretical rather than practical.

CHEST SURGERY FILM

The British Council's film "Surgery in Chest Disease" had a special showing in London last week at the Curzon Cinema. It is the first of a series of medical films to be made for the Council. They are intended primarily for oversea medical audiences, and the choice of subjects and the planning of individual films have been undertaken by the medical department of the British Council, with the advice of a medical subcommittee formed for the purpose, and with the close collaboration of the Council's film department. In the various stages of planning the advice of a committee of chest surgeons, and of other individual medical experts, has been freely sought and taken. Most of the film was made in London at the Brompton Hospital. Apart from the expert advice which has gone into the preparation of the script, full collaboration of the staff of the hospital was secured in the actual shooting of the film, though extraordinary inconveniences were so caused. The purpose of the film, as explained to a deeply appreciative audience by Surgeon Rear-Admiral Gordon-Taylor on Sept. 14, is to indicate the scope and progress of chest

surgery and collateral services in Britain. The film opens with sequences showing a mass radiography survey of industrial workers. Then a radiologist is shown examining the miniature x-ray pictures projected on the screen. One of them is suggestive of disease of the lung, and the patient is referred to the chest hospital, where a full-size radiograph is made and he is examined by a physician. The findings point to cancer of the lung. The patient is next admitted to hospital. At this point a number of sequences depict other patients in various stages of treatment and explain the rationale of the procedures. The story of the original patient is then taken up again, and he is shown undergoing confirmatory diagnostic procedures and later having special breathing exercises to make him fit for removal of the affected lung. The theatre sequences depict all the important stages in the operation, which are seen with far greater clarity than would have been possible by standing at the surgeon's side. Interposed with these shots are diagrams explaining the anatomical relationships of the parts seen. The pre-operative procedures, the form of anaesthesia employed (administration of a volatile anaesthetic through a tube in the bronchus of the healthy lung), and auxiliary measures, such as drip blood transfusion during the operation, receive attention. After suture of the operative wound the patient is wheeled back to the ward, still receiving the transfusion and also oxygen. Stages in recovery are indicated in later sequences, including the treatment of a post-operative effusion. The patient is then shown at a later stage convalescing at a hospital in the country, where special rehabilitation measures not only aid his recovery medically but retrain him for his old job. In the final pictures he is seen being examined by the surgeon who operated upon him, who tells him that he is now fit to return to work.

The main case depicted in "Surgery in Chest Disease" illustrates a striking advance in surgical practice. Ten years ago a diagnosis of cancer of the lung was a death warrant from which there was no escape. To-day suitable cases can be cured and restored to full working capacity by surgery, though the operative risk is still great. Further, the film as a whole illustrates the growing importance of special techniques and of team work in modern medicine. Surgeons, physicians, anaesthetists, radiologists, pathologists, resident medical staff, sisters and nurses, physiotherapists and hospital almoners—all play an essential part in a complex series of processes which result in the saving of a life. The actual operation takes its logical place among a series of other special measures which precede and follow it, and which are essential to its success. Full marks must be given to everyone who helped in producing this masterly film—including the patient.

THE STOMACH AT WORK

Of late, interest in test meals has been waning, and this probably because but little return comes from this tedious procedure. Yet analysis of the gastric secretion may throw some light on gastric physiology in the individual patient. S. Wolf and H. G. Wolff,¹ for example, have been able to observe simultaneously changes in motor activity, vascularity, and secretion in the stomach of a patient with a permanent gastric fistula resulting from an operation performed nearly forty years earlier because of a benign stricture of the oesophagus. In the fasting stomach they found that the phase of active contractions was accompanied by heightened vascularity of the mucosa and an increased rate of production of acid. The blushing of the mucosa was found to be proportional to the increase in blood flow as determined by a thermal gradientometer. After the

⁴ *British Medical Journal*, 1943, 1, 345.

¹ *Amer. J. Physiol.*, 1943, 118, 309.

subcutaneous injection of histamine or the intragastric administration of alcohol or beef bouillon there was invariably an increase of vascularity and acid secretion. While active contractions did not occur unless the mucosa was red, intensified hyperaemia and high acid output were not always associated with increase in gastric motility—a finding in conformity with the results of W. F. Anderson.² Much work is required from the muscle and secreting cells of the stomach during periods of activity, and there is little doubt that the enhanced blood flow is necessary for the supply of extra oxygen and energy-yielding material. On the other hand, cellular activity is probably not the only cause of vasodilatation. Thus, Kuntz and Hazelwood³ found that applying warmth to the abdominal wall led to a vasodilatation in the serous coat of the small intestine. Of much interest to the clinician are the suggestions put forward as a result of these investigations. When a large volume of juice with a high titratable acidity is obtained from an unobstructed stomach, it may be deduced that there is an efficient blood flow through the mucosa and that motility is low. On the other hand, a small volume of juice of high acidity indicates hyperaemia of the mucosa with vigorous gastric contractions. Juice of low acidity, especially when of small volume, is very suggestive of a poor blood flow and a quiescent stomach. It is tempting to go a stage further and offer suggestions for treatment. Enough, however, has been said to renew interest in the performance of test meals and, it may be, in the evaluation of gastric tonics and sedatives.

ABSENTEEISM AMONG WOMEN WORKERS

In a report issued by the Industrial Health Research Board,⁴ S. Wyatt, R. Marriott, and D. E. R. Hughes describe the results of observations made at two Royal Ordnance factories, one of which, Factory A, is five times larger than Factory B and is situated in an isolated position. The samples of women investigated number 819 and 495 respectively, and they were tested over a six-weeks period in the summer of 1942. All the women were on a three-shift system, and they changed over at weekly intervals. They worked for six shifts, averaging 7½ hours, so the weekly total of 45 hours was not excessive. In spite of this, the absenteeism averaged 16% at Factory A and 10% at Factory B, or well above what is usually experienced in times of peace. It is therefore important to ascertain, so far as possible, the causes of the wartime excess. At Factory A it was twice as great in the morning shift as in the afternoon and night shifts, largely because of the great absenteeism experienced on Saturday mornings. No less than 46% of the married women and 30% of the single women were then absent, doubtless because they wished to go shopping, but at Factory B the Saturday morning excess was not nearly so marked. It has been suggested that the women should be asked to work on Sunday mornings instead of Saturday mornings, but numerical evidence of the effect of such a change on absenteeism is lacking. The women at the two factories in question worked an afternoon shift on Sundays, and kept nearly as good time as on other afternoons, so the experiment seems to be worth trying. The women were specially liable to lose one shift per week, and this was due mainly to different workers being absent in different weeks, and not to habitual absentees. Comparatively few workers lost from two to five shifts, but many of them lost the full six shifts owing to sickness. The causes of this sickness were not investigated in the present inquiry, but we are told that it forms

part of a larger study of absenteeism, and suggests the need for examining the personal causes of absenteeism as for an individual method of treatment, as well as attention to the general conditions of work.

EFFICACY OF LIVER PILLS

Carter's little liver pills are sold to the public as a remedy for the conglomeration of symptoms which goes under the title of liverishness. Tiredness, headache, spots before the eyes, slight nausea, and constipation have from time immemorial been blamed on the liver, and the phrase "bilious purge" has found its way into the pharmacopoeia. There is no evidence that these symptoms are due to liver disease and some of them, at least, are associated with abnormal intestinal movement. Nevertheless transient liverishness is common and can be made much of by suggestion, therefore becomes important to know on what basis claim to cure the condition rest.

Briefly, the claim is that, whereas ordinary purgatives merely cause evacuation of the bowel, Carter's little liver pills flush the poisons out of the system with two pints of bile. Each pill is said to contain 0.25 gr. of *Curaçao alo* and 0.0625 gr. of *podophylli resina*. The makers supply a sheet of instructions which tell us that the pills are the standard medical formula for waking up the liver. "The wake up those two pints of cleansing liver bile, make you whole system clean and fresh, and give you bright eye and a clear skin again." It is stated on this instruction sheet that constipation, depression, coated tongue, sallow skin, gas, and nausea are usually due to a disturbance of the normal flow of bile, and that if the liver does not pour out two pints of cleansing bile juice into the system every day, "Your food can't digest—it simply decays inside you and constipates you, and poisons you." It is probable that few pharmacologists would agree with these generous estimates of the quantity and the antiseptic power of the bile. But do Carter's little liver pills in fact promote the flow of bile? A partial answer to this question has been supplied by the recent work of Ivy, Roback, and Stein.¹ In a series of experiments on dogs they have investigated directly the effect of Carter's little liver pills on the flow of bile and on the contraction of the gall-bladder. The observations were made by tying the cystic duct, cannulating the common bile duct, and recording the pressure in the gall-bladder by means of a manometer tied into the fundus. These methods had previously been used by Ivy when he showed that an extract of the intestinal mucous membrane given intravenously would cause the gall-bladder to contract. This extract was called by him "cholecystokinin." In the present series of experiments cholecystokinin was used to show that the gall-bladder under observation was capable of contraction before and after the administration of Carter's little liver pills. Dogs weighing 15 to 20 kilos were used and the pills were injected intravenously in solution in alcohol or intraduodenally in water at body temperature. In some cases the pills were first incubated with pancreatic juice or with duodenal contents. The doses were equivalent to from two to four pills at a time. In no case did the pills produce any significant increase in the flow of bile from the liver or in the pressure inside the gall-bladder. These experiments point to a distant goal—the authoritative study of the pharmacological action of all proprietary preparations and the unbiased publication of the results.

Prof. G. Grey Turner will deliver the presidential address to the Medical Society of London on Oct. 18; his subject is "Transplantation of the Ureter."

² *Lancet*, 1943, 1, 40.

³ *Proc. Soc. exp. Biol.*, N.Y., 1940, 43, 517.

⁴ *A Study of Absenteeism among Women*. Emergency Report No. 4 of Industrial Health Research Board, 1943. 12 pages. H.M. Stationery Office. (2d.)

¹ *Quart. Bull. Northwest. Univ. Med. School*, 1942, 18, 273.

THE PUBLIC CORPORATION

BY

D. HARCOURT KITCHIN

Barrister-at-Law

[Continued from p. 371]

Broadcasting

Wireless broadcasting in this country is administered by yet another public corporation. The B.B.C. is incorporated by charter, not by statute. This is possibly because it does not need for its work to encroach at any point on private rights; and a charter has the great advantage over a statute of obviating the lengthy and cumbrous passage of a Bill through Parliament, with its unpredictable dangers and obstacles, of being easily capable of amendment, and of allowing much greater detail. The charter and licence (under the Wireless Telegraphy Acts) both gave the Postmaster-General political, financial, and technical control. On paper, therefore, the Corporation appears to have little liberty, but constitutional practice gives it a great deal. The Postmaster-General has always, while taking responsibility for broad issues of policy, left the Corporation a free hand on minor issues, domestic policy, and day-to-day control. Its members are called governors, and they are the chairman, vice-chairman, and such other persons as the King appoints in Council from time to time. They hold office for a term stated on their appointment, not exceeding five years, and on retirement are not eligible for reappointment unless the Postmaster-General certifies that this is in the public interest. The provisional number is seven, but the Crown reserves power to increase or reduce it. The chairman's yearly salary is £3,000, and that of the other governors £1,000 each, with expenses.

A governor ceases to hold office if his appointment is terminated by the King in Council, if he holds any office or place of profit in which his interests may in the opinion of the Postmaster-General conflict with the interests of the Corporation, if he becomes of unsound mind or bankrupt or compounds with his creditors, if he resigns in writing to the Postmaster-General, or if he absents himself from the meetings of the Corporation continuously for three months without the consent of the Corporation, and the Corporation shall resolve that his office shall be vacated. The charter does not exclude Members of Parliament, but by custom a member resigns his seat on appointment. Vacancies are certified to the Crown by the Postmaster-General and filled in Council. The Corporation's chief executive officer, appointed by it, is the Director-General, and it may also appoint such other officers and staff as it may think necessary for the efficient transaction of its business, and fix their remuneration; it may remove any officer subject to its contract with him. It may meet and may make such regulations for the conduct of its business as it thinks fit, but its quorum is settled by the Postmaster-General. It may appoint committees for any purpose, and their conclusions are subject to its ratification, and it may also appoint advisers or advisory committees.

The Corporation's financial powers are specified, and its accounts are audited by chartered accountants approved by the Postmaster-General. It submits to him an annual report and accounts, and its books are subject to his inspection at all reasonable times. It may at any time apply for a supplemental charter or an Act of Parliament. The Crown keeps power to extend the operation of the charter after the time limit. Provision is made for the voluntary or compulsory winding-up of the Corporation.

The history of the B.B.C. taken as a whole does not suggest in any way that the joint-stock company form of its organization and its constitutional relations with Parliament and the public are unsuitable for its purpose. Its problems, great though they are, seem capable of solution, and its potentialities of being realized, within its present framework. The B.B.C., like the Forestry Commission and the Central Electricity Board, is especially interesting in the present connexion because it operates, as would a health services board, a nation-wide utility. Its regional organization (suspended during the war) is appointed and controlled from the centre. The autonomy possessed by

the regions has varied from time to time, but in the nature of the work must remain rather strictly limited. The suggestion has often been made that each region should be controlled by an independent corporation, but unless the "federal constitution" dividing the sovereign power between the central and the regional corporations were drawn with superhuman wisdom and foresight, the difficulties of maintaining national co-ordination would probably be too great. A better solution seems to be to have satellite regions as hitherto, but to give them as much freedom as possible and the benefit of the best possible local advice. The Corporation has elaborated in its Listener Research Department a highly effective technique of ascertaining the opinions of listeners about its various activities, and the reports of the department are carefully studied and acted on by executive officers.

National Electricity Supply

The next of the great public utility corporations in seniority is the Central Electricity Board. This body was formed by the Electricity (Supply) Act, 1926. The political tension (1926 was the year of the General Strike) was reflected in heated opposition to the Bill in Parliament as rank Socialism. Much was made of an argument which has probably by now died a natural death: that if a Socialist Government came into power the Minister of Transport could pack the Board with Socialists. In fact, appointments to such boards have never been noticeably more political than preferences to the judicial bench. The Central Electricity Board consists of a chairman and seven other members appointed by the Minister of Transport "after consultation with such representatives or bodies representative of the following interests as the Minister thinks fit—that is to say, local government, electricity, commerce, industry, transport, agriculture, and labour." The Board is broadly representative and essentially an organizing body. It is assisted in technical matters by committees of experts and by its staff. Unlike the Metropolitan Water Board and the Port of London Authority, it was not created for the express purpose of acquiring undertakings and managing them. It did this only in the last resort, when the owner would not co-operate; normally the existing owners continued to own and manage their stations. The chief property of the Board is the transmission lines.

The chairman and members are appointed for a stated term of not less than five or more than ten years. The chairman is a full-time salaried officer; the members receive honoraria. Their remuneration (an unusual provision) is in the absolute discretion of the Minister. The Board must appoint a secretary, and is given discretion to appoint other staff and pay them salaries, remuneration, pensions, and gratuities. The salaries or fees and expense allowances to be paid to members are determined by the Minister. Anyone aggrieved by a decision of the Board can invoke the arbitration of a barrister qualified for appointment to judicial office and appointed by the Minister from a panel set up by the Lord Chancellor (in Scotland an advocate on a panel set up by the Lord Provost of the Court of Session). The arbitrator may summon qualified assessors to sit with him.

The Board's success, after the failure of the Electricity Commissioners appointed under the earlier legislation to do similar work, was not due to its compulsory powers, which have hardly been used. In Gordon's opinion it succeeded because of its form: "a new administrative body, independent of existing undertakers, empowered to carry through the desired reforms." When its composition was being planned its creators naturally had in their minds the idea of a representative body on the lines of the P.L.A., but they soon found this impracticable. "The only suggestion put forward was a body representative of large consumers, ratepayers, producers, and municipalities. This proposal would have made the Board a scene of continuous conflict among competing interests with no obvious broad harmonizing influence, and no machinery to effect such harmonization outside the authority itself"—the two factors essential to the success of a representative board. The new body had therefore to be appointed from above. The Government likewise refused to give specific representation to labour and other interests—not to shut out the expression of their views but because they rightly felt that the positive action of the Board would be fatally hindered if some of its members were present for the express purpose of advancing the interests

of sections to whom they were responsible. They therefore determined on a small group of persons "of wide experience in affairs and business who, if possible, should not be directly representative of any industry, but should very impartially consider the interests of all." (*Official Report*, House of Lords, Nov. 30, 1926, vol. 5, col. 860.) The Minister was therefore given a general direction on the choice of interests he should consult.

The Government also had difficulty in deciding who should appoint the Board. The Lord Chancellor or the Treasury, it was argued, would be more impartial than a Minister and prevent undue influence over the Board's policy. On the other hand, they reflected that to associate the Board with the Treasury would tend to put it on a Civil Service basis, and to remove it entirely from the purview of the House of Commons would make impossible any ultimate democratic control over its personnel. Hence the choice of the Minister of Transport. Actually, in the first appointments, all the leading interests most closely affected, except agriculture, were represented.

Parliament has direct control over the C.E.B. and has the opportunity by Special Order of approving or rejecting its more important proposals. These are constructional rather than operational. The Board's doings have rarely aroused discussion in Parliament. As it is financially autonomous it cannot be discussed on the annual vote of the Ministry. No private member has ever moved a motion concerning it; its finances were once mentioned on the adjournment, and questions have occasionally been asked about it. The Minister of Transport answers, but successive Ministers have preferred to leave the Board to do its ordinary work undisturbed.

Ministers do not give information about the Board's own affairs except what is published in its annual reports. The only continuing control over it is given to the Electricity Commissioners. The Board's relations with distributors, owners of stations, and other interests is made subject at many points to their approval. The appeal to the arbitrating barrister was instituted because Parliament feared that the commissioners, being also appointed by the Minister, could not be trusted as a final appellate tribunal. They have actually proved to be a very good and impartial one, but the Board has succeeded so well in maintaining the good will of the undertakers by negotiation and compromise that arbitration has not been used. The commissioners have co-operated cordially with the C.E.B., and "the relations between these two bodies form a unique example of control over a public corporation combining non-political supervision with ultimate responsibility to Parliament." The positive, co-operative attitude of the Board has been the chief factor in its success despite many difficulties and handicaps. It has actively created a permanent demand for current in many directions, and carries on general propaganda of all kinds to stimulate the use of electricity. "The degree of success already achieved by it despite its limited powers is perhaps a greater tribute to the administrative potentialities of the public corporation than would be afforded were it more fully clothed with authority."

London Transport

The London Passenger Transport Board is the largest and one of the most interesting of these bodies. It was created by the London Passenger Transport Act, 1933, to provide "an adequate and properly co-ordinated system of passenger transport" for the London area. For this purpose it had transferred to it most of the electric railway, omnibus, and tram services already operating, and was directed to administer them as one undertaking. The selection of its members is unusual. At first the Government (Mr. Ramsay MacDonald's coalition) proposed that the Minister of Transport should appoint them, but for various reasons the opposition to this plan was so strong that a board of appointing trustees was formed. This consisted of the chairman for the time being of the L.C.C., a representative of the advisory committee, the chairman of the Committee of London Clearing Bankers, the president of the Law Society, the president of the Institute of Chartered Accountants, and the chairman or a member of the Board itself. The qualifications required of the chairman and members are set out in unusual detail: they "should be persons who have had wide experience, and have shown capacity, in

transport, industrial, commercial, or financial matters, or in the conduct of public affairs." Two members must be persons with not less than six years' experience in local government within the L.P.T. area. Membership of the House of Commons disqualifies. Appointment is for a stated period of not less than three or more than seven years, but after a member's term of office runs out he may be reappointed. The Minister may remove a member from office for inability or misbehaviour, but he must first consult with the appointing trustees. These words are probably quite sufficient to preclude a removal for political reasons. The agreements the Board makes with undertakings need confirmation by the Arbitration Tribunal, which may modify them. This body consists of three commissioners of whom one is president and must have legal experience, and the others must be experienced respectively in business and finance. They are appointed by the Lord Chancellor. A party aggrieved by its decisions may appeal by way of case stated to the Court of Appeal.

Labour problems are handled by a negotiating committee consisting of six representatives of the Board and six representatives of the employees, two from each of the three trade unions concerned. Questions of remuneration which this body cannot settle are referred to a wages board representing the Transport Board, the Trade Union Congress, the Co-operative Union, the Association of British Chambers of Commerce, and the National Confederation of Employers' Associations. Superannuation is dealt with fully in the Act, and a standing arbitrator is appointed by the Lord Chancellor. Existing officers and servants of absorbed undertakings were transferred and/or compensated. The Board has power to promote and oppose legislation. The Minister may hold an inquiry into any complaint made of the Board's activities. In spite of its serious financial handicap, the Board worked with great success until war broke out, when the Minister of Transport took over the administration of its undertaking along with those of the railways. Doubtless, when the emergency is over its earlier autonomy will be restored.

The unique mechanism for appointing members of the L.P.T.B. does not seem to invite imitation in later statutes. At the time it was introduced political feeling ran high, the word "nationalization" had a sinister magic of its own, and the Government of the day had no doubt that Ministers would take the opportunity to make political appointments. These appointing trustees, as Gordon points out, are entirely ignorant of the problems and needs of London traffic, and responsible to no one. They are quite unqualified for the duty of introducing from time to time suitable "new blood," fresh spirit, and ideas. The Minister, aided by the advisory committee and the advice of the interests concerned, and guided by the sense of public responsibility without which he would not have been appointed to office, is so qualified. In practice, Ministers do not abuse their power of appointment to further political ends, and to do so would involve them and their Government in a storm of criticism and condemnation that would far outweigh the advantages of the appointment. It is worth noting that the Minister may remove a member from office "for inability or misbehaviour." Whatever be the rights of the matter, the trustees (doubtless guided by consultation with the Minister) have selected a strong Board, each member of which is an expert in some aspect of London transport.

The L.P.T.B. has ample powers and autonomy for its purposes. The Minister takes no responsibility for most of its doings, and his replies to questions are mostly limited to information supplied by the Board itself. His influence over it is probably less than that of a Minister over any other public corporation, for complaints and appeals are heard by specially constituted tribunals. Most complaints about services and fares are actually made direct to the Board through its public relations office, and the appellate jurisdiction of the Railway Rates Tribunal has seldom if at all been invoked. The reconstituted Traffic Advisory Committee has been an effective link between the Board and public opinion. The Board has always been actively sympathetic to public feeling, an attitude which is common to all the public corporations and is the most important single factor in their success. It is, however, still in its youth: the developments of the period immediately after the war will test it severely.

[To be concluded]

THE ROYAL COLLEGE OF SURGEONS

PRESIDENT'S ADDRESS TO FELLOWS

A meeting of Fellows was held at the Royal College of Surgeons of England on July 21, to which members of the Association of Surgeons and their guests were invited. The chair was taken by the President, Sir ALFRED WEBB-JOHNSON, and 19 other members of the Council were present.

The President said that the Council had been encouraged by the opinions expressed at the last Annual Meeting of Fellows and Members to call this meeting; they would gladly consider the reintroduction of regular meetings of Fellows, and would like to know the views of those present. They welcomed the increased interest taken by the Fellows generally in the management of the College affairs.

College Affairs and Policy

The President referred to the recent changes in the Fellowship examinations. The primary had been made entirely a postgraduate examination, with pathology introduced as an additional subject to anatomy and applied physiology. The interval between graduation and entry for the final examination would now be two years for all candidates, provided that they had passed the primary and complied with the regulations. The Court of Examiners had been enlarged to 20, 12 members taking part in each examination. The rota system thus established, and the concentration of the examination programme, would enable surgeons with many commitments or from distant localities to serve on the Court with less interference with their other duties, and would render possible the representation of more medical schools and more specialties. Two women examiners had been appointed to the Boards of Examiners for the Conjoint Examination—one in anatomy and one in midwifery. Another new departure was the appointment of professors in the College, part of whose duties was performed elsewhere—Prof. A. Sorsby, research professor in ophthalmology, and Prof. W. E. Gye, director of the Imperial Cancer Research Fund.

The damage done by enemy action to the Royal Colleges of Physicians and of Surgeons had opened up the question of the three Royal Colleges working together either in a combined building or in adjacent buildings on some suitable site. His suggestion that Lincoln's Inn Fields had great advantages for such a Collegiate building was received with applause. The Council was prepared to consider alternative sites, but the present building of the College of Surgeons and the adjoining sites owned by it might provide an area more than sufficient for the requirements of the three Colleges and for future developments. In the opinion of the Council the suitability of the Lincoln's Inn Fields site should be seriously considered and should not be lightly rejected, as the value of the buildings still standing was estimated at £200,000.

The position in the College of the special branches of surgery was an important matter, and the Council was sensible of the necessity for catering for their needs in such affairs as representation on the Council and the granting of suitable higher diplomas. The recent change in the format of the Council election papers had been designed to emphasize the importance of the Council's being largely representative of the medical schools and of general and specialist surgery throughout the country. The training of surgeons was another matter now receiving active consideration, and the President advocated an interchange of views between the Royal Colleges of England and Edinburgh and Ireland in regard particularly to examination in the basic sciences, to the place of special subjects in the final examination, and to the length of the interval between qualification and taking a higher diploma. The Council had declined a suggestion that Fellowship examinations should be discontinued during the war.

Criteria for consultants had been provisionally agreed by the Standing Joint Committee of the Royal Colleges of Physicians, Surgeons, and Obstetricians and Gynaecologists for the guidance of the newly formed Central Medical Academic Council, composed of representatives of the Royal Colleges and of the medical faculties of the universities. These criteria, however, could not yet be regarded as settled.

Representatives of the Colleges had given evidence before the Interdepartmental Committee on Medical Schools (the Goodenough Committee). The President reported the very definite view of the Council that there must be a portal to the medical profession under the sole control of a purely professional body, and the College had therefore disagreed with the suggestion that a university degree should be a *sine qua non* for medical qualification. (Applause.)

The Beveridge Plan

A Representative Committee of the profession was engaged in discussions with the Minister of Health. The Royal Colleges were represented by their Presidents, and he himself had insisted that he must be regarded as a representative of consultant surgery. For this purpose the Royal Colleges had held a conference of representatives from all centres in order to obtain the views of consultants throughout the country. The Representative Committee maintained that some freedom of choice must be left both to doctor and to patient, and declined to countenance the conversion of a free profession into a public service. An individual must be free to enter the medical profession and to practise his profession when registered. The medical profession must have a large say in the organization and management of a National Health Service. The administrative structure must therefore be such as to allow of a generous representation of the medical profession. The health service must be really comprehensive in character; the local authorities as at present constituted did not provide satisfactory areas for dealing with the needs of the population. Some scheme of registration was essential. It was the declared intention of the Government that opportunities for private practice should be maintained, and the most sensible and reasonable way of providing for this seemed to be to apply the national contributory scheme only to those who needed such provision. It was generally agreed that in planning for "positive health" and the prevention of disease the non-medical proposals of the Beveridge report were of far greater importance than any revolutionary changes in medical practice. He referred particularly to the improvement of housing, the avoidance of mass unemployment, the provision of children's allowances, disability pay, and old age pensions.

Resolutions passed by the Meeting

1. Moved by Surg. Rear-Adml. ROBERT MILNE and seconded by Col. F. P. MACKIE: That this meeting of Fellows welcomes the opportunity which the occasion has provided for consultation and for informing them of the proceedings of the Council, and hopes that the Council will arrange for meetings of Fellows on future occasions.

2. Moved by Brig. A. HEDLEY WHYTE, and seconded by Mr. G. T. MULLALLY: That this meeting of Fellows welcomes the various changes which have been made by the Council and approves of the line of policy outlined in the President's report.

3. Moved by Mr. W. MCADAM ECCLES and seconded by Mr. R. M. HANDFIELD-JONES: That this meeting of Fellows hereby expresses a hearty vote of thanks to the Council for arranging this meeting, and in particular to the President for the way in which he has conducted it.

DOMICILIARY NURSING SERVICES

Seven secretaries of District Nursing Associations—one in London and the others in the Midlands and the North—have produced an account of the actual conditions in district nursing, midwifery, and health visiting,* well worthy of attention in the light of the many proposals for reconstruction of social services. It is a record which comes down to "shillings and pence," setting out the precise facts and figures for recruitment, training, living conditions, hours on and off duty, salaries, future prospects, and pensions, and a review of the Canadian Home Nursing Service is given for comparison. Proposals are made for the better regulation of off-duty times for district nurses, also for a unified pension scheme or for interchangeability between existing schemes for all these workers. The review leads up to a recommendation that a national body should be set up under the auspices of the Queen's Institute, charged with the duty of formulating a national provident or contributory scheme for district nursing to cover the whole country and also to secure greater uniformity in the nature and basis of grants received from public funds. At present the grants are left to the discretion of each local authority.

*The Domiciliary Nurse's Services. Published by Taylor and Buxham Ltd., 96, Highcross Street, Leicester. (1s. 6d. plus postage.)

Nova et Vetera

SALERNO: ITS MEDICAL SCHOOL AND ITS MEDICAL LEGENDS

Salerno, the first important town on the European continent to be occupied by the Allies, has a special place in medical affection. It is the site of the earliest "modern" medical school. Its very name conjures up romance. A note on the school and on some of its early legends may be welcome.

During the "Dark Ages"—that is, from about A.D. 400 to about 1200—the great tradition of Hippocrates and Galen faded. All theoretical medical knowledge lapsed. Even the bare elements of anatomy were forgotten. Prognosis became a childish rule of thumb; therapeutics a ridiculous and disgusting drug list; medicine a collection of formulae punctuated by more or less sacred incantations. Yet there was one area where a slightly higher standard prevailed. In South Italy dialects of Greek were spoken, and there a faint travesty of the ancient medical learning still lingered. This was notably the case at Salerno. Of physicians in its neighbourhood we get a few glimpses in the eighth and ninth centuries. By the middle of the tenth century the fame of the place as a medical centre had reached far afield.

Many romantic legends have gathered round the name. Fancy has promoted the "ladies of Salerno" into the first corporation of women doctors. The first modern anatomical text is Salernitan, and it appropriately substitutes the structure of the pig for that of man. The most famous of medical poems, the "Salerne School," has been turned into every language. Some of the MSS. are addressed to "England's king," held to be William the Conqueror's eldest son, Robert of Normandy (1054-1134), who was certainly in Salerno in 1098. Two of the opening lines of the poem are known to all:

"Use three physicians still. First Doctor Quiet,
Next Doctor Merryman, and Doctor Diet."

Perhaps the oddest of the Salerno legends ascribes the foundation of the school to four practitioners—a Greek, a Latin, an Arab, and a Jew. None of the current romantic stories about the early days of Salerno is even approximately true, but the last, suggesting a mixture of four cultures in this region, does faintly reflect an actual situation.

A Battleground of Interests

After the fall of the Gothic power in the sixth century South Italy became for centuries a battleground of conflicting interests. It was a mosaic of small States, usually under the nominal rule of Byzantium and influenced by a variety of cultures. Invaders from the north seldom reached the south, and Byzantium, securely ensconced on the Adriatic seaboard, disputed the mastery with native chiefs and, from the eighth century onward, with Saracens also. The prevailing language was largely Greek, of which the colloquial speech bears traces to this day. The imperfect grasp of the Byzantines, however, gave opportunity for entry of other tongues. Latin dialects were spoken in many places. In others Greek dialects were placed by forms of Arabic patois. Moreover, material and literary remains tell of a vigorous development of a Hebrew culture in this region. We devote a few sentences to the little-known Saracen and Jewish elements.

In the seventh century the dominion of the Crescent had extended along the southern shores of the Mediterranean, from the Red Sea to the Atlantic. In 711 Tarik crossed into Spain with a Berber army and gave his name, the Mount of Tarik—Gebel Tarik—to the natural fortress the title of which has been corrupted into Gibraltar. This movement that carried Islam across the narrow Strait of Gibraltar threw it across the wider Sicilian Channel in the eighth century and on to the mainland in the ninth. In 827 the Emir of Kairouan in Tunisia began a systematic invasion. Palermo fell in 831 and was a strong base for raids on the Italian coasts. Things moved more slowly in those days than in these, but in 846 the arms of the Crescent were carried to Rome itself. At Salerno and elsewhere Saracen colonies were established.

For our knowledge of the Jewish element in South Italy at this period we have a Hebrew chronicle from 850 to 1060.

telling of many Jewish settlements in the Salerno area, a Hebrew medical work of about 950. But above all we have the extensive Latin writings bearing the name of Constantine the African. He was an Arabic speaker who made a long stay in Salerno, was converted to Christianity, and became a monk at the ancient Benedictine house of Monte Cassino. Constantine died in 1087. He spent much of the last ten years of his life turning into Latin, with help of a local scribe, medical works of certain Jewish physicians of Kairouan. At the same time an Archbishop of Salerno was engaged in translating medical works of Greek into Latin. Constantine himself is said to have acted as the oriental secretary of the Norman invader of Salerno.

End of the Great Medical Period

These literary events were contemporary with the Norman conquest of Sicily and South Italy, which was itself contemporary with the Norman conquest of England. There was some intercourse between Salerno and England, and one of the few surviving Anglo-Saxon medical texts, written soon after the Norman Conquest, is a translation of a Salernitan document. This was the great period of the medical school of Salerno. During the twelfth century Bologna, and later Padua, became the chief medical centre. In 1224 a university was formally instituted as a rival to papal Bologna by Frederick II, the great enemy of the Papacy, at Naples. This was fatal to the neighbouring medical school at Salerno and its importance began immediately to wane. Literary activity continued to some extent and the school prolonged an ever more feeble existence to the very end of the eighteenth century. Gradually, however, it became a place of bogus degrees and not of authentic ancient memories. Napoleon closed it finally in 1806. Since then its literature and its legendary associations have provided much fruitful material for medical historians, and not a little for writers of romance—medical and other.

C.S

Correspondence

Early Recognition of Cancer

SIR,—Everybody will agree with your correspondent I. Joseph Walter (Sept. 4, p. 313) concerning the necessity of making the public cancer-conscious. I would, however, like to point out that for four years before the war the British Empire Cancer Campaign had been carrying out work on this subject through its Central Propaganda Committee by means of educational publications and lectures. In 1936 arrangements were made by the Campaign for lectures to be given to the public, and these were only discontinued because of the war. During those four years 35 counties were covered and in 1,256 lectures were given to audiences totalling 57,851—an average attendance of 46. The lectures were given by medical men after they had been "briefed" by the committee and given skeleton lectures on which to base their own talks. The audiences consisted largely of members of the Women's Institutes, Townswomen's Guilds, National Council for Women, British Legion, Rotary Clubs, T.O.C.H., etc. At the lectures nearly 750,000 educational leaflets were distributed.

When the suggestion was first made that lay lectures should be given there was considerable opposition on the ground that cancer phobia would be caused among the public. The very numerous spontaneous letters received from individuals in the audiences who attended these lectures convinced the committee that this was not true, and indeed it is quite obvious that knowledge is the only way of getting rid of cancer phobia which afflicts so many human beings. Although it is hoped that the Campaign will be able to carry on this work after the war, nevertheless I feel that this very important method of getting early diagnosis will have to be taken on by the organizations which will be set up under the new Cancer Act—I am, etc.,

MALCOLM DONALDSON,
Chairman, Central Propaganda Committee,
British Empire Cancer Campaign.

Perforated Gastric Ulcer in Youth

SIR.—In your issue of Aug. 21 (p. 256) Dr. M. A. Conyngham mentioned a case of perforated gastric ulcer in a boy of 17. His calamity has occurred at earlier ages.

In 1910 the late Sir Joseph Leech of Newcastle-upon-Tyne operated on a boy of 13 who presented a perforated ulcer on the anterior surface of the stomach near the pylorus. He suffered from a second perforation at the age of 16 and a third at 18, when I had to deal with an ulcer at the cardiac end just in front of the hilus of the spleen. During convalescence he had a severe attack which led me to reopen the abdomen in the confident expectation of finding

fourth perforation. But no, a perisplenic abscess had burst and suddenly flooded the peritoneal cavity. According to the practice of those days, the belly was thoroughly irrigated and drained, and, in the hope of cutting short these catastrophes, I made a gastro-terostomy, which had to be anterior. Three weeks later, when he thought he was about ready for discharge, he developed acute intestinal obstruction, which further laparotomy revealed to be due to bands among coils of small bowel. By this time the Kaiser's war was in full swing, and at a critical stage my patient was accepted for service and soon found himself in France, where he enjoyed excellent health. On the cessation of hostilities a return to civil life and work in the coal mines was followed by an attack of subacute obstruction, which yielded to non-operative management. But his work did not prove suitable, and a return of indigestion was followed by an attack of severe haematemesis. After much medical care he left the North and adopted an open-air occupation, which seemed most suitable, for he was rewarded by a return to a long period of quite good health.

Just before this war—some 28 years since his first perforation—this man again came under my care, in poor condition, with great pain and much abdominal tenderness. Laparotomy confirmed the presence of a secondary peptic ulcer at the site of the anastomosis, with some obstruction among the small coils from strong bands. Recovery was quick and for some two years complete, but since the Coventry "blitz" I have not been able to trace my old friend.

If I were reporting this case, apart from the interest of the early age of perforation, it would have been under some such heading as "The Persistence of the Peptic Ulcer Tendency."—I am, etc.,

British Postgraduate Medical School.

G. GREY TURNER.

X Rays and the Colon

SIR.—I was present at the meeting to which Sir Arthur Hurst refers in his letter (Sept. 4, p. 310), and was sorry that he had not time to qualify what appeared to be a sweeping condemnation of barium enemias as an aid to the diagnosis of spastic colon.

His letter suggests that he has been unfortunate in some of his radiologists, as I have not come across the specialist radiologist who has given "radiological reports ascribing symptoms to various x-ray findings." I have always understood that one should report the x-ray appearances with their significance to the doctor and not the patient, bearing in mind that ours is only an aid in the complete investigation of the case.

Most of us are chary of diagnosing a gastro-intestinal case on a skiagram without screening. Although we may sometimes see our mistakes when we know the surgical or post-mortem findings, I doubt whether as a class we are as exceptionally ignorant as the letter appears to suggest, although a few radiologists at large hospitals may be appointed without the desiderata of a large radiological and general experience.—I am, etc.,

Richmond.

DENYS B. I. HALLETT.

Stilboestrol for Prostatic Enlargement

SIR.—There seems to be neither rhyme nor reason in this treatment. A measure of success has been claimed without serious attempt to explain the *modus operandi*.

Actually the side-effects provide the clue, gynaecomastia being an invariable accompaniment of large dosage of stilboestrol in the male. In effect stilboestrol in the male stimulates the rudimentary female structures into activity; the larger the dose the greater the activity. In the case of simple enlargement—i.e. adenoma—or of cancer of the prostate there is nothing to support the view that stilboestrol directly affects the new growth. I suggest that if the case be treated with large doses of stilboestrol at any stage where the original prostatic

tissue has not been entirely replaced, the prostatic tissue remaining will be so strongly stimulated to activity and growth that it will take the upper hand and will inhibit further encroachment by the neoplasm.

It would follow from this that the entire prostate might be considered to be a rudimentary female structure—not so fantastic a view, perhaps, when it is considered that the prostate has yet to reveal its function.—I am, etc.,

J. A. L. MAGEE, M.B.

H 11 for Cancer

SIR.—Regarding reports on the value of H 11 and other drugs used in the treatment of cancer, it would be of value to have fuller reports on the cases which are cited in your correspondence column and for which vague cures and inhibitory actions are claimed.

Dr. J. H. Hannan writes in your correspondence column (Sept. 4, p. 314) that he had success with H 11 in a case of carcinoma of the vulva where radium and x-ray treatment failed. There is no mention here of a biopsy having been taken. Does the author of the letter really know whether there was a recurrence? Is he acquainted with the numerous cases where radiotherapy has appeared to fail and later the "recurrence" is found to be of a simple inflammatory nature?

If we are to assess these drugs, it is essential that accurate scientific case records should be made, and a diagnosis of malignant disease without histological confirmation cannot generally be accepted. This would seem to be especially important where a recurrence of malignant disease is suspected.—I am, etc.,

GEORGE W. BLOMFIELD,
Medical Director, Sheffield Radium Centre.

SIR.—With reference to H 11, it may be of interest to record the results of treatment by my colleagues and myself in fairly advanced cases of (1) rectal cancer; (2) sigmoid cancer; (3) secondaries following ovarian cancer; (4) secondaries following breast cancer; (5) ulcerating breast cancer. Treatment in each case failed and the patient died from cancer. In the first 4 cases treatment was prolonged and intensive. In Case 5 treatment with H 11 was discontinued after 2 months as no improvement was apparent.

It is also claimed that H 11 ointment will remove warts, and although it has been used in one case consistently for 3 months, no improvement was observed.

It will therefore be seen from the above that our results were completely negative.—I am, etc.,

Birmingham.

IVOR RADNOR, M.B.

The Mastoid and D. and V.

SIR.—May I take this opportunity of replying to the criticisms which my paper on this subject has provoked.

Dr. McGuckin (Aug. 21, p. 245) asks for proof of the presence of mastoiditis; if his interest in the subject is deep enough for him to be present at a few operations his doubt will be satisfied. He expresses distress that children should be condemned to a double mastoidectomy because a gland in the posterior triangle can be rolled under the finger; I share his distress. Should he refer to my paper he will find that no such suggestion is made. It is definitely pointed out that glands in the posterior triangle are an important physical sign among others as an aid to diagnosis. Dr. McGuckin also asks for proof of my statement that all the patients I have operated on would have died without surgical aid. I would point out that progressive mastoiditis is a fatal disease unless treated surgically.

Dr. Worrall's letter (Aug. 28, p. 280) is important, and his suggestions with regard to parasympathetic over-activity and shock should prove of value to physicians. It may well be that suitable treatment with ephedrine, atropine, and HCl will prevent a catarrhal mastoiditis becoming purulent, thereby rendering surgical treatment unnecessary.

Dr. Bruce Williamson's experiment with charcoal was unknown to me; I thank him for bringing it to my notice. With regard to proof of mastoiditis before the onset of diarrhoea and vomiting, I would point out that it is not uncommon to see patients in hospital who have recovered from some airborne infection who develop fever, head-rolling, crying out, and

putting a hand to the head; in addition such cases may present pink tympanic membranes and enlarged glands in the posterior triangles before the onset of diarrhoea and vomiting.

Dr. Emily Simon's letter is of special interest. I have several times diagnosed petrositis before operation, and in two such cases have seen the sudden onset of a double sixth-nerve palsy which has cleared up after operation (double Gradenigo's syndrome). I think it unlikely that petrositis can occur except from an antecedent mastoiditis.—I am, etc.,

Birkenhead.

P. W. LEATHART.

Health and Tonsillectomy

SIR.—In mass investigations into the results of tonsil and adenoid operations upon ear trouble (Sept. 11, p. 334) it is necessary to realize that a previous history of otitis media probably means that the affected ear is a "weak spot." It is not reasonable to expect tonsillectomy and removal of adenoids to cure temporal bone disease.

With regard to the common infectious diseases of childhood, tonsillectomy does appear to prevent faucial diphtheria. Neither the guillotine nor the dissection method gives as a rule 100% of perfect results. It is, apparently, some of the "tonsillotomies" which are referred to in the statement that the tonsillectomized group had a 1% record of tonsillitis compared with 5% for the other group.

Careful mass investigation results would be useful as to the effects of tonsillectomy upon tuberculous adenitis (there seem to be fewer scarred necks nowadays). Reports dealing with the incidence of colds might deal with the question whether adenoid "recurrence" had taken place and whether the nose and maxillary antra were healthy or not.—I am, etc.,

Manchester.

W. BRYCE MCKELVIE.

Artificial Insemination

SIR.—I am afraid that I cannot agree with Dr. Mary Barton in her easy assumption that artificial insemination is—to use her own phraseology—medically, ethically, or socially justifiable.

Medically it may work. If eugenists are consulted, it is possible that a woman may be able to produce a magnificent animal by artificial insemination, whether from her husband or some other selected stud male. But—and here the social aspect is involved—is a fine body of a man or woman necessarily socially desirable? Dr. Barton seems to forget that men are not cattle, and that the sex life of animals is far simpler than that of man. Man has a mind, which is formed far less by the magnificence or otherwise of his body—important as this may be as a contributory factor—than, so to speak, by a subtle form of gestation as between the minds of his parents.

Even if no ethical grounds can be found against artificial breeding, we are up against very practical psychological objections. It may well be that certain primitive types of women might not suffer any trauma, nor the offspring either. But we do not want the primitive to breed so much as the intelligent, cultured, and sensitive, who are the real assets to the community. And it is here, if nowhere else, that the methods advocated are bound to come unstuck. Any woman I have spoken to is revolted at the idea of artificial methods being used: they feel it violates something sacrosanct as between them and their husbands. Occasionally the maternal impulse is so strong that they will put up with it—provided the husband is the father of the child. But I have yet to meet one to whom the idea of insemination by a stranger is not anathema. In some measure this applies also to the husband's attitude.

But what of the child? I know very well, from my experience in psychotherapy, of the deep scars left on the mind of a child which is not produced under the best conditions—which are those of mutual love, leading to sexual intercourse for the purpose of producing that child. Where so intimate and sensitive a thing as the sex relation between cultured people has been tampered with, I think it is certain that the child must suffer. And when a psychologically damaged child grows up, society suffers too.

Man may be an animal. But he is animal *plus*, and I think that before plunging into human stud-farming this must be taken into account. Man has the animal instincts and desires in him, and they need to be dealt with adequately. But happi-

ness is not necessarily the result of fulfilling these instincts *tort et à travers*. As has been pointed out, humanity need be sure that its instincts are made to subserve human teleological ends, and there are occasions where these involve sacrifice even of so primal a need as maternity.—I am, etc.,

London, W.1.

L. J. BENDT, M.I.

SIR.—The medical profession seems for long light-hearted to have been making it possible or at least easier for diabetic young cases of pernicious anaemia, mental defectives, etc., reproduce themselves. Surely we ought to stop short on sentimental journey and consider whether enabling those who are sterile without artificial aid to reproduce is really likely to be an effective long-term contribution towards increasing the birth rate. Is not this one of the essential points which Dr. Mary Barton so much wishes us to consider.—I am, etc.,

London.

C. RICKWORD LAW.

Induced Pneumoperitonium: A Fatal Case

SIR.—In view of the interest aroused by the discussion of peritoneoscopy recently published in the *Proceedings of the Royal Society of Medicine* (July, 1943) and reported in the *Times* (Aug. 25), in which the safety of the procedure is stressed and no death attributable to it recorded in a large series of cases, it may be worth recalling a case in which injection of air into the peritoneum proved fatal owing to a rare anomaly.

In 1924 or 1925 I witnessed what was, I believe, the first induction of pneumoperitoneum for the purpose of radiography carried out at a certain teaching hospital. The patient, a young woman, was suspected of having tuberculous mesenteric glands. Almost as soon as the induction had begun she became dyspnoeic and complained of pain in the chest. The flow of air was stopped, and resumed after a few minutes. She then collapsed, the needle was withdrawn, she was returned to bed and died soon after. The post-mortem showed bilateral pneumothorax with collapse of both lungs. A number of small holes were discovered in the diaphragm connecting the peritoneal with both pleural cavities. I have no access at the moment to reference books, but presumably persistence of pleuroperitoneal communication is very rare.—I am, etc.,

Lincoln.

C. NEWLYN SMITH.

Specialist Courses for Service M.O.s

SIR.—May I endorse most emphatically the opinion of L. W. Aldridge so ably expressed in his letter (July 17, p. 38). The opportunity to resume postgraduate study with a view to higher qualifications ought to be extended to every ex-Service medical officer who desires it after the war, and should not depend on the private financial resources of the individual.

The value of the work done by young specialists in B2 jobs in the E.M.S. cannot be questioned; but it is equally beyond dispute that the sacrifices they have made and the risks they have accepted do not compare with those borne by their colleagues in the three Services. Yet after the war is over, unless the Government and the teaching authorities of the profession have ready a scheme such as Dr. Aldridge suggests, the ex-Service doctors cannot hope for equality of opportunity with their civilian contemporaries.

I have twice raised the point with the British Medical Association during the war. A reply by the Deputy Secretary stated: "No ex-Service doctor will be handicapped either in competing for appointments or in postgraduate study by reason of his service with the Forces." So far from reassuring me, it must confess this caused me considerable misgiving. For one thing it ignores completely the fact that the handicap already exists and must be overcome, not overlooked. For another, while undoubtedly offered in good faith, its comforting optimism is disagreeably reminiscent of some of the promises held out during the last war. It is natural that some medical officers should be far more concerned with their chances of becoming surgeons or physicians after the war than with the terms or conditions of post-war general practice. Such doctors neither ask nor expect preferential treatment, but they do look to the teaching institutions and the Government for an opportunity when their present job is done to equip themselves to follow their particular vocation.—I am, etc.,

D. STAFFORD-CLARK, M.B., B.S.

Refresher Courses for Service M.O.s

SIR,—Under conditions of active service the work of the gimental M.O. is limited to a small variety of cases and large amount of his time is spent on strictly non-clinical objects; all the really ill men are sent to hospital, and more ten than not it is impossible for him to check his diagnosis.

This kind of work it is very difficult to preserve one's knowledge and the truly medical atmosphere of the teaching hospital and of civilian practice.

I have discussed this problem with a number of young medical officers out here. We all feel that after the war refresher courses at all teaching schools and hospitals will be urgently required for the young qualified men who have returned from the Services to take their place in civilian life. This should be the responsibility of the State, who sent them to war and who will need them efficiently equipped for the requirements of civilian practice.—I am, etc.,

B.N.A.F.

C. GILES.
Capt. R.A.M.C.

Public Opinion on Health Services

SIR,—I welcome Dr. Shackleton Bailey's rejoinder (Sept. 4, p. 311) to my letter if it leads to clarification of the issues involved and enables me to correct the unfortunate impression it seems to have gathered that I was either sneering or contemptuous, for I was innocent of any such thought or feeling.

I think Dr. Bailey's objections arise mainly from a difference of outlook or experience rather than any dispute about facts. If his pessimism is justified his conclusions may perhaps be also. I know enough about medical practice to realize that *The Citadel* is not all exaggeration, but I still have greater confidence in both my professional brethren and my fellow citizens than he appears to have. I do not believe that most doctors are seriously tempted to bow to the popular clamour of the patient, as he implies, and I am perfectly sure that most patients do not value their doctor in the proportion to which he gives way to them, but in proportion to the way in which he seems to understand them and their difficulties as well as their diseases, and also on the extent to which he gives them disinterested advice.

Dr. Bailey's doubts are also shown in his first letter, where he specifically speaks of a "less stable body of opinion" as marking the democracy of the future. In so far as this is a correct judgment it can only mean an opinion less instructed in the points at issue, in fact exactly what I call "ill-instructed popular clamour." I believe it is the duty of the profession to see that so far as possible the electorate is well instructed about matters of health, and I am quite sure that so far the electorate, and possibly Parliament itself, are woefully ignorant about the implications of the proposed changes in the medical profession, some of which are specifically mentioned in the Beveridge report. So far people have been feasting on the sugar of the pill—to which they are welcome—but some of us are genuinely concerned whether the bitter part of the pill is finally going to make the patient better or worse. To take one small example. Paragraph 426 states that "it is a logical corollary to the receipt of high benefits in disability that the individual should recognize the duty to be well and to co-operate in all steps which may lead to diagnosis of disease in early stages when it can be prevented." This sounds admirable, but in fact it means that under the Beveridge scheme, if the doctor advises a barium meal, a biopsy, or the extraction of teeth, etc., the patient will be in duty bound to submit or forfeit his benefits. Are we doctors really so confident in our omniscience that we think it wise to put the patient in such a dilemma, and are high benefits wisely purchased at the price of personal liberty? Is it really better to force a person to do right than to allow the possibility of making mistakes, which is the inevitable price of moral choice and the development of personality? Many such problems arise both for patients and for doctors, and few of them have been propounded to the electorate, in whom, for years to come, these fundamental issues will bring forth good or evil fruit. Until these have been faced how else can one describe popular opinion as anything else but ill instructed?

Dr. Bailey's letters are nearly all politics, so may I make one observation about the constitutional issues he raises? While

no one would challenge the authority of Parliament, according to the Constitution it should have been dissolved nearly four years ago. Few believe that it now represents the true feeling of the country, except in our desire to win the war. The Government has itself recognized these facts by promising that it will not introduce any controversial legislation. Few topics could, however, be more controversial than to alter the status of a whole profession. If this were essential for the continued existence of the nation or even a fundamental condition for its social progress we could hardly demur. It is, however, as Beveridge himself recognizes, only incidental to his scheme, which specifically avoids laying down any conditions about the way medical attention should be obtained. The demand for it is political, pure and simple. As such we have every right to resist it, and should, in fact, be perfectly within our legal rights in refusing point blank to accept it. It is no function of democracy to expropriate any body of citizens and forcibly alter their conditions of employment, apart from the extreme necessities of war. If we doctors need more clear thinking and plain speaking on these subjects, how much more the millions who, in spite of Dr. Bailey's doubts, do look to doctors to give them sound advice, even though, like a night call, it might be to our own inconvenience.—I am, etc.,

Winsford.

W. N. LEAK.

Unity in the Profession?

SIR,—The statement in Dr. George F. Buchan's letter (Aug. 28, p. 278) that "the Society of Medical Officers of Health does, in fact, support the policy of a whole-time salaried service, but they do not suggest its immediate adoption" demonstrated the difference in outlook of doctors who are in private practice and the public health officials. We hear a lot about "unity of the profession" from the leaders of the B.M.A., but how can this be possible with such divergence in ideals of practice? Dr. J. M. O. Rees of Guildford (*Supplement*, Aug 21, p. 25) has pointed out very clearly the differences in the three types of service. By far the major portion of us in private practice do not desire any form of State-controlled salaried service. We are determined to keep our freedom.

Dr. Buchan in his clear exposition, which leaves no doubt as to the views of his society, says there is "no hurry" and gives very good reasons. The Government, however, in the meantime could make all necessary arrangements for central and local control, and in that transition period "all reasonable methods of medical practice should be tried out before any final conclusion was reached." This plan detailed by Dr. Buchan, this transitional period of experimentation, this play with doctors, exposes the cold official mind of the public health officer. It is rather a cruel try-out and would be a torture to the great majority of practitioners. Remember Dr. Buchan was chosen to serve on the Representative Committee. Do you desire men of his outlook—control and regimentation—to be elected to the Negotiations Committee?—I am, etc.,

Bradford.

DONALD WATSON.

Hospital Posts under Local Authorities

SIR,—I must admire the honesty and courage of "Former Councillor" (July 10, p. 54). It raises an issue which the profession should seriously consider when discussing the future of medical practice in this country after the war. His remarks from the point of view of the councillor prompts me to put on record a few of my own experiences as a candidate for hospital posts under local authorities.

About eight years ago a certain city council advertised for R.S.O. to their city hospital, stressing the necessity that candidates should possess the F.R.C.S. diploma together with experience of operative surgery. A preliminary short list of six was drawn up. Three candidates in this list possessed the F.R.C.S.Eng. and all were men with operative experience. The other three were "local" men, not one of whom possessed the F.R.C.S., but one of them held the D.P.H. and had been for some time a schools medical officer. This latter candidate, however, had one qualification which proved to be a trump card—to wit, he had "influential" friends on the selection committee. Before the final selection the three Fellowship men were, with one stroke of the pen, excluded from the list, and at the interview the gentleman with the D.P.H. was duly appointed to the post of R.S.O. to the hospital.

By a curious coincidence the same post—at the same hospital—again became vacant and was duly advertised. Once again the council was most insistent that the candidates must possess the F.R.C.S. diploma and "must have had extensive postgraduate operative experience." This time four candidates were short-listed—two "local" men and two others. Neither of the two "local boys" had been qualified more than 3 years, neither possessed the F.R.C.S., and neither could be described as having had extensive postgraduate surgical experience. The other two candidates, were both over 30 years, both held the F.R.C.S. diploma, and both had had at least 10 years of hospital surgical experience. At the interview one of the "local boys" was appointed. To quote a familiar expression, "The job had been cooked." It later transpired that the appointed man was well known to and "liked" by the medical superintendent—not to mention members of the committee. The disappointed candidates collected their "travelling expenses" and left the scene, dazed and embittered and wondering what sort of a profession is this that can tolerate such gross injustice. After this experience I became quite convinced that the possession of a higher qualification could prove to be a serious handicap to a candidate when applying for a post in a hospital at which the medical superintendent himself did not possess any higher degrees.

This system whereby lay committees appoint medical men to hospital and other posts is both ridiculous and demoralizing. After many years of professional training a doctor finds himself thrown on to the tender mercies of lay councillors who frequently cannot tell one diploma from another, and are often completely incapable of distinguishing an experienced surgeon from a newly qualified man. In my experience, lay committees are far too frequently infected by "local politics" and "graft" to be relied upon to give medical men a square deal at interviews. Medical appointments should be made by a body of completely impartial medical men who would see to it that the best man gets the job. If we are to have a form of State Medical Service we must see to it that the control is "medical."—I am, etc.,

EDGAR W. THOMAS.

Fitness for Factory Work

SIR,—I have the impression that medical boards and practitioners, consciously or unconsciously, are passing girls and women fit for work in factories or in the N.A.A.F.I. who have not made the grade for the women's Services—e.g., the A.T.S., etc. Some of those girls shortly after their call-up to the factories are being sent back home in a worsened state of health. In not a few cases they may, as a result of thoughtless direction to such work, suffer the consequences for a long time, if not for life. If a girl is unfit for the women's Services she is still less likely to be fit for the N.A.A.F.I. or work in a factory, which is infinitely heavier and more exacting besides having longer hours. I wonder if it is the question of pension which is the deciding factor whether medical boards direct that a girl is fit or not for the Services?

How is it that girls who are unfit for the Services are referred to the Labour Exchange as fit for posting to factory work, etc., and to almost any part of the kingdom, with little or no reference to their previous medical history or home environment? At the last minute I stopped a girl who had had recently active tuberculous glands of the neck being sent from a comparatively healthy country atmosphere to a factory in an industrial town. I think it is the duty of the doctor to safeguard the interests of his patients. Is this not a very important field for the family doctor to make sure that at least his patients are fairly treated and not directed to work which may affect their futures?—I am, etc.,

Dingwall.

KENNETH I. E. MACLEOD.

Masseurs in the R.A.F. Medical Service

SIR,—I should like to correct a statement made by Dr. G. L. Kerr Pringle in his letter (Sept. 11, p. 341) that the Royal Air Force Medical Branch does not employ male personnel in massage. I may state that 50% of the medical orderlies employed in massage in the R.A.F. are male orderlies. All of these male orderlies are fully qualified masseurs, being either civilian or Service trained, and either being in possession of the necessary civilian certificates or having passed the necessary Service tests and examinations to qualify as masseurs.—I am, etc.,

D. McLAREN.

Air Commodore, D.D.G.M.S.

Air Ministry, W.C.2.

Obituary

SIR WILLIAM WHEELER, M.D., F.R.C.S.I.
Consulting Surgeon to the Royal Navy in Scotland

Sir William Ireland de Courcy Wheeler, whose death took place suddenly in Aberdeen on Sept. 11, will be mourned by many on both sides of the Irish Sea and across the Atlantic. He was not only a brilliant operating surgeon, a clinician of much wisdom, and an authoritative writer on surgery, but a man with a great capacity for friendship. The relation of the surgeon to his patients is, in the nature of things, occasional, and less likely to be productive of friendships than the relation of the physician or the family doctor. But with Wheeler the making of friends and the inspiring of affection amounted to a sort of genius. He was a man to whom people gravitated, not only for surgical help but for general advice and guidance. When, 11 years ago, he left Ireland for England many expressions of regret and farewell were tendered by bodies over which he had presided and social circles in which he had moved, but none touched him as deeply as a testimonial from numbers of his old patients in County Kildare, where he had had his home, as his father had before him.



(Press Portrait Bureau)

It was in Dublin that he made his reputation as a surgeon, but long before he left Ireland his reputation was as firmly established in Great Britain. He had been for many years a leading figure in the interchanges of British and Irish medicine, with which politics has never been suffered to interfere. He was known as a writer of one or two textbooks and of many monographs on surgical subjects. His outstanding work in the war of 1914-18, when he served in France with the rank of lieutenant-colonel and was mentioned twice in dispatches, and knighted at the end of the war, had brought him into close association with his British colleagues. His work in orthopaedics, as head of the military surgical centre at Blackrock, near Dublin, had led to a close friendship with the late Sir Robert Jones and other orthopaedic surgeons on this side, and Wheeler served on the Advisory Council on Artificial Limbs to the Ministry of Pensions. In the British Medical Association, again before he settled in England, he had been a member of the Council and of the Irish Committee from 1926 to 1933, and was largely instrumental in bringing about the highly successful meeting in Dublin in 1933. Nothing gave him greater pleasure than to support the presidency of Dr. Moorhead, his old friend of forty years' standing.

The occasion of his leaving Ireland for London when he was already over fifty years of age was the opportunity offered to him by Lord Iveagh, a member of the Guinness family in Dublin, who had given nearly £200,000 towards making a new hospital at Southend-on-Sea one of the finest for its size (ultimately 400 beds) in the country. The surgical block comprised the newest type of operating theatres and accessories, and Lord Iveagh persuaded Sir William to accept a position on the visiting staff. With this appointment at Southend he combined an appointment at All Saints' Hospital for Genito-urinary Diseases, London, for although he was a general surgeon, or an "operating physician," he cultivated urology as what he called a "side-line." One of his beliefs was that the best urologist—and no doubt the same held good in his opinion for other branches of medicine—was the general surgeon who, as a kind of recreation, turned aside to give particular attention to one specialty. The narrow specialist outlook he could not abide.

The Ireland in which Wheeler was born in 1879 was a more than usually distressed country. To use the words of a historian of the period, during those late 'seventies it "rained outrages." But probably in the tall house in Merrion Square in which his father—who was also a William Ireland de Courcy Wheeler, and, like his son, reached the presidency of the

oyal College of Surgeons in Ireland—practised his profession in shadow of the political disturbance fell upon his childhood. His part of Dublin was still fashionable, the most elegant spectacle in its streets being the high-stepping horses of the Dublin doctors. William was educated at Trinity College, Dublin, where in 1899 he took honours in anatomy, natural science, and experimental science. He completed his education at the University of Berne and qualified in Dublin in 1902. In the following year the medal of the Dublin University Biological Association was awarded to him for a paper on "Deaths under Chloroform," possibly his first published work. He was appointed demonstrator and assistant to the professor of anatomy at Trinity College. Choosing surgery as his field he became F.R.C.S.I. when still only 26 years of age. It was at this time, in his twenties, that an unfortunate accident befell him, as the result of which he lost an eye. He overcame this disability, and although he was prevented from taking up golf, other people at least were not conscious that he suffered from any handicap in his professional work.

In 1904 he joined the staff of Mercer's Hospital, a famous Dublin charitable foundation 200 years old, to which he was attached for 28 years and was senior surgeon when he retired. He served a number of hospitals in Dublin and district—Kilkenny, Arklow, and Newcastle Hospitals, the Rotunda, and the National Children's Hospital. During and after the last war, in addition to his work abroad, he was honorary surgeon to the Forces in Ireland, donor and surgeon of the Dublin Hospital for Wounded Officers, and consulting surgeon to the Ministry of Pensions. He interested himself in hospital policy, advocating the amalgamation of the smaller hospitals, and also in nursing, being chairman of the City of Dublin Nursing Institute.

Among his manifold activities were those of external examiner to the National University and to Queen's University, Belfast, and, on this side of the Channel, to Edinburgh and Glasgow Universities; inspector of examinations for the Medical Registration Council of Ireland, and lecturer in surgery to postgraduates in the University of Dublin. In 1922 he was appointed surgeon-in-ordinary to the household of the Lord Lieutenant. He was consulting surgeon to the L.M.S. Railway and to the Orient Steam Navigation Company, and a member of the Departmental Committee on Workmen's Compensation.

In the scientific proceedings of the Royal Academy of Medicine in Ireland he took a conspicuous part and was president of its Surgical Section. A body in which he was also very much at home was the Irish Medical Schools and Graduates Association, of which he had been president. Soon after coming to London he became chairman of the Marylebone Division of the British Medical Association, and a year or two later president of the Metropolitan Counties Branch, probably the only instance of the same man having been president of an English and of an Irish Branch, for he had been president of the Leinster Branch in 1925-6. When the Association met in Dublin in 1933 he was president of the Section of Orthopaedics, and he was vice-president of the Section of Surgery at the Winnipeg Meeting in 1930 and at the Centenary Meeting in 1932.

With America he had many affiliations. He visited Crile's clinic in Cleveland, and, on at least four occasions, the Mayo Clinic in Rochester, and the brothers Mayo were his guests at his own clinic and private hospital in Upper Fitzwilliam Street. The Postgraduate Assembly of North America made him its president and an honorary member; he was also Honorary Fellow of the American College of Surgeons, a member of the consulting editorial staff of the American journal *Surgery, Gynecology and Obstetrics*, and a member of the American Editors' Association. He wrote well, with a concise—almost too concise—and original style. His *Operative Surgery*, which went into four editions, was first issued in 1918 in a form intended to be slipped into a medical officer's kitbag. His *Injuries and Diseases of Bone*, a collection of papers summing up his large experience in orthopaedics, appeared in 1928. He contributed many articles to our own and other journals and was a member of the editorial committee of the *British Journal of Surgery*.

On the outbreak of the present war he was appointed consulting surgeon to the Royal Navy in Scotland, with the rank

of surgeon rear-admiral. By road, sea, and air he travelled many thousands of miles on the duties this position entailed, and was welcomed wherever he went, not only for his surgical counsel but for his unfailing courtesy and kindness. The travel, although arduous, he probably enjoyed, because for forty years he had been a great lover of motoring. He once declared that he had suffered every tribulation which could befall the motorist, even to appearance in the police-court for a technical offence, but nothing abated his ardour.

Sir William de Courcy Wheeler married in 1909 the eldest daughter of the first Baron Craigmyle, better known as Lord Shaw of Dunfermline, a Lord of Appeal. They had a son and daughter. The son is now serving as an officer in the Gordon Highlanders.

A Naval colleague writes:

Sir William Wheeler had the great gift of friendliness and an irrepressible sense of humour, so that one rarely saw him looking unduly serious and never downcast. He was a tonic to his friends as well as his patients. Yet he had a keen sense of the implications of any problem with which he was confronted, while his surgical judgment showed a very nice discrimination of essentials, his operative technique was sound, and the results of his work, as might be expected therefore, were excellent. He was an inspiration to many a younger man, and out of his vast experience of surgical practice never tired of helping those younger and less experienced. Thoughtfulness for his patient was predominant in all that he did; as an example of this, only three weeks ago I watched him put a suture in a small incision he had made into a scrotum; he used a piece of silk-worm gut looped over a short piece of narrow tubing, and explained that when the suture was ready to come out all he had to do was to cut through the tube, into which one blade of a pair of fine scissors could be placed, and the patient would thus feel nothing of the cutting out of the stitch. Sir William was an indefatigable worker, very active right up to the last, and died suddenly in harness. A masterly paper on Syme's amputation and common derangement of the foot which he had written appeared only in April of this year.¹ Just over three weeks ago he had flown off to an emergency case in a fighter aircraft which made such a steep ascent from the aerodrome as to be described by some of the ground staff as "almost vertical." Sir William chuckled with delight at the memory of the experience. Not long afterwards he was climbing up a ship's side by a pilot ladder. He loved the Navy and was very proud to be serving as one of the consulting surgeons. It is distressing to think that those of us who counted ourselves privileged as his friends will no longer see his smiling countenance or hear any more of his wonderful stories. When an old woman patient of his met him a year or two ago she greeted him with, "Ah, Sir William, when you left Dublin the whole place shook." Many of us will feel with her that with his departure we have been badly shaken.

FRANK MARSH, C.B.E., Ch.M., F.R.C.S., who died at Alveley, Shropshire, on Sept. 12, was in his 89th year. He was born at Stafford and educated at King Edward's School, Stafford, and King's College Hospital. He qualified in 1877 and served with the Turkish Army in the Turco-Russian war of 1877-8. He was house-surgeon to the Stafford Infirmary and was for some years in general practice in that town and M.O.H. for 18 months. In 1886 he was appointed casualty surgeon to the Queen's Hospital, Birmingham, and was elected to the visiting staff in 1888, from which he retired after 15 years' service. He had become interested in the ear and throat specialty, then in its infancy, and was on the staff of the Birmingham Ear and Throat Hospital. He was president of the Section of Laryngology at the Annual Meeting of the B.M.A. in Birmingham in 1911, having previously served as secretary and as vice-president. For many years his opinion was much sought after throughout the Midlands, and he retained a large practice until the outbreak of war in 1914. He then commanded the First Southern General Hospital stationed at the University, and later became A.D.M.S. Birmingham District. After the war he devoted himself to the interests of the Red Cross and the County Territorial Association, and was awarded the honour of Knight of St. John of Jerusalem. He retired from practice in 1922 and spent the latter part of his retirement in Monte Carlo, but returned to England after the fall of France. In his opinions Col. Marsh was a staunch Conservative, though he took no active part in politics. He was devoted to country life and fishing, was of a gentle disposition, never uttering a harsh word. His elder son follows him as an ear and throat specialist in Birmingham.

The Services

Majors (Temp. Lieut.-Cols.) H. T. Chiswell and R. A. King, R.A.M.C., have been appointed O.B.E. (Military Division) in recognition of gallant and distinguished services in North Africa.

Group Capt. C. J. S. O'Malley, R.A.F., Wing Cmdr. H. L. Willcox, R.A.F., and Squad. Ldr. J. A. Mains, R.A.F.V.R., have been mentioned in dispatches.

CASUALTIES IN THE MEDICAL SERVICES

Died of Wounds.—War Subs. Capt. A. L. Thorp, R.A.M.C.

Prisoners of War.—Temp. Lieut.-Col. St. C. E. J. Barrett, R.A.M.C., War Subs. Capt. D. Christison, R.A.M.C., War Subs. Capt. H. W. Cowen, R.A.M.C., Lieut. E. J. Emery, R.A.M.C., Acting Major H. Henderson, R.A.M.C., War Subs. Capt. C. V. Lewis, R.A.M.C., Temp. Major A. T. H. Marsden, R.A.M.C., War Subs. Capt. J. R. Roulston, R.A.M.C., Lieut.-Col. E. MacA. Sheppard, A.A.M.C.

Wounded.—Lieut.-Col. K. H. Clark, R.A.M.C., War Subs. Capt. D. Rumney, R.A.M.C., Temp. Major A. F. Wallace, R.A.M.C.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* there were large increases in the notifications of scarlet fever, 316, and dysentery, 109, but a fall of 312 in the incidence of measles.

There has been a rise of almost 50% in the notifications of scarlet fever during the past fortnight. During the week reviewed Yorks West Riding had an increase of 85 and Lancashire of 62. There was little change in the distribution of diphtheria and whooping-cough; one-fifth of the notifications of diphtheria were recorded in Lancashire. The fall in measles was general, the largest returns being in Lancashire 59, in Lincolnshire 49, and in Kent 45.

The notifications of dysentery were almost doubled during the week owing to large increases in existing outbreaks. The most important of these was in Leicestershire, Castle Donington R.D., where the cases rose from 4 to 36. Six administrative areas were involved in Yorks West Riding, where notifications rose from 13 to 43: Bradford C.B. 19, Harrogate M.B. 12. In Kent the cases went up from 13 to 24, eight areas being affected; Rochester M.B. had 9 cases. The outbreak of dysentery in Gloucestershire, Bristol C.B., which has persisted for five months, flared up, and 19 cases—an increase of 16—were recorded, bringing the total in the city to 217 for the past twenty-one weeks.

In *Scotland* there was a general rise in the incidence of infectious diseases, the only exception being diphtheria, the notifications of which fell by 20. Two areas were responsible for the increase of 41 in the notifications of dysentery—Dunbarton County with 28 more cases, and the city of Aberdeen with 19 more. The small general rise in scarlet fever continued, and the total went up by 42. In the city of Glasgow the figure for whooping-cough went up from 46 to 183, accounting for practically the whole of the increase of 151.

In *Eire* the only noteworthy change was a rise of 23 in the total for diphtheria.

In *Northern Ireland* there were 75 cases of scarlet fever, or half of these being notified in the city of Belfast.

The Week Ending September 11

The notifications of infectious diseases during the week in *England and Wales* included: scarlet fever 2,432, whooping-cough 1,751, diphtheria 700, measles 516, acute pneumonia 308, cerebrospinal fever 33, dysentery 201, paratyphoid 5, and typhoid 9.

Quarterly Returns for Eire

During the June quarter a birth rate of 23.4 per 1,000 was recorded, being 1.1 below the rate for the second quarter of 1942, but 2.5 above the average of the corresponding quarters of 1938-42. The infant mortality was 75 per 1,000 registered births, or 13 above the rate for the June quarter of 1942. The general death rate was 14.8, and was 0.2 higher than in the preceding second quarter. Pulmonary tuberculosis accounted for 978 deaths—33 fewer than in the June quarter of 1942 but 161 above the average of the second quarters of 1938-42. Other forms of tuberculosis caused 280 deaths—an increase of 22 on the June quarter of 1942 and 50 above the five-year average. Diarrhoea and enteritis was the cause of death of 245 children under 2 years of age; the five-year average is 133.

INFECTIOUS DISEASES AND VITAL STATISTICS

No. 3

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	43	5	20	2	2	73	3	19	1	1
Deaths	—	1	1	—	—	—	1	—	—	—
Diphtheria	625	35	174	92	19	787	27	204	51	1
Deaths	9	1	4	2	1	14	—	—	—	—
Dysentery	238	12	136	—	—	112	10	67	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	4	1	—	—	—	—	—	2	—	—
Deaths	—	1	—	—	—	—	1	—	—	—
Erysipelas	—	—	32	5	—	—	—	49	9	—
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	69	13	12	98	14	52	6	15	125	21
Deaths	—	—	—	20	—	—	—	—	—	—
Measles	674	37	31	8	3	3,024	295	124	22	1
Deaths	2	—	1	—	1	3	—	2	—	—
Ophthalmia neonatorum	91	2	19	—	—	94	7	24	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	14	—	2	—	—	13	1	5	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza*	304	18	5	2	—	379	22	3	—	1
Deaths (from influenza)	7	—	1	—	1	8	1	—	—	—
Pneumonia, primary	—	17	148	10	6	—	—	106	4	9
Deaths	—	—	—	—	—	—	—	—	—	—
Polio-encephalitis, acute	1	—	—	—	—	4	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Polio-myelitis, acute	16	1	1	2	—	24	—	—	10	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	3	14	—	—	—	4	16	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	171	8	14	1	4	198	15	18	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	2,206	221	331	48	75	1,472	116	275	44	22
Deaths	—	—	—	—	—	1	—	—	—	—
Small-pox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	11	1	5	10	3	7	—	1	7	1
Deaths	3	—	—	—	1	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	1,928	108	266	59	26	1,197	106	61	112	10
Deaths	8	—	5	3	1	11	1	3	5	—
Deaths (0-1 year)	293	33	54	37	35	281	33	60	36	25
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	3,504	482	480	177	116	3,465	493	491	191	120
Annual death rate (per 1,000 persons living)	—	—	10.8	11.6	4	—	—	11.1	12.8	4
Live births	5,959	718	904	391	271	6,002	618	816	459	270
Annual rate per 1,000 persons living	—	—	18.5	25.7	4	—	—	16.9	30.6	4
Stillbirths	191	22	26	—	—	209	23	38	—	—
Rate per 1,000 total births (including stillborn)	—	—	28	—	—	—	—	44	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

A series of twelve weekly lectures on "The Psychology of Frustration and Fulfilment" will be given in Caxton Hall, Caxton Street, S.W., at 5.15 p.m. On Oct. 5, 12, 20, and 27 Miss Anna Freud will lecture on "Instinct Fulfilment and Frustration in Education." On Nov. 3, 9, 16, and 23 Miss E. N. Rooker (late principal of Dr. Barnardo's Staff Training School) will lecture on "Practical Application in Childhood." On Nov. 30, Dec. 7, 14, and 21 Prof. John MacMurray (London University) on "Social Sources of Frustration and Fulfilment." Tickets for the course, £1 (seats reserved until 5.10 p.m.), should be secured in advance from the Lecture Secretary, Provisional National Council for Mental Health, 39, Queen Anne Street, London, W.1. Single tickets (so far as accommodation permits) 3s. 6d. each. These lectures are especially addressed to those with social and educational interests.

The nineteenth Norman Kerr Memorial Lecture will be given before the Society for the Study of Inebriety on Tuesday, Oct. 5, at 4 p.m., in the Meyerstein Lecture Hall of the Westminster Hospital Medical School, Horseferry Road, S.W. The lecturer is Dr. A. Ninian Bruce and his subject is "Alcohol and Avitaminosis."

The annual general meeting of the Middlesex County Medical Society will be held at the Middlesex Guildhall, Westminster, S.W., on Tuesday, Sept. 28, at 5.15 p.m., when Dr. T. O. Garland will give an address on "Changing Medicine," which will be followed by a short discussion. Visitors, including members of the American and Canadian Forces at present in this country, will be welcome.

On Tuesday, Sept. 28, at 4.30 p.m. in the Council Room at Peter Jones', Sloane Square, Dr. J. Ramsbottom, Keeper of Botany, British Museum (Natural History), will give a talk on edible fungi, illustrated with coloured lantern slides.

A film of medical field work in the Russian Army will be shown at the Royal College of Surgeons of England, Lincoln's Inn Fields, on Friday, Oct. 8, at 4 p.m. Prof. S. Sarkisov will explain the main features of the film, and members of the medical profession are welcome to attend.

A series of lectures on national health has been arranged by the Royal Institute of Public Health and Hygiene, at 26, Portland Place, W., on Wednesdays, Oct. 13 to Nov. 17, at 3.30 p.m. Those wishing to reserve seats should apply to the Secretary at the above address.

The editor of *Transatlantic* satisfactorily answers all the questions that come to mind on seeing an entirely new periodical at a time when paper is severely rationed, and that is high praise from a contemporary. More than that, the first issue promises to achieve its object, which is to help the British public to a better understanding of American affairs and American life, but not by making propaganda. The material is presented objectively, even in the two articles on Mr. Cordell Hull and Senator Ball. Contributions like "What Geography does to America," "America and the Pacific," and "Who Speaks for America?" not to mention the excellent illustrations of "Small Town America," should do much to counter the impression engendered by the cinema that Hollywood is America. *Transatlantic* is an independent journal; it has no subsidy and is subject to no outside controls. Mr. Geoffrey Crowther is the editor, and it will be published each month by Penguin Books, Ltd., 110, St. Martin's Lane, W.C.2, price 1s. We have one complaint, and that is against the appearance of such a monstrosity as "beautician" in the caption on page 30 of the first number; it cannot be excused on the ground that it is copied from the illustration.

Manufacturers of insulin, in consultation with the Diabetic Association, have decided to standardize the colour and style of the packings so that in future type and strength will be uniform irrespective of maker. Steps have also been taken to eliminate unnecessary deterioration in pancreas during transit from cold storage to manufacturing plant. The number of diabetics in this country shows a yearly increase, and is now estimated at 200,000, but they do not all take insulin. The Ministry of Supply states that adequate supplies of insulin have been ensured both for the home market and for liberated countries.

The Ottawa Correspondent of the *Times* reports that the Dominion Government has approved expenditure for establishing plants and equipment in Montreal and Toronto for the production of penicillin. The appropriation just made will cover the cost of creating the industry and that of the production of the first 26,000,000,000 units of penicillin for use by the Canadian armed Forces. The new industry, employing 250 men and women, will come into operation next February.

Dr. Elliott Proctor Joslin, the eminent authority on diabetes, has been awarded the Distinguished Service Medal of the American Medical Association.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Orders for copies of the Journal and subscriptions should be sent to the Secretary.

TELEPHONE No.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES—EDITOR, *Attilage Westcent*, London; SECRETARY, *Medisera Westcent*, London.

B.M.A. SCOTTISH OFFICE: 7, Drumshugh Gardens, Edinburgh.

ANY QUESTIONS?

Bismuth for Threadworms

Q.—Treatment of oxyuriasis by bismuth meal would appear to be the best course, since the bismuth, by finding its way into every saccule and crevice of the intestine, is able to reach the immature forms in the duodenal mucosa; whereas other remedies, like gentian violet, only exert their effect in the caecum. But there is great variation in the dosage recommended. One authority suggests giving 1 to 1½ oz. bismuth to a child of 5, and 2 oz. to older children; the meal to be repeated once a week for 3 or 4 weeks. At the other extreme I find a dose of 20 gr. i.d.s. recommended for adults. Now what is the optimum dose? How many doses are needed for a cure? And, in the case of the larger "meals," how are they best administered?

A.—Infestation with threadworms may be treated with bismuth oxycarbonate 120 gr. stirred up in water. A second dose is taken three hours later and a purge—e.g. calomel—is given at night. The process is repeated the next day. The dose for children from 7 to 15 years is approximately three-quarters of the above. For children under 7 it is half the adult quantity. Strict accuracy in the dosage of bismuth given by mouth is quite unnecessary because the drug is not absorbed. Diphenan or phenothiazine treatment is much more efficacious, though with the latter drug the danger of toxic effects is considerable.

Tremors: Diagnosis before Treatment

Q.—What is the diagnosis, prognosis, and treatment in the case of a man aged 69 years who has intention tremors and fasciculations of his arms and hands. He has none in repose, no rigidity, festinant gait, or mask facies, is able to exercise freely, and his mentality is normal. The symptoms were at first more in the left than right arm and hand, but have gradually in the course of years become so bad that he cannot now raise a cup to his lips steadily and has trouble in shaving with a safety razor. Any excitement makes matters much worse, and he feels trembling all over. He has taken phenobarbitone on occasions, but does not think it gave him much help.

A.—It is quite impossible to make a diagnosis here, for it would depend upon observation of the nature of the abnormal movements and the elicitation of physical signs of abnormality in the central nervous system, which must certainly be present. Most involuntary movements are made worse by excitement and eased by repose, and many of the conditions which give rise to involuntary movements late in life are progressive, so that it would be foolish even to hazard a diagnosis. The differential diagnosis would include arteriosclerotic Parkinsonism, cerebellar atrophy, olivo-fronto-cerebellar degeneration, and many of the degenerative processes which affect the basal ganglia. This is the kind of case where an expert diagnosis is essential before prognosis and treatment are discussed. I suggest a second opinion.

Frigitidy

Q.—A married woman aged 31 is complaining of loss of sexual desire and coldness towards any form of sexual intercourse. Her periods are normal. She has one child aged 2 years and is happily married. Stilboestrol seems to have no effect. In the male I have treated this sort of case with testosterone propionate and with success, but I should like advice regarding treatment in the female.

A.—The condition is probably psychological, and might respond to psychotherapy. Testosterone therapy in the female tends to stimulate libido by increasing the size and sensitivity of the clitoris, but large doses over a long period produce hirsutism. Incidentally, though testosterone is useful in the male suffering from organic hypogonadism, it is of no value for psychological impotence.

Noises in the Ear

Q.—What is the physiological explanation of the sound occasionally heard in the middle ear resembling a distant steam whistle? It is observed mostly in healthy persons while resting awake, or reading, or bed at night.

A.—It is not clear what is meant by "heard in the middle ear." The middle ear is a mechanism for collection, conduction, and transmission. The perceptive apparatus is in the internal ear, and noises originating therein either from some vascular disturbance or other lesion is generally of high pitch, sometimes corresponding to a lack of fork double vibrations. Tinnitus from middle ear lesions is generally more humming in character and is often compared to sound produced when a shell is held to the ear. The sound described, if entotic, originates in the internal ear.

Pruritus Ani

Q.—It is my impression that pruritus ani has increased in frequency lately. I have now five cases under my care. Palliative treatment, e.g., application of paraffin ointment—give intermittent relief. I should be grateful for a summary of practical measures likely to be helpful, and especially for an opinion as to the value of ray treatment. Though one case has a considerably enlarged prostate, it is certain I have been ruled out and none shows glycosuria. All are in middle age, and in all the occupation is sedentary.

A.—The patient should cleanse the anus after defaecation with wet and then dry cotton-wool, or, if there is much eczema, with cotton-wool and liquid paraffin or other bland oil—not with paper. He should then apply zinc cream with the addition of either benzocaine 2%, 1 g. pure carb. 12%, ol. menth. pip. 1%, phenol 1 g. 2%, or paroxytol 0.2%. Some prefer a dusting powder such as zinc and zinc oxide, equal parts. The cream may be applied also at night and whenever required. Benzocaine acts as an irritant to a few patients but is usually helpful. X-ray treatment, 100 r weekly (80 to 100 kV, unfiltered) for 2 to 6 times, with 8 as a maximum, is extremely useful. The intervals between doses may be increased to 2 or 3 weeks towards the end of the course. Painting the perianal skin with thorium X, 1,500 electrostatic units in 1 c.cm. varnish, is a useful measure when x rays are not available. Thorium X must be used on the day and approximately at the time for which it is ordered. The painting may be repeated every 2 or 3 weeks as required. Injections of procaine are sometimes useful, but the technique of injection is important and the injections must be placed alongside the anal canal as well as under the perianal skin. If good anaesthesia is produced it may interfere for a time with perfect sphincter control. Phenobarbitone $\frac{1}{2}$ to 1 gr. at bedtime is often useful.

Vitamin C Deficiency in Peptic Ulcer

Q.—Is there any evidence of a vitamin C deficiency in peptic ulceration? Should ascorbic acid be administered to those patients on a strict peptic ulcer dietary, or is this inclined to stimulate the gastric secretion?

A.—Vitamin C deficiency has been detected in a number of patients with peptic ulceration, particularly if they are on a strict diet. The peptic ulcer patient is denied fruit and coarse green vegetables, which are excellent sources of vitamin C, and milk, eggs, shops, bread, and fish contain very little vitamin C. For example, 2 pints of boiled or pasteurized milk will supply only from 5 to 12 mg. of vitamin C daily (minimal requirements 30 mg.). Platt (*Lancet*, 1936, 2, 366) describes four cases of scurvy resulting from strict adherence to special diets. The patients suffered from haematuria, purpuric rashes, epistaxis, and bleeding gums, all of which cleared up after administering vitamin C. In view of the importance of vitamin C in wound healing, and possibly for the integrity of the capillaries, patients with an active peptic ulcer, haemoptysis, and melæna of gastric origin should be given additional vitamin C to assist the healing process—e.g., 500 to 700 mg. daily—until there is a sharp rise in the urinary excretion of vitamin C, and then a maintenance dose of 50 mg. t.d.s. Vitamin C (ascorbic acid) can be administered with safety to patients on a strict peptic ulcer diet, as it does not stimulate gastric secretion in the doses given. It may be given powdered with the milk feeds. The milk serves to dilute the acid and has an excellent buffering action.

Treatment of Neurosyphilis

Q.—I have been treating for the past year a case of neurosyphilis, but with no result. I have been using a preparation of bismuth tryparasamide and am anxious to find out if there are any better preparations.

A.—It is not stated what is the stage or type of neurosyphilis, whether symptomatic or asymptomatic, or what are the changes in the cerebrospinal fluid. An early case of meningovascular neurosyphilis usually reacts well to trivalent arsenicals and bismuth as given for primary or secondary somatic syphilis; on the other hand,

in parenchymatous neurosyphilis tryparasamide and bismuth should be given a thorough trial. Assuming that this has been done, and the patient has active symptoms which are getting worse, and that there are marked changes in the cerebrospinal fluid, "artificial fever" seems to be clearly indicated. For this there are two main choices: (1) the use of one of the various fever cabinets; (2) induced malaria. In view of the difficulty of obtaining the use of a cabinet in this country at the present time the latter is recommended. At least 12 paroxysms should be provoked, and this should be followed by further chemotherapy with tryparasamide and bismuth. The danger of the treatment should be explained to the patient, who should be carefully examined as to his fitness to stand so drastic a procedure. The treatment would of course have to be carried out in hospital and by an expert; application for the necessary material for inoculating malaria should be made to the Ministry of Health.

LETTERS, NOTES, ETC.

Treatment of Lid and Corneal Burns

Dr. W. L. PEACOCK (Slough) writes: For nearly two years I have been treating these burns by placing 3 to 5 gr. of ordinary sulph. anilamide powder directly into the conjunctival sac. The effect in 24 hours on a neglected burn with chemotic conjunctiva and infiltrated cornea is miraculous. I plaster any external lid burns with more of the powder with the flat of a scalpel and apply a plain gauze pad and shell. The treatment is applied daily. There is no pain and only passing and slight discomfort. More healing takes place in a night than in a week of hot bathing, though I use this in conjunction. I think symblepharon is often prevented by this treatment.

Intermittent Claudication

Dr. JAMES MENNELL (London, N.W.1) writes: I wonder if the answer to the question about intermittent claudication (Aug. 21, p. 254) need have been "A large number of these cases are not true claudication at all, but a pseudo variety from which unless marked arterio-sclerosis is present, as in the patient mentioned on the next page under the heading "Painful Legs in Elderly Diabetic." The pseudo variety is often due to loss of elasticity in the structures of the calf, and, if so, by raising the heels—and it often requires a 24-in. elevation—the ambit is increased very materially and pain and discomfort decreased to a negligible degree.

Treatment of Schizophrenia

Dr. HENRY ROBINSON writes: Substantially my experience confirms the reply given to the questioner ("Any Questions?" *Journal*, Aug. 7, p. 189) quite naturally puzzled over the treatment of schizophrenia. The absurd and exaggerated claims made by medical writers in the lay press (and even at times in the medical press) regarding the high rate of "cure" of this disease under electric convulsion treatment have been responsible for much misapprehension among the public as well as among doctors. The facts are that no form of convulsion therapy has any lasting effect: in very early cases it sometimes produces temporary improvement in behaviour (e.g., intentional urination and defaecation into clothing and bed may cease) and it is fairly common for appetite to improve for a time—both electric and cardiazol shocks can do this; but the benefit practically never lasts. In very rare cases a prolonged intermission happens; but as this can anyhow be expected in a small proportion of early cases, it is very doubtful how far the treatment is the cause of it. Narcosis is never of any value and should not be advised for schizophrenia, though it has, of course, a distinct place in the treatment of some other psychoses, as has also convulsion therapy.

The Compressed Curriculum

At the time of going to press with the review of the arrangements for the new session at medical schools (Sept. 4, p. 307) particulars from Westminster Hospital and King's College were not available to us. We are informed that Westminster Hospital Medical School has been able to provide increased clinical facilities at Westminster Hospital by opening more beds for general medicine and surgery and by re-establishing the maternity and paediatric units. In addition the maternity unit at Ripley is in full working order, and at Staines instruction is given in medicine, surgery, and pathology. King's College has returned to London, and pre-clinical and clinical students are able to meet once again and the clubs and societies of the Students' Union are showing great activity.

A Difficult Skin Case

Dr. E. A. MOORE writes with reference to the question and answer published under this heading on Sept. 4 (p. 317): I should advise a trial of azochloramine. It has cleared up my own foot trouble.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 2 1943

A PROSPECT IN THERAPEUTICS*

BY

Sir HENRY DALE, G.B.E., M.D., P.R.S.

One of the clear impressions left by my student days in hospital, at the beginning of the present century, is that of surprise and disappointment at the lack of conviction, and even of interest, which our teachers showed in medicinal treatment, in contrast to the care and enthusiasm which they devoted to diagnosis. I suppose that before I entered the wards I had assumed, with the world at large, that a correct diagnosis would regularly enable an appropriate and effective remedy to be applied. It was disappointing to discover that this was so rarely the result, and that treatment would so often be prescribed with no better hope than to make the patient easier by alleviation of his symptoms, leaving Nature to deal, if possible, with the cause of the trouble. It is clearer to me in retrospect than it was at the time that there were very few remedies then which were even expected to deal with the causes of disease; for knowledge of those causes was itself a new thing, though it was beginning to come in a flood from the fresh outburst of experimental medicine in the last quarter of the nineteenth century. I think, indeed, that the period which I thus recall probably represented about the low-water mark of interest and confidence in the remedial value of drugs. Some of the established remedies for symptoms were clearly invaluable for their own purposes—digitalis, for example, morphine, cocaine, the bromides, and the general anaesthetics. The same was true of the use of salicylates in acute rheumatism, though it was not clear whether this dealt with the symptoms only or with the cause of the disease; nor can it be so even now until the cause of acute rheumatism is established beyond doubt. There were, indeed, a few drugs even then in use of which we can say, in the light of present knowledge, that their remedial value was due to action on the infective causes of the diseases in which they were used—cinchona and quinine for malaria, ipecacuanha (though not yet emetine) for dysentery, mercury and the iodides for syphilis. But at that time the knowledge of the malaria parasites was almost a novelty, the dysenteries were imperfectly differentiated, and the discovery of the spirochaete of syphilis was still in the future. The use of these remedies, like that of so many others, was then still based on the tradition of past centuries.

Emergence of Remedies of New Types

Out of the experimental researches which were bringing to light the causes of disease, and thus weakening the credit of drugs which could do no more than modify or alleviate symptoms, there were emerging, on the other hand, remedies of new types—not drugs unnatural to the body, but natural principles which would directly repair its deficiencies, or would supplement and reinforce its protective responses to infections.

One brilliant example was already available of each of these two types of natural medication. These were the treatment of myxoedema and cretinism with thyroid gland substance, and the treatment of diphtheria with the specific antitoxin. Here, beyond doubt, were remedies dealing directly with causes; and it was very clear that the physician ordered these with a confidence in their efficacy that contrasted strongly with the vague hope of indirectly helping the curative action of Nature, on which so much of the older therapeutics seemed to depend. It was in this direction only, in the provision of such natural remedies for deficiencies and infections, that a prospect seemed then to be opening for a new therapeutics dealing with causes; and researches in a range of the sciences allied to medicine have indeed gone far beyond any prospect then visible, in providing the wealth of hormones, vitamins, and immunological remedies which are now available. These alone would have effected a therapeutic revolution; we have only to recall the treatment of diabetes without insulin, of pernicious anaemia without liver extract, of rickets without vitamin D, or, for those whose memories extend so far, of diphtheria without antitoxin, to recognize its magnitude. At the beginning of the century it might well have seemed, on the other hand, that the prospect of advance open to the older therapeutics, which used drugs and chemicals unnatural to the body, and to a pharmacology then concentrated on attempts to analyse the effects of these, would be limited to the discovery of new and perhaps better remedies for the alleviation of symptoms. This, indeed, has been achieved, and with an almost embarrassing profusion. But the prospect was not to be thus limited. Even before this century began, the idea of a new type of therapeutic enterprise, aiming by deliberate experiment at the discovery of new artificial remedies which would deal directly with the causes of infection, had already begun to germinate. The results of this undertaking, as we can see them to-day, figure at least as prominently as the discovery of the natural remedies in the tremendous change, since the beginning of the century, in the very objective as well as in the achievements of medicinal treatment. I invite you to consider with me, in brief review, the steps leading to the present position, and the prospect now visible of a more regular and ordered advance in this quest for new and specific remedies for infections, called "Chemotherapy" by Paul Ehrlich, the man of genius who first undertook it and led the way to its first achievements.

As long ago as 1891, just when antitoxins were being newly discovered, Ehrlich had already seen that some of the parasitic causes of infection then coming to knowledge in such an imposing sequence did not evoke any rapid or effective reaction of immunity. He himself was also then engaged in experiments on antitoxins and antigens, and for another decade he was to lead the world in researches which gave to these their practical applications; but he had seen that along those lines there was nothing in view for the treatment of malaria, for example. The use of quinine had provided one of the few historic examples of a remedy which was dealing with the parasitic cause of an infection long before this was known. But, as Ehrlich was apt to complain, although the parasites causing malaria were now well recognized, pharmacology could still offer only data about the action of quinine on frogs'

* The Frederick Price Lecture delivered to the Royal College of Physicians, Edinburgh, on July 2, 1943.

muscle or on the mammalian nervous system, and nothing really relevant to its practical value in banishing the malarial parasites from the patient's blood. He embarked on a direct attempt to find a remedy for malarial infections better than quinine. He had been one of the first to use the aniline dyes in medical research, and had made extensive studies of the selective staining action of methylene blue. Since this dye stained the malarial parasites, and was not very poisonous for the higher animals, he was led to try it as a substitute for quinine. He obtained no more than a hint of success; methylene blue was certainly not better than quinine; but in that early observation was the germ of the method of research which he was later to call Chemotherapy. It is of interest, further, to note that when at length, many years after Ehrlich's death, the experimental use of malaria-like infections of birds led to the discovery of artificial remedies for human malaria itself, the structural analogy of methylene blue rather than that of quinine provided the point of departure for trials which led to success.

Dyes and Analogous Substances

When his studies on toxins and antitoxins were drawing to a close Ehrlich returned to this search for artificial remedies which would thus act directly on the causes of infection. The researches of Laveran and Mesnil had by this time brought to notice much more suitable conditions for such experimental work, in the use of trypanosomes which, unlike the parasites of human malaria, could be transmitted and retransmitted in indefinite series to small animals, such as rats and mice. Here were large actively motile protozoa, readily visible in a drop of blood under a moderate power of the microscope. It was easy to watch the effect on them of substances to be tested for curative action, to see whether the trypanosomes were stained by these if they were dyes, whether, in any case, their motility was abolished or impaired, and whether a treatment caused them to disappear from the peripheral blood of an infected animal. Early in these studies Ehrlich and the Japanese bacteriologist Shiga, who was then working with him, found a benzidine dye, which they called trypan red, that would

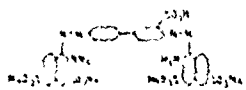


FIG. 1.—Trypan red

stain the trypanosomes with which they were working, and would banish these from the blood of mice heavily infected with them and bring to an end an infection which, if untreated, was progressive and uniformly fatal. This, the first experimental success of the new method of approach to therapeutics, has a personal interest for me in that it was just coming to completion when I myself was privileged to enter Ehrlich's Institute in Frankfurt for a short period, in 1903. I do not think that anybody, except perhaps Ehrlich himself, foresaw at that time what the future might hold of development from this small beginning.

Trypan red had not itself a real success in practical therapeutics; neither in man nor in large domestic animals would it deal with natural trypanosome infections as it had dealt with the very acute artificial infections of mice and rats. It did provide, however, the starting-point for a series which reached the peak of its achievement, so far, in the production, many years after Ehrlich's death but under the inspiration of his former pupil Hermann Roehl, of the complex substance known first as "Bayer 205," and later as "germanin," "antrypol," and "suramin," the last being the unprotected name adopted for general use by the *British Pharmacopoeia*.

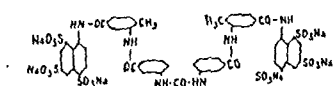


FIG. 2.—Bayer 205 (germanin, suramin, etc.).

This is a colourless substance, but in structure and substantive properties resembles the dyes, and is a remedy of real value. After trypan red, French workers had produced other dyes with remedial actions on infections with trypanosomes—trypan blue and afridol violet; and the latter, though not a practical success

in itself, contained already the central urea-linkage which characterized the structure of the later Bayer 205 (suramin).

The line of research which started with the benzidine dye trypan red, had thus led to one clear practical success; it had made a contribution of much wider importance to the future of this newer kind of therapeutics in the knowledge which it had afforded incidentally concerning the mode of action of some of these artificial remedies for infection Ehrlich had, as was usual with him, picturesque concepts of the mode of action of these curative substances. He thought of them as magic bullets, flying unerringly to the object and avoiding anything else in their path. Their specific affinity must at least be strong, he maintained, for the infective parasite, and weak or wanting for the cells of the infected subject—they must be maximally parasitotropic and minimally organotropic; and he attributed this selective affinity to possession by the protoplasm of the parasite, and the absence from or paucity in the body cells, of "chemoreceptor" groups with which the curative substance would specifically combine. The action of an effective chemotherapeutic remedy, when fixed, he had thought of as a direct and rapid killing of parasites, in a dose still harmless to the cells of the host. It has become, in fact, very doubtful whether the action of a successful chemotherapeutic agent conforms to this simple type. When Ehrlich and his co-workers watched the action, trypanosomes swimming in diluted blood, of a dye which rapidly cured mice of an infection by the same species of trypanosomes, the effect observed was not of this directly lethal type. The organisms were seen to be stained by the dye, their motility was unaffected, and the period of their survival under the artificial conditions was not perceptibly reduced. When these stained and apparently still vigorous trypanosomes were injected into a normally susceptible mouse no infection followed. Ehrlich interpreted this observation as showing that the dye, while leaving the contractile activity of trypanosomes unimpaired, had stopped their power of multiplication, so that when they were injected into the mouse they died without reproducing themselves, and no infection was established. At the time when it was first put forward might well have been regarded as an explanation of opportunist type, improvised to meet an observed anomaly. With trypanosomes it could not be put to the test of a critical experiment, since there is no method even yet available for inducing these parasites to multiply in artificial culture. Nevertheless subsequent evidence obtained with organisms of other types has abundantly confirmed this speculative idea. There can now be no doubt, I think, that a large proportion of chemotherapeutic cures are, in fact, produced in this way: that the infection is brought to an end by stopping the further multiplication of the parasites, rather than by killing them outright; and it will be convenient to mention at this point one of the observations in which this mode of action is directly demonstrated.

During the last war it was found by Dobell and myself that the visible action of emetine on the vitality of *Entamoeba histolytica*, during the limited period of its survival in a saline suspension after removal from the infected bowel, was remarkably weak. To immobilize and visibly to kill the amoebae under these conditions a concentration of emetine was required many times greater than any which the human body would tolerate. By contrast, a derivative of emetine—demethoemetine—which was much more toxic for the amoebae in suspension and much less toxic for man, was found by Dr. Carmichael Lowe to be devoid of curative action in cases of amoebic dysentery which yielded normally to emetine. It was clear that observation on surviving amoebae, made under such conditions, gave no measure at all of the therapeutic action of the substances tested. One of the possibilities which we considered was that the curative action of emetine might be due not to such outright killing of the amoebae, but to suppression only of their growth and reproduction. It must be admitted that this had not seemed to us then to be very likely, but when Dobell and Laidlaw later devised a really good method for maintaining *Entamoeba histolytica* in artificial cultures it became possible for them to test a number of substances directly for their power to stop the multiplication of the amoebae. It was then revealed that emetine and its lower homologue, cephaeline, had a pre-eminent activity

his kind, corresponding to their unique value, among alkaloids of that series, in curing amoebic dysentery; while, by contrast, he derivatives, like demethoxyemetine, which had appeared to have a more potent immediate action on the vitality of individual amoebae but had failed to cure the infection in man, failed altogether to stop the growth of cultures when applied in the high dilutions at which emetine was still effective.

Arsenical Compounds

Another important line of chemotherapeutic research had started in 1905 with the observation by Thomas and Breinl, in Liverpool, that an organic derivative of arsenic acid, which had been marketed under the trade name "atoxyl," had a significant curative action on trypanosome infections in small rodents. Ehrlich then discovered, with Berthelm, in 1907, the true structure of atoxyl, as *p*-aminophenyl-arsonic acid:

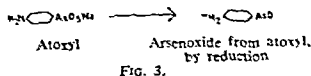


FIG. 3.

With Roehl he added, in 1909, the very important observation that atoxyl itself had little visible effect on trypanosomes outside the body, but that the arsenoxide produced from it by reduction, in which the pentavalent arsenic was reduced to the trivalent arsenous form, was rapidly lethal for them in high dilutions. Following these clues, and widening the biological scope of the quest to include pathogenic spirochaetes as well as trypanosomes, he ultimately arrived with his Japanese co-worker, Hata, at the earliest major triumph of what was then (1910) still the new research method of chemotherapy, in the discovery of salvarsan (arsphenamine), with its revolutionary effect on the treatment of syphilis and other spirochaetal infections.

My concern, however, is not with the now familiar record of this practical therapeutic achievement but rather with what could be learned from the actions of atoxyl, salvarsan, and related substances, such as the later tryparsamide, as to the nature of the chemotherapeutic process. Salvarsan, an arsenobenzene derivative, has its arsenic in the trivalent form, but in a stage of reduction beyond that of the arsenoxide. Ehrlich's co-workers tested its directly lethal action on spirochaetes, using the soluble derivative neosalvarsan, which can be applied in a solution of neutral reaction, and found that here again the motility and visible signs of vitality of the organisms were unimpaired, though again they failed to produce infection if they were injected into a susceptible animal after they had been so treated. We might suppose, as Ehrlich had suggested in the case of trypanosomes treated with dyes, that the action of salvarsan had been to deprive the spirochaetes of the power of reproducing themselves, without directly and immediately destroying all their vital properties.

We have seen, however, that reduction of the pentavalent arsenical group of atoxyl to the trivalent condition, producing the corresponding arsenoxide, made it immediately and intensely lethal for trypanosomes; and the same is true of the most important of these pentavalent arsenicals, the later-introduced tryparsamide. Now if the arseno-compound salvarsan is partially oxidized, so as to produce two molecules of the corresponding arsenoxide, the same appearance of an immediate

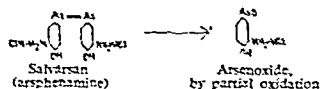


FIG. 4.

intense toxicity for trypanosomes or spirochaetes is observed. For salvarsan (arsphenamine), therefore, as for the pentavalent arsenicals, there was a likelihood that the curative action observed after injection into a man or an animal suffering from a trypanosomal or spirochaetal infection was due, not to the substance as injected, but to a much more active arsenoxide produced from it by a relatively slow process of partial oxidation or reduction, as the case might be. And this possibility was directly supported by experiments carried out by Voegelin and his co-workers, demonstrating that the

relatively slow effects of either the arsenic acids or the arseno-derivatives, in causing the disappearance of the parasites from the blood, began after a definite interval, which was not present before the onset of the much more rapid action which the corresponding arsenoxides produced in much smaller doses. So that we have available two quite different explanations of the apparent lack of activity, outside the body, of arsenical derivatives which are so effective against the same parasites *in vivo*: on the one hand, the therapeutic process may, as in other cases, be due to the suppression of the reproduction of the parasites, rather than to the immediate destruction of all their vital activities; and, on the other hand, these arsenicals probably act after conversion, by contact with the body tissues, into the directly active form, by partial reduction or partial oxidation, as the case may be.

These considerations may naturally raise the question why, if the action is in any case due to the arsenoxides, these should not be directly administered, rather than the substances from which the body will produce them slowly and after an initial delay. Ehrlich, be it noted, had the arsenoxide corresponding to salvarsan in his hands before he had salvarsan itself, which he produced from it by reduction. Why did he introduce this additional step in production of the remedy, and impose on the body, apparently, the task of reversing it? The answer, I think, is to be found in the fact that the arsenoxide is not only much more potent in its action on the parasites but also, and to an equal extent, more poisonous for the tissues of the mammalian or other infected host. It can therefore only be given in a small dose at one injection; and, though the effect of this against the parasites is immediate and powerful, the concentration of the arsenoxide in the body fluids falls so rapidly from this low, tolerable concentration to a level below that at which it is effective, that the action is as evanescent as it is powerful. Even if only a few parasites have survived this brief action, these can rapidly renew their multiplication and re-establish the infection when the impediment has been removed. And there comes thus to our notice another factor in an effective chemotherapeutic action, which has not always, I suspect, received sufficient attention—namely, the need for a sufficiently prolonged and continuous action. This need is almost implied in the conception of the process as essentially an arrest of the multiplication of the parasites rather than an immediately lethal action on them. What is required is not the sudden attainment of a concentration sufficient to kill most of the parasites, at the risk of a concomitant injury to the host's tissues, but the long-continued maintenance, of a much lower and safer concentration, just sufficient to suppress the propagation of the parasites, without harming the cells of the host.

It would seem reasonable, then, to attribute the special efficacy of salvarsan not to a special affinity for the parasites associated with the arsenobenzene structure but rather to the physical properties which enable it to form a depot in the tissues, or, perhaps, a film on the surface of the parasites, from which a steady low concentration of the much more toxic but directly active arsenoxide will be produced. Discussing this idea in a review, now some twenty years ago, I further raised the question whether the same result might be obtained by direct injection of the arsenoxide, if means could be devised for administering this by a slow, continuous infusion. Apparently this has now been achieved, and the hydrochloride of this precursor of salvarsan, which Ehrlich so long ago rejected as too immediately toxic, has, in fact, recently come into use in the U.S.A., and even more recently in this country, for intravenous administration by constant drip infusion, or by frequently repeated small injections, under the trade name "mapharsen," or "mapharside."

How the Action of Diamidines was Discovered

Hitherto the process of discovery of new therapeutic agents had been to a large extent empirical, involving the synthetic preparation and testing of a large variety of derivatives of some substance which had itself shown a promising degree of activity against some particular kind of infection. Such new starting-points have themselves, in notable instances, been reached with the help of theories which have had to be discarded. A striking example is provided by researches started

by Prof. v. Jancsó of Szeged, who set out to find substances which would deal with trypanosomes, not by killing them, or even affecting them directly, but by starving them out. So he treated the infected mice with decamethylene-diguanidine, which, under the name "synthalin," had been tried some years ago as a synthetic substitute for insulin. It had not been really successful for that purpose, but v. Jancsó found that it caused the trypanosomes to disappear rapidly from the blood of his mice, and naturally regarded this as confirming his conception of a chemotherapy based on depriving the trypanosomes of glucose by causing a disappearance of that substance from the

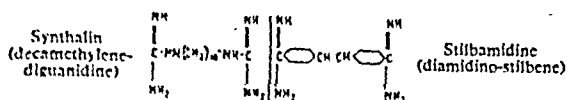


Fig. 5.

blood. Fortunately the late Prof. Warrington Yorke had the curiosity to test the matter for himself, and found that synthalin, applied even in extremely high dilutions, containing as little as 1 part in some 250 millions, would cause the death of trypanosomes in an artificial suspension in which there could be no question of its affecting the supply of glucose. And thus synthalin, the trypanocidal action of which had been discovered in a trial based on a completely erroneous hypothesis, became the starting-point of a new line of investigation, in which my former colleague Dr. Harold King and the late Prof. Warrington Yorke were led to the discovery of still more therapeutically potent and at the same time less toxic diamidines; and their discoveries led, in turn, to further developments in industrial laboratories which have given to therapeutics the substances called stilbamidine, which seems likely to establish itself as the most effective remedy for kala-azar yet produced, curing types of that infection in which antimonial remedies of all kinds had failed; pentamidine, which has proved to be effective in *Babesia* infections of cattle; and propamidine, which appears to be giving promising results even in the local treatment of certain bacterial infections of wounds. It is of interest to note that, as long ago as 1928, Staub and Küng had observed the powerful antiseptic action of synthalin, but regarded it as too toxic to have chemotherapeutic value.

Sulphanilamide and its Derivatives

The fact that v. Jancsó's conception, which led him to test the chemotherapeutic action of synthalin, had so little true relation to what he observed or to the discoveries which followed from the clue thus presented, should not prevent us from recognizing its essential novelty. He seems to have envisaged, for the first time, the possibility of a chemotherapy which eliminates the parasites, not by a direct action on them of any kind, but by depriving them of nutriment—not by a *Blitzkrieg*, or even by a war of attrition, but by a food-blockade. We shall see that this idea is not wholly unrelated to those which offer the most suggestive interpretation for one of the most recently discovered and probably the most widely recognized and celebrated of all chemotherapeutic actions—the action on bacterial infections of sulphanilamide and the growing family of its derivatives. The effect of introducing a sulphonamide ($-\text{SO}_2\text{NH}_2$) grouping into azo-dyes, in increasing the fitness of their staining properties for silk and wool, their "substantive" properties, probably led to the first use of such compounds for therapeutic effects on infections of bacteria, on the lines of Ehrlich's conception that the remedy must be fixed by the parasite to exert its lethal, curative action. For many years there had been no clear and unqualified success in this field of antibacterial chemotherapy, and the few had even become prevalent that chemotherapy was unlikely to provide a successful remedy for diseases due to bacteria, and that we should have to depend on immunology to produce specific remedies for these, in contrast to the success of chemotherapy, and the failure of immunology, in finding remedies for infections due to protozoa and spirochaetes. Even in this period of long delay, however, there were more promising signs for those who could read them. Morgenroth's discovery of the cure of experimental pneumococcus infections in mice by optochin, an artificial homologue of quinine, had led of practical application only because of an unforeseen toxic action of this alkaloid on a proportion of human patients.

Browning, during the last war, had discovered valuable antibacterial properties in acriflavine, an acridine dye which Ehrlich had earlier found to be effective in trypanosome infections of mice and had named trypaflavin in that connexion; but acriflavine and the simpler proflavine, while retaining their value as bactericidal agents for local applications, had not proved suitable for internal chemotherapy in the stricter sense. It appears, indeed, in retrospect, that the curative value of sulphanilamide itself might even have been discovered many years earlier, when Heidelberger and Jacobs, in New York, observed in 1919 that a sulphonamide derivative of the cinchona alkaloid cupreine had a potent antiseptic action on artificial cultures of certain bacteria. There was no practical development, however, of that observation; and the production of the red sulphonamide dye known as prontosil, a sulphonamide of the dye chrysoidine, by the German chemists Klarer and Mietsch in 1932, and Domagk's finding that this had a definite curative action on mice infected by an otherwise fatal injection of streptococci, was an essentially new discovery, and certainly one of the most important yet made in the short history of chemotherapy. Domagk published these observations in 1935, with the promising results of certain clinical trials of prontosil on cases of streptococcal infection in man. In the following year

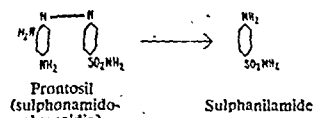


Fig. 6.

Colebrook and Kenny, in London, completed an extended and carefully controlled clinical trial of its value, in a uniform series of cases; and the publication of their results first convinced the world that the discovery of prontosil and its action was an event of first-rate importance for practical therapeutics. Even while this trial was in progress, however, came evidence from Tréfouel, Nitti, and Bovet, in Paris, that sulphanilamide, a reduction cleavage-product of prontosil, was as effective against experimental infections as prontosil itself; and Colebrook and Kenny were thus able to confirm this finding also, and to extend it to the natural streptococcal infections of their series. And then it was found that prontosil undergoes this reduction cleavage in the body, giving rise there to sulphanilamide; it might be doubted, therefore, whether there was any ground for connecting the action of prontosil with its properties as a dye, or for regarding it as anything but a source of sulphanilamide.

When prontosil was tested on artificial cultures of streptococci, or of other organisms susceptible to its action *in vivo*, it had no effect upon them. Sulphanilamide, on the other hand, while it did not sterilize the culture in any reasonable concentration, stopped its growth in dilutions comparable to those which could be produced in the blood of the living patient. Here again, therefore, we have a case in which the substance originally administered was not chemotherapeutically active as such, and in which the direct agent, formed from it by action of the body tissues, produced its effect by stopping the growth of the infecting parasites and not by killing them directly—being in this instance "bacteriostatic" and not directly "disinfectant" in its action. There was not in this case, however, any clear advantage in administering the inactive precursor prontosil and allowing the directly active substance sulphanilamide to be formed from it as required; the cleavage proceeded so rapidly that the administration of the preformed sulphanilamide appeared to be practically equivalent.

From that point onwards the practical applications of sulphanilamide itself, and of the succession of more effective derivatives that have issued from the chemical laboratories of many countries, have been developed and extended with a rapidity new to experience. Week by week the medical press of the world has offered, and still offers, new evidence of the special value of one or another of these derivatives for the treatment of a particular type of infection; and the repute of their value has spread far beyond medical circles. There can be no doubt that their introduction has, in itself, transformed an important branch of curative medicine, or that the use of these substances by various methods, including that of

ical application, has changed the aspect of many of the medical and surgical problems of war. The prospect, however, of an ordered development of this relatively new field must certainly depend on the extent to which a clearer conception can be attained of the nature of the chemotherapeutic process itself; and a new promise of such insight was offered by discoveries which were just becoming ripe for record, when the outbreak of war again brought an interruption of so many researches of the type requiring patient concentration and the long view.

New Links between Chemotherapy and Biochemistry

The conceptions which spring from these recent discoveries, in contrast to those which were earlier dominant, attempt to interpret the action of a drug on an infecting organism in terms of a cellular biochemistry which was not available to the earlier theorists. As long ago as 1923 Voegtlin and his co-workers, in considering the mode of action of the directly active arsenoxides produced in the body from arspenamine and the other specifically curative arsenic derivatives, had pictured the arsenoxide radical as combining with the thiol radicals of glutathione in the protoplasm of the cells affected, and thereby interfering with their respiratory metabolism. In 1940 Fildes independently put forward a closely similar idea

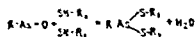


FIG. 7.—Suggested mode of action of an arsenoxide (Voegtlin).

to explain the disinfectant action of mercury salts, suggesting that the mercuric ions combined with and inactivated the free thiol groups of bacterial cells. In both these investigations the suggestion was supported by evidence that reduced glutathione, or other substances offering free thiol radicals, injected into the animal or added to the culture medium, would neutralize the activities of arsenoxides and mercury salts respectively.

It will be noted that in both these cases the suggested action involved the fixation of the toxic agent to particular groups in the protoplasm of the affected cells; and to that extent the suggested thiol groups might be regarded as representing a type of Ehrlich's chemoreceptors in a chemically more definite form. Fildes, however, used his observation, and others which were being made in his laboratory, as the basis of a more general conception of the chemotherapeutic process, as essentially an interference with the action of some group or chemical factor required by the infecting organism for its normal life and growth. In such a generalized form this conception can be made applicable to the action of the sulphonamide derivatives on bacteria. There is no evidence, in this case, for any firm combination of the therapeutic agent with any group or constituent of the cells attacked. The chemoreceptor conception, in that original sense, is here not applicable. A sufficient concentration of the sulphonamide derivative must be maintained in the environment of the susceptible bacterial cells if their growth and multiplication are to be suppressed; and they begin to grow and multiply again as soon as the concentration falls below that minimum. We have then, apparently, not a combination but a labile antagonism to some substance or process needed for growth. Fildes referred to the substance, thus somehow put out of action, as an "essential metabolite," while others have spoken of a "growth factor" or pictured interference with an enzyme action. Further experiments gave a much greater precision to the idea. Stamp showed that a sterile extract of streptococci, added to the culture medium, would neutralize and nullify the bacteriostatic effect of sulphanilamide on the culture. Then Woods, in Fildes's laboratory, found that an extract of yeast would act similarly as an antagonist to the action of sulphanilamide; and, finally, he was able to identify the antagonistic constituent, to a high degree of probability, as *p*-aminobenzoic acid.

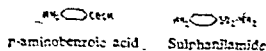


FIG. 8.

A casual inspection shows that the molecular configuration of *p*-aminobenzoic acid has a large measure of community with that of sulphanilamide. Woods accordingly suggests that the

mode of action of sulphanilamide is to pre-occupy some cellular enzyme, the normal function of which involves an action upon *p*-aminobenzoic acid as one of the essential steps in the growth-metabolism of the bacteria.

The hypothesis is attractively suggestive, and there is additional evidence in its favour. Woods found a fairly constant proportion between the concentration of sulphanilamide in a medium and the concentration of *p*-aminobenzoic acid which must be added to neutralize its bacteriostatic effect. He found, further, that the concentration of *p*-aminobenzoic acid required to abolish the effects of different sulphonamide derivatives increased with the bacteriostatic activity; sulphapyridine, for example, required a greater concentration to neutralize its effect, corresponding to its greater activity, than did sulphanilamide itself. It must be admitted, however, that an inspection of their formulae does not yet afford any suggestion why sulphapyridine should be more effective than sulphanilamide in pre-occupying an enzyme normally acting on *p*-aminobenzoic acid. Two other substances have already been detected in certain bacteria which similarly antagonize the action of sulphanilamide, and other attempts to find substances with bacteriostatic effects, attributable to similarities in molecular configuration with other known factors of bacterial growth, such as pantothenic acid, have already given results of promise. Whether these ingenious suggestions are confirmed by further knowledge or prove to be inadequate, I believe that they will have a permanent significance, as having brought the interpretation of a chemotherapeutic process for the first time into clear relation with a cellular metabolism which can be stated in terms of a known chemistry. I think that we are entitled to hope that chemotherapy may soon find that its means of discovery are no longer limited to the almost unselective trial of as many derivatives or analogues as possible of some substance which has shown an unexplained curative effect on a particular infection. A more fundamental knowledge of the conditions and factors required for the multiplication of the infecting organisms may give, at least, an invaluable direction and concentration of aim to the search for remedies. The bacteria, with the ready opportunities they afford for studying in artificial cultures the methods of supplying and interfering with their requirements for growth, or the factors promoting their pathogenicity, offer the most promising field as yet for thus exploiting the resources of biochemistry with a therapeutic aim. But it is tempting to speculate as to what the world might gain, for example, in the present emergency if means were available for growing the malaria parasites at the different stages of their complicated life cycles, under artificial conditions permitting factors requisite for their multiplication to be studied, as a guide to attempts to find other and better remedies than quinine—even better than mepacrine (atebrin), which has already come from one of the most brilliant and determined exploitations of the longer available methods.

Mycogenous Remedies for Infections

Meanwhile, we may note the creation and strengthening of another kind of link between biochemical studies and antibacterial therapeutics. Dubos, in New York, has trained a soil bacillus, by cultural restriction, to give a good yield of peculiar polypeptides having a high toxicity for certain pathogenic bacteria, one of them, gramicidin, being specific in its intense antiseptic action for the Gram-positive cocci. Much more brilliant, however, in its promise for the practical treatment of septicæmic conditions has been the recent progress in the purification and isolation of penicillin. After Fleming's chance observation of the production of this remarkable substance from a colony of *Penicillium notatum*, and his preliminary examination of its properties, and even of its therapeutic possibilities, in 1929, there was a long gap of years. Then, after the discovery of the action of sulphanilamide had shown the possibility of an antibacterial chemotherapy with agents of a low toxicity, the interest in penicillin was revived and rapidly extended by the work of Florey and his colleagues at Oxford. They showed how it could be extracted from a culture filtrate and purified so as to make it safe for intravenous administration; and they produced the first clinical evidence of its remarkable therapeutic possibilities. And now the chemists in Oxford and elsewhere are hot on the trail,

and manufacturing laboratories on both sides of the Atlantic are straining their resources in the attempt to make and to isolate penicillin, and to determine, perhaps, its constitution, or that of the penicillins if there should prove to be more than one active constituent. Then finally, perhaps, may come a synthesis of a penicillin, or of some simpler analogue with similar action. There seems to be a possibility, even a likelihood, that this remedy against infection from a new kind of source may approach, more nearly than any other yet available, to the ideal of toxicity for the infecting organism and complete absence of it for the patient. Here again, however, the effect on the organisms is merely to prevent their multiplication, and not to kill them outright. There can be little doubt that the first pages only are being turned, as yet, of a new and brilliant chapter in the specific treatment of infections.

Conclusion

If we are to form an idea of the prospect which I took as the subject of my lecture, I think that it is important to recognize how much of the change which I have been discussing has taken place in the latter part of the period covered by the survey—in the years, in fact, since the last war came to an end. This is not only true of the progress of chemotherapy, which I have considered in more detail, but equally so of exact knowledge of the natural remedies for deficiencies. At the end of the last war only one hormone, adrenaline, had yet been chemically identified, and no vitamins. It was still possible then to suggest of many of the hormones that their very existence was problematic, and that they, and the vitamins as well, might in any case be so labile and otherwise inaccessible that the methods of chemical isolation and structural study would never be applied to them. Yet before the present war broke out large and rapidly growing series of both hormones and vitamins had been isolated, identified, and made available for practical use by artificial synthesis; and a beginning had even been made of the discovery of simpler synthetic substitutes. In chemotherapy, though salvarsan had appeared before the last war began, there was still, when it ended, no clear prospect of further advance by routes which could be mapped on scientific principles. Wholesale and almost haphazard trial of derivatives or analogues of any substance which had shown a promise of activity seemed to be the only way open; the marvel was, and still is, that so much has been achieved by such methods.

I have tried to trace the progress since that time, from the picturesque but frankly empirical conceptions which Ehrlich had bequeathed, based apparently on his knowledge of selective staining with dyes and of the extreme specificity of immune reactions. From these ideas of magic bullets, bringing down only the parasites by virtue of a mysterious affinity for them alone, we passed to recognition of the effect as stopping their reproduction rather than slaying them outright, turning to their defeat the tide of battle with the host's natural resistance to infection. We came thus to the conception of the effect as usually a mild and persistent one, dependent for that persistence, in some cases, on affinity of the remedy for the host's tissues and not merely for the parasites. And, finally, we reached the conception, just emerging, of the nature of the effect on the reproduction of the parasites, stated in biochemical terms of the interference with known factors of their growth. Look back with me again to medicinal treatment at the opening of this century, and consider that the portentous change between then and now has been so largely an achievement of the years of uneasy armistice between two open wars, at a time when the full impact of research on practical medicine was only just beginning to be felt. Portentous, I said; but what does it portend? Does it not mean that, when we have won freedom from war and from fear of war, the prospect of further achievement in this field of experimental therapeutics, so newly opened to enterprise, is brilliant beyond anything that experience yet enables us to picture? What an opportunity, I am moved to exclaim, for those who still have the years before them in which to use it! I hope that it may fall to the lot of one of them, when the passage of years may justify another review, to tell again in one of these lectures how much of this present prospect has by then become a reality, and to survey yet further possibilities, beyond any that we can now imagine, which will then be coming into view.

CUTANEOUS AND CONJUNCTIVAL DIPHTHERIA

A SERIES OF CASES

BY

H. C. MAURICE WILLIAMS, O.B.E., M.R.C.S., L.R.C.P.
D.P.H.

Medical Officer of Health, and Medical Superintendent, Borouh
Isolation Hospital, Southampton

Medical literature records that cutaneous diphtheria was no uncommon condition in the nineteenth century, but now days it is so rarely recognized in this country that a series of cutaneous and conjunctival infections admitted to the Isolation Hospital, Southampton, seems worth recording. All the cases were admitted from a military hospital. Rolleston (1925) describing a large number of diphtheria admissions, found that approximately 1% showed cutaneous involvement, and Cameron and Muir (1942) reported a series of 66 cases occurring among troops in Palestine.

Details of Cases

During the eight months prior to April, 1943, there were admitted to the Isolation Hospital, Southampton, from a military hospital, 19 patients who had lesions of the skin or eyes from which *C. diphtheriae* had been isolated. Of these 12 were infected with virulent and 4 with avirulent organisms in the remaining 3 cases tests for virulence were not carried out.

The 12 infections with virulent organisms comprised: (i) 1 case of cutaneous diphtheria; (ii) 2 cases of cutaneous and conjunctival diphtheria; (iii) 3 cases of conjunctival diphtheria with associated skin lesions from which *C. diphtheriae* was isolated (one of these was also a faucial carrier); (iv) 1 case of cutaneous and faucial diphtheria. The avirulent infection were 3 cases of cutaneous infection and 1 of conjunctival infection. The 3 cases in which tests for virulence were not carried out were two of cutaneous and faucial infection, and one of conjunctival infection with an associated skin lesion from which diphtheria bacilli were not isolated. All 19 patients were males aged between 21 and 37 years.

Case 1.—Admitted to the military hospital for treatment of seborrhoea of the scalp and forehead and acute purulent conjunctivitis of four days' duration. An eye swab contained diphtheroid organisms. After two weeks the conjunctivitis became more purulent and a few days later bilateral keratitis was present. The eye was again swabbed, and was found to be infected with *C. diphtheriae* (gravis type I). When admitted to the isolation hospital bilateral conjunctivitis and keratitis were present. There were a dense opacity of the right cornea and an ulcer of the left cornea with hypopyon. No membrane was seen. Treatment consisted of 20,000 units of diphtheria antitoxin i.m., and bland irrigations to the eyes. The inflammation settled down in two weeks, leaving cornea with a frosted-glass appearance. Two months later the vision of the right eye was 6/18 and the cornea was moderately scarred, especially in the lower segment. The pupil was active, but posterior synechiae were present. The left cornea was extensively scarred and staphylocomatous in the lower quarter. Vision of left eye was C.F. at 6 in. only.

Case 2.—Admitted to military hospital with impetigo of face and ear. Skin swab reported positive five weeks after admission, but later reported avirulent.

Case 3.—Admitted to the military hospital with dermatitis affecting the "respirator" area. Two weeks later developed a sore throat, a swab from which proved to contain *C. diphtheriae*. A skin swab was also positive. On admission to the isolation hospital the dermatitis cleared up within a fortnight. 10,000 units of antitoxin were given, but later skin swabs showed the presence of diphtheroids only.

Case 4.—Admitted to the military hospital with purpura and pyoderma. A skin swab was reported positive for *C. diphtheriae* shortly before transfer to the isolation hospital, where on admission the patient was found to have an ulcer the size of a five-shilling piece on the outer aspect of the right thigh. The ulcer had a well-marked edge and a grey membranous slough covering its base. 10,000 units of antitoxin were injected, and sulphanilamide powder was applied after the ulcer had been soaked to remove slough. The ulcer healed in about two months.

Case 5.—Admitted to military hospital with impetigo of the face. Three weeks later a skin swab was found to contain virulent *C. diphtheriae* (gravis).

Case 6.—Admitted to military hospital with impetigo of the face and neck of four days' duration. Five days later he developed

conjunctivitis, and the discharge contained *C. diphtheriae*. The virulence of the organism was not determined.

Case 7.—Admitted to the military hospital suffering from impetigo of the chin of fourteen days' duration. Ten days later he developed bilateral purulent conjunctivitis. White membrane was seen on the edge and inside of the lower eyelids two days later. Swabs from eyes and skin showed the presence of *C. diphtheriae* (gravis). The patient was afebrile. At the isolation hospital 60,000 units of antitoxin were given and local treatment was applied to the eyes. Skin and eyes cleared up completely in about four weeks.

Case 8.—This man had impetigo of the face and neck, and two weeks after admission to the military hospital he developed rhinitis. A nasal swab was reported positive for *C. diphtheriae*, but the organisms were avirulent. After transfer to the isolation hospital skin swabs contained virulent *C. diphtheriae* (gravis type I), but throat and nose swabs were negative. The skin condition improved rapidly after the injection of 10,000 units of antitoxin.

Case 9.—Admitted to the military hospital with syphilis barbae. Three weeks later virulent *C. diphtheriae* (gravis type I) were isolated from the skin.

Case 10.—A case of impetigo of the face, neck, and left ear which developed a yellowish-white membrane on the skin behind the left ear one month after admission to the military hospital. A swab from this membrane was found to contain avirulent *C. diphtheriae*. At the isolation hospital only diphtheroids were found in swabs from the skin until one month later, when virulent mitis organisms were reported, presumably due to cross-infection. The skin healed in three weeks.

Case 11.—Admitted to the military hospital with seborrhoea capitis. Three weeks later conjunctivitis developed and virulent *C. diphtheriae* (gravis) were found in the purulent discharge. Swabs taken at the isolation hospital were negative, and the conjunctivitis soon cleared up. 20,000 units of antitoxin were given.

Case 12.—Eleven weeks after admission to the military hospital for treatment of impetigo this patient developed a mild purulent conjunctivitis. The discharge contained avirulent *C. diphtheriae*. At the isolation hospital eye swabs were negative, but throat and nose swabs were positive on two occasions within a week of admission.

Case 13.—Admitted to the military hospital as a case of impetigo, this patient was swabbed and found to have *C. diphtheriae* (gravis) on the skin, but the organism proved to be avirulent.

Case 14.—This man had impetigo of the chin and face three weeks before and a sore throat two days before admission to the military hospital. Throat and skin swabs contained virulent *C. diphtheriae*. The skin persisted positive after the patient had been transferred to the isolation hospital, but swabs from the throat and nose were negative.

Case 15.—This man had impetigo for one month before admission to the military hospital. Five days after admission he complained of sore eyes, and his left eyelid was found to be scabbed. A swab from the eye contained virulent *C. diphtheriae*. At the isolation hospital throat and nose swabs contained virulent organisms of the same type as those found in the eye.

Case 16.—Admitted to the military hospital with syphilis barbae of nine months' duration, this man two months later developed purulent conjunctivitis, and *C. diphtheriae* was found in a swab from the eye. The organism proved to be avirulent.

Case 17.—Five days after admission to the military hospital for treatment of impetigo of the face a blister appeared on one knuckle of this man's right hand. A slough developed, and was found to be infected with virulent *C. diphtheriae*. The infection persisted after transfer of the patient to the isolation hospital, and on two occasions virulent organisms were found in the throat and nose without clinical evidence of infection.

Case 18.—This man had impetigo for three weeks before admission to the military hospital. After two weeks' treatment only slight crusting remained. Following contact with cases which proved to be diphtheritic infections *C. diphtheriae* were found in throat and skin swabs.

Case 19.—After three months' treatment for impetigo in the military hospital a lesion thought to be keloid developed on the neck. A scraping from the skin contained virulent *C. diphtheriae* of gravis type. Swabs at the isolation hospital were all negative, and the skin healed quickly after diphtheria antitoxin had been given.

Commentary

General Features.—No toxæmias could be ascribed to the action of diphtheria bacilli in any of these cases. No paralysis ensued. Membrane was seen in three cases of cutaneous infection (in one of these the diphtheria bacillus isolated was avirulent) and in one conjunctival infection. In all the other cases the lesions had the usual characteristics of the skin condition originally diagnosed. The average length of stay in the military

hospital before transfer to the isolation hospital was four and a half weeks. The average in the latter hospital was six weeks.

Treatment.—In the isolation hospital diphtheria antitoxin was injected intramuscularly in every case. The other treatment was that usually given for the particular cutaneous or conjunctival infection.

Infectivity.—It is of interest to note that in addition to the 19 cases mentioned above there were admitted from the military hospital during the same period 18 other cases of diphtheria, including 7 of the staff. These 18 cases were faucial infections in all but one instance, the latter being a case of rhinitis.

Conclusion.—Recognition of cutaneous diphtheria among patients with a variety of skin infections suggests the need for more frequent bacteriological investigation of such cases.

REFERENCES

- Cameron, J. D. S., and Muir, E. G. (1942). *Lancet*, 2, 720.
Rolleston, J. D. (1925). *Acute Infectious Diseases*, London.

ACUTE ALEUKAEMIC MYELOID LEUKAEMIA

BY

B. L. DELLA VIDA, M.D. Rome

AND

M. C. CONNELL, B.A.

(The Royal Hospital, Wolverhampton)

The occurrence of acute myeloid leukaemia in the aleukaemic phase during adult life is rare enough to make the following cases worth reporting.

Case I

A man 63 years old, a window-cleaner by trade, was admitted to the Royal Hospital on Sept. 13, 1942, with a history of a severe sore throat and difficulty in speaking for the past two weeks. These symptoms became progressively worse, and one week before admission he complained of severe malaise and generalized pains over the body; the temperature was then found to be 103° F. Five days before admission a haemorrhagic rash appeared on the legs and arms; this became purple after 48 hours. On the day of admission he complained of headache, shortness of breath, and stiffness of the neck. During the illness he became increasingly drowsy, but could be roused and was quite rational. He had been on a course of sulphamylamide (1 g. four-hourly) and vitamin C (150 mg. daily). Past and family history revealed no significant facts. Bowels and micturition had been normal; there was no loss of weight.

On admission the patient was very drowsy, but roused easily; temperature 102° F., pulse rate 94, and respiration rate 28 per minute. The legs showed a number of papulo-macular haemorrhagic spots with small yellow vesicular centres and irregular edges, located mainly over the shins; the size varied considerably, the largest being 1 cm. in diameter; there was no fading on pressure. The arms were covered with red indurated nodules larger than those observed on the legs, up to 2.5 cm. in diameter, chiefly localized around the elbow, resembling erythema nodosum and not showing the vesicular centre present in the leg lesions. There were also a few macular spots on the back and abdomen. The limbs presented cogwheel rigidity and the joints were very tender on movement. In spite of the increased respiration rate there was no clinical evidence of abnormalities in the respiratory system. Heart and vessels normal; blood pressure 120/70; spleen and liver not palpable; no glandular enlargement. Pupils and fundi normal; all reflexes normal; tongue and pharynx coated with dried mucus; breath fetid.

On the day after admission the patient developed herpes labialis, which later became haemorrhagic. Though remaining rational he became progressively more drowsy and dyspnoeic; the pulse rate rose to 120 and the respirations to 40 a minute. Death took place on Sept. 17.

The laboratory investigations carried out in the short period of time during which the patient was under observation showed: No abnormalities in the urine except a large amount of urobilin; haemoglobin, 62%; red cells, 3,940,000 per c.mm.; mean diameter of the red cells, 7 μ ; white cells, 2,800 per c.mm.—polymorphs 18%, eosinophils 1%, mononuclear cells 81%. Some of the mononuclear cells were typical lymphocytes, but the great majority were of primitive type: one normoblast was seen while counting 100 white cells; platelets in the films appeared to be very scanty.

At first sight the primitive cells were taken to belong to the lymphatic series; but on account of the presence of azur granules in the more immature forms it was decided to investigate the case more fully by means of sternal puncture and the peroxidase reaction. Sternal puncture, performed on Sept. 15, showed: primitive cells

(haemocytoblasts) 42.5%, myeloblasts 35.5%, promyelocytes 15%, myelocytes 0.5%, polymorphs 1.5%, lymphocytes 1.5%, monocytes 0.5%, basophils 1%, plasma cells 0.5%, normoblasts 1.5%. About 60% of the nucleated cells in the bone-marrow films showed the presence of peroxidase-positive granules. On Sept. 16 the white cells numbered 2,500 per c.mm., of which 85% gave positive peroxidase-stained granules. The differential count showed: haemocytoblasts 10%, myeloblasts 32%, promyelocytes 45%, myelocytes 3%, polymorphs 6%, lymphocytes 4%; two normoblasts were seen while counting 100 white cells.

Post-mortem examination on Sept. 17 revealed complete consolidation of the left lung, a few haemorrhages in the left parietal pleura and into the mesenteric fat, spleen slightly enlarged and soft, and bone marrow brownish pink in colour; no other macroscopic abnormalities. The previously described lesions of the skin of the limbs were still present but had become more purple, and those of the legs had lost the vesiculation in the centre.

Histological sections from the skin lesions showed infiltration of the corium with leucocytic cells surrounded by a zone of haemorrhage. The kidney, liver, and spleen contained a very few scattered foci of leucopoiesis. The lung showed the alveoli filled with fibrinous acellular exudate with little inflammatory reaction.

After the report on this case had been submitted for publication, a second case presenting similar haematological features was seen by one of us (B. L. D. V.).

CASE II

A man 41 years old, who had been complaining of lassitude for two to three months and severe headache for the last fortnight, presented the following blood picture when first seen: haemoglobin, 34%; red cells, 1,640,000 per c.mm.; white cells, 10,200 per c.mm. —haemocytoblasts 16%, myeloblasts 42%, myelocytes 2%, polymorphs 14%, lymphocytes 25%, monocytes 1%. Except for marked pallor nothing abnormal could be detected on general examination: spleen and liver were not palpable, and there was no glandular enlargement. Sternal puncture showed a picture very similar to that of the peripheral blood, possibly through the marrow sample being heavily contaminated with peripheral blood. The primitive immature cells were almost identical with those observed in the previous case, and were correctly diagnosed only by means of the peroxidase stain.

White cell counts during the patient's stay in hospital showed variations between 6,800 and 18,600 per c.mm. He was given a large blood transfusion when his red cells reached the level of about 1,000,000 per c.mm., and was sent home, his general condition being much improved. When last seen his white cells had risen to a level of 50,000 per c.mm. with over 80% of very primitive mononuclear forms.

This case also, although not strictly comparable to the first because of the rise in white cells following the transfusion, when first seen in the aleukaemic phase presented a blood picture hardly distinguishable from that of lymphatic leukaemia without the aid of the peroxidase stain.

CONCLUSION

Both these cases are of interest in showing the "hiatus leukaemicus" of Naegeli, consisting of the presence in the peripheral blood of primitive cells and mature forms with few or no intermediate stages. The acuteness of the leukaemic process coupled with a very low white cell count as found in Case I is an uncommon feature. The bone marrow showed definite and marked leukaemic change, but other organs presented little leukaemic infiltration. The low white cell count may have been due either to the minimal leukaemic involvement throughout the body or to the destruction of the immature circulating cells by the spleen, itself not yet involved in the process.

It is worth noting that in both cases the peroxidase stain was essential for the correct classification of the immature cells, which might at first sight have been thought to belong to the lymphatic order.

We are indebted to Dr. J. H. Sheldon, honorary physician, and Dr. S. C. Dyke, pathologist to the Royal Hospital, Wolverhampton, for permission to publish these cases and for much helpful criticism.

S. M. Feinberg and others (*Ann. intern. Med.*, 1943, 18, 311), recording 8 cases of allergic reaction to injected liver extract, suggest that this type of allergy is not uncommon. Their tests indicated that it is neither a species specificity nor an organ specificity involving the usual protein antigen. They believe that the allergic response is to "a special fraction of an organ (liver) not bound with the ordinary protein fractions but associated with the anti-anaemia fraction."

THE DIETARY FACTOR IN REPRODUCTION AND LACTATION

BY

MARION B. RICHARDS, M.A., D.Sc.
(From the Rowett Research Institute, Aberdeen)

Any investigation into the causes of high infant mortality must take account of nutritional factors. Direct proof of the effect of their influence on human beings is hard to obtain, but means of experiments on small animals, in which environment and diet are strictly controlled, it is possible to obtain valuable information regarding the effects of a deficient diet on breed performance, and the possibilities of remedying the deficiency by means of suitable supplements.

A recent breeding experiment on rats carried out at the Institute has given results which seem to be of considerable practical importance at the present time. This was a long-term experiment in which the females, mated at 100 days of age, after being on their experimental diets from weaning, were carried through three successive matings. The object was to determine the effect on reproduction in rats of supplementing a poor human dietary by additions of inorganic calcium, vitamin B₁, given separately and in conjunction; to test the effect of dried yeast as a source of vitamin B, and other factors; and further to test the influence during the breeding period of an increased milk intake along with these supplements.

The basal diet was that employed in the growth tests on rats recently reported (*Journal*, 1943, 1, 161), and represents an average diet of households spending from 3s. to 7s. per week on food. This diet contains milk equivalent to a weekly intake of 3 pints per person, and from the date of mating each group of rats was subdivided, half the animals, both male and female, receiving thereafter a doubled supply of milk.

Table I gives a brief summary of the results of the breeding test, combining the figures for three matings and rejecting animals which failed to produce three litters within six months. It is our practice to reduce all larger litters to 8 on the day after birth—a fact to be remembered in regard to the number of rats reared per litter.

TABLE I.—Showing Breeding Results for Three Consecutive Matings

Group	Dietary Supplements	Litters Born and Litters of 8 Reared	Aver. No. Born Alive per Litter	Aver. No. Born Dead per Litter	Aver. No. Reared per Litter Born	Aver. Weaning Wt. per Rat (Litters of 8) (g.)	Weights of At First Mating (g.)	At Litter (g.)
IIA ..	—	24/4	6.9	0.8	5.4	33.6	185	2
II ..	Milk	30/14	8.8	0.5	6.3	39.1	186	2
IVA ..	Ca	27/13	8.6	0.3	6.9	35.1	202	2
IV ..	Ca + milk	21/14	9.2	0.5	7.4	40.5	196	2
IA ..	Aneurin	27/15	8.0	1.9	6.2	32.2	186	2
I ..	Aneurin + milk	27/14	8.7	0.4	6.8	38.7	185	2
IIIA ..	Ca + aneurin	33/17	7.9	0.6	6.5	36.5	193	2
III ..	Ca + aneurin + milk	27/18	9.9	0.4	7.1	41.9	186	2
VA ..	Ca + yeast	30/25	9.8	0.6	7.4	40.9	206	2
V ..	Ca + yeast + milk	33/23	9.8	0.8	7.0	45.8	209	3

* After rearing litters of 6 to 8.

Effect of Extra Milk

Comparison of the results for the various pair-groups shows at once the beneficial effects of the milk supplement. It is particularly evident in all groups in the weights of the young at weaning and in the weights of the does after lactation. The milk supplement has increased the average weight of each young rat in litters of 8 by approximately 5 to 5½ g., making an increase of 40 to 44 g. for the litter. At the same time the does, in spite of rearing this greater weight of young, have made a greater increase in their own weights. The milk groups show also in general a higher number of young born alive per litter, and a higher proportion of litters of 8 reared. This is especially marked in the basal group, in which the number of young per litter born alive is raised from 6.9 to 8.8.

addition of milk, and the proportion of litters of 8 reared is raised from 1 in 6 to 7 in 15. In the groups receiving calcium and yeast the diet has already been so much improved by these additions that the further addition of milk shows its effect mainly in the weight of the young at weaning, and in the high weight and excellent condition of the does after lactation.

Additions of Calcium and Aneurin

Addition of calcium alone to the basal ration has had a pronounced effect in increasing the number of live young per litter and in raising the proportion of litters of 8 reared, but these increases are no better than those effected by the simple addition of milk to the basal ration, while the increase in the weaning weight of the young due to the calcium supplement is much less than that effected in any of the pair-groups by addition of milk.

Addition of aneurin alone is of doubtful value. There was a considerable improvement, it is true, in the number of live young per litter and in the proportion of litters of 8 reared; but, on the other hand, the percentage of stillborn was high (18.7), the average weaning weight of the young and the weight of the does after lactation were both less than on the basal ration, and the condition of the does was poor. Keeping in view these harmful effects, it would seem that caution must be exercised in the addition of vitamin B₁ to a poor diet. Such improvements as are effected by the aneurin addition can be more simply attained by a milk supplement, and the group receiving both aneurin and milk was no better than that receiving milk alone.

The addition of calcium as well as aneurin reduced the percentage of stillborn (cf. IA and IIIA), and increased both the weaning weights of the young and the weights of the does after lactation. The gradation seen in the weaning weights in Groups IIA, IVA, and IIIA—33.6, 35.1, and 36.5—is repeated in the corresponding groups with extra milk—39.1, 40.5, and 41.9.

Addition of Calcium and Yeast

Direct comparison of Group VA with Group IIA brings out very clearly the great improvement in the diet brought about by the addition of calcium and yeast. The number of live young per litter is increased from 6.9 to 9.8, the proportion of litters of 8 reared is raised from 1/6 to 5/6, while the average weaning weight per rat in litters of 8 is 7.3 g. more, representing an increase of over 58 g. for the whole litter. The addition of milk to the calcium and yeast group brings this increase per rat up to 12.2 g., making the weaning weight 45.8, which is approximately the average weight of a stock rat at weaning.

The groups receiving calcium and yeast were outstanding throughout the experiment. In their appearance and general performance, especially Group V, they were quite comparable with stock rats.

One of the most noteworthy points in the experiment was the striking difference in the condition of the does after lactation. In Groups IA and IIA some of the does were in such a limp and exhausted condition after rearing their litters that they had to be given a few days' rest before remating—a procedure which was unnecessary in the corresponding groups receiving the extra supply of milk. The differences in the condition of the does may be gauged by the differences in their average weights after rearing litters of 6 to 8 in the third mating. Thus in Group V the average weight of such does is 302 g., as compared with 228 g. and 214 g. in Groups IIA and IA.

The results indicate that the yeast supplement has made good certain deficiencies in the diet not already supplied by the calcium, milk, and aneurin, and that the simultaneous addition of calcium, yeast, and milk has converted a poor diet into one on which the breeding performance is on a par with that of stock rats.

Deaths during the Suckling Period

During these breeding tests it was noted that in a number of cases one or more rats in a litter died, without any apparent cause, within a few days of weaning age. These deaths occurred almost entirely in the groups receiving the unsupplemented basal ration, and in this respect the milk subgroup was no better than that without the extra milk. In Table II are given the number of deaths that occurred among the sucklings at

different periods, ignoring the first 24 hours after birth, when accidental deaths are apt to occur, especially with large litters.

TABLE II.—Deaths during Suckling Periods

Groups	Supplements	No. of Does	No. of Young Born Alive	In Reduced Litters (after 24 Hrs.)	Deaths during Suckling			
					2-6 Days	7-11 Days	12-23 Days	Total
II and IIA	—	18	431	356	20	3	16	39
IV and IVA	Ca	16	425	354	8	3	0	11
I and IJA	Aneurin	18	451	361	7	0	3	10
III and IIIA	Ca + aneurin	20	529	416	9	1	0	10
V and VA	Ca + yeast	21	615	458	4	0	0	4

Although it is not unusual to have deaths occurring in the first few days of the suckling period, it is to be noted that even at this stage they are appreciably fewer in the groups receiving supplements. Deaths in the later stages do not normally occur with healthy animals, and the high number occurring on the basal ration in the latter half of the suckling period is undoubtedly of significance. It will be seen that in the groups receiving Ca alone, Ca with aneurin, or Ca with yeast there was no death at all during this period. Further, in the yeast groups the total number of deaths is very small relatively to the large number of young reared, and there was no death after the first few days.

Conclusion

These records show clearly the importance of the diet in matters concerning breeding performance in animals in controlled environment, and indicate the large part it may possibly play in the problem of infant mortality in human beings. While it is disquieting to reflect that the basal diet used in these experiments is not that of the poorest classes in the community but is representative of the diet of large masses of our population, the fact that it may be radically improved, for experiments on animals, by the addition of such simple supplements as inorganic calcium, milk, and dried yeast gives ground for the hope that it may be similarly improved for purposes of human nutrition. Recent dietary surveys have indeed shown that the diet of pregnant and nursing women of this socio-economic group has been improved during the war by means of the milk priority scheme and by the introduction of national wheatmeal bread. Moreover, despite adverse housing conditions, restricted medical service, and an increase in the number of married women going out to work, the infant mortality rate in Scotland for 1942 fell to 69 per 1,000 live births, a figure equal to that for 1939, which was the lowest recorded up to that date; while in England and Wales the rate for 1942 was the lowest ever recorded. Our experimental results show the possibility of a connexion between these two sets of facts, and indicate how further improvements in the diet may be effected. At the same time they provide useful pointers for the post-war feeding of the starved populations in Europe.

METALLIC INTERNAL FIXATION OF FRACTURES IN AIR-CREW CASES

BY

N. VERE-HODGE, M.B., B.Chir., F.R.C.S.

Squadron Leader, R.A.F.V.R.

Internal fixation of fractures with metal plates and screws has been coming more and more into use for several years, with the result that an ever-increasing number of men are working with metal plates and screws in their limbs. Until recently the metals available showed a slight reaction within the body tissues, though not necessarily enough to interfere with their usefulness. Within the last ten years an alloy—vitallium—has been produced which is inactive in body tissues.

The discovery of vitallium has given further impetus to the use of metal internal splintage of fractures. During the present war a very large number of fractures have occurred

in men of the younger age groups. It is vitally important to the war effort that they should be returned to duty as soon as possible and with the minimum functional disability. It is with this end in view that certain types of fractures are being treated with internal fixation by vitallium plates and screws. In the R.A.F. many air-crew fracture cases have been treated with vitallium plates and screws. After the stage of full rehabilitation has been reached the airman returns to his unit to resume flying. In consequence numerous air-crew members are now regularly flying with large metallic plates and screws retained in their limbs.

The purpose of the present inquiry is to make certain that these men are not a menace to the other members of their air-crew by upsetting the compass readings on account of their "personal" metal.

The Investigation

Vitallium is now most commonly used, when available, owing to its superior properties. However, when not available stainless steel is found to be the next best material. For the purpose of this investigation two sets of these materials were tested: (i) a 14-hole stainless-steel plate 7 in. long and 5 stainless screws $1\frac{1}{2}$ in. long, such as might be used for a fractured femur or a fractured tibia; (ii) a vitallium plate $5\frac{1}{2}$ in. long and 4 vitallium screws $1\frac{1}{2}$ in. long, such as might also be used for a fractured femur or tibia.

The two sets of metal were tested for magnetism in the following way: First, (i) and (ii) were tested for their effect on an aircraft compass: no effect was discernible. Secondly, attempts were made to magnetize each component of (i) and (ii) separately, stroking with a permanent magnet. (i) and (ii)

demagnetized by ordinary methods such as mechanical vibration or striking with a hammer. Although two of the stainless steel screws retained their magnetism for three days to the same extent as the plate, they are likely to lose it in a short time, as the other three screws did. The vitallium plate and screws could not be magnetized by these powerful methods.

To complete these tests several airmen with stainless-steel or vitallium plates and screws in their upper or lower extremities have been tested against an aircraft compass. In all cases there has been no deviation of the compass needle.

Conclusions

These tests show that vitallium plates and screws are entirely safe as regards magnetism when used for treatment of fractures in men who fly aircraft.

Stainless-steel plates and screws are magnetized only with the greatest difficulty, and then tend to lose their magnetism gradually. When handled by the usual surgical method it is extremely unlikely that they would affect an aircraft compass.

As a result of the tests on the magnetic properties of these metals, surgeons should feel quite justified in leaving stainless vitallium or stainless steel in the limbs of their fracture cases and there is no indication for removal of either of these metals before returning the men to full flying duties.

I wish to thank Group Captain J. M. H. Whitworth, D.S. D.F.C., for his help in carrying out the tests which form the basis of this report; also the Director-General of Medical Services R.A.F., for permission to publish this report.

Medical Memoranda

Incidence of Syphilis among Juvenile Defectives

The following is a record of the blood Wassermann reaction of juvenile patients admitted to the Fountain Hospital from the years 1938 to 1942 inclusive. All were mental defectives, most of the lowest grade.

Year	Admissions	Positive W.R.	Average Age yrs. mth.
1938	80	—	4 3
1939	175	2	7 7
1940	98	—	4 6
1941	45	2	4 9
1942	114	—	4 9
Total	512	4	5 6

These results are of interest because of the low incidence (0.78%) of syphilis that they reveal, and they provide evidence on the question of the general incidence of syphilis. Many of these patients have parents with some degree of amentia, and it might be expected that a general increase in syphilis would particularly affect these members of the population and would be reflected in an increase of congenital syphilis in their children. However, the figures indicate that congenital syphilis is not now the important factor in the aetiology of amentia that it formerly was, for it seems that among older mental defectives a positive blood W.R. is much more common than in this group.

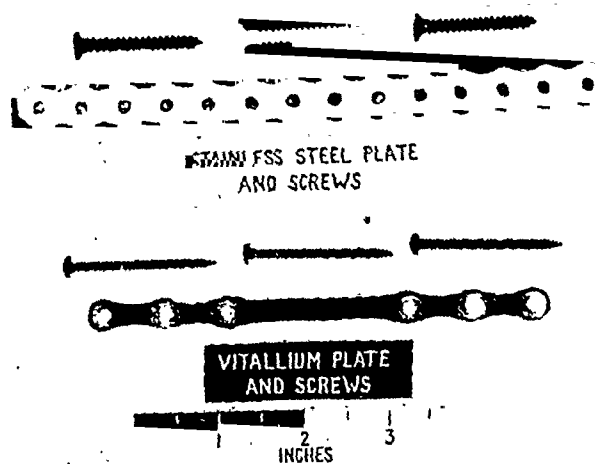
Syphilis would therefore appear to be decreasing among parents of mental defectives, although a possible alternative explanation of the results is that an increasing proportion of mothers may be seeking ante-natal examination and receiving successful treatment if syphilitic.

It is interesting to note that extremely inconsistent results have been obtained by different observers in this work. Penrose (1933) gives a table of findings of positive Wassermann groups of defectives varying from 1.5 to 55%, the highest percentages being in the largest groups. Other authorities regard 10% as a fair average.

J. LLOYD, M.D., M.R.C.P.

REFERENCE

Penrose, L. S. (1933). *Mental Defect*, p. 38, London.



Photograph of vitallium and stainless-steel plates and screws.

were then tested for their effect on an aircraft compass, and again no deviation was discernible. Thirdly, the components of (i) and (ii) were treated by a high-power remagnetizing plant. After this treatment (i) and (ii) were retested for their effect on an aircraft compass. The position adopted in relation to the compass needle was with the nearest end of the component 1 in. distant from and level with the centre of the compass needle, with the ends of the component under test at right angles to the axis of the compass needle. Three days were allowed for natural demagnetization. At the end of three days the results were:

	Compass Deviation*	
(a) Stainless steel plate	+2°	-2°
(b) Stainless steel screws, No. 1	nil	nil
" " " No. 2	+2°	-2°
" " " No. 3	nil	nil
" " " No. 4	nil	nil
" " " No. 5	+2°	-2°
(c) Vitallium plate	nil	nil
(d) Vitallium screws	nil	nil

* Second figure obtained with polarity reversed.

From these tests it is found that the stainless-steel plate, though difficult to magnetize, after being magnetized has an appreciable effect upon a compass, and it cannot be

Reviews

THE INNER EAR

The Inner Ear, including Otoneurology, Otosurgery, and Problems in Modern Warfare. By Joseph Fischer, M.D., and Louis E. Wolfson, M.D. (Pp. 421; illustrated. 55.75.) New York: Grune and Stratton Inc.

The authors of this book have tried to draw a somewhat artificial distinction between the different parts of the ear—a distinction which is no doubt clear enough in the mind of the anatomist, but less so in the mind of the physiologist and the pathologist, and not recognized at all by Nature herself. The authors consider that the middle ear is sufficiently described in the ordinary textbooks of otology, but not so the inner ear, and they have attempted to supply the deficiency. The book, however, has resulted in a series of essays, each attributed to one or other of the authors, upon particular topics, and necessarily overlaps both by some repetition and by extension into subjects which are interesting and important but not strictly relevant. On the other hand, either some matters are omitted or their discussion is suddenly cut short, on the ground that the inner ear is not directly concerned. Thus there is a valuable chapter on chemotherapy, but this relates far more to general considerations, and to the middle ear in particular, than to the inner ear. In discussing intracranial complications the situation becomes still more illogical, for abscesses of the cerebrum, being usually secondary to disease of the middle ear, are dismissed briefly, while abscesses of the cerebellum, being more often a complication of infection in the labyrinth, receive much fuller treatment.

In view of the handicap which the authors imposed upon themselves, but have not strictly respected, they have produced a useful but from its very nature an ephemeral piece of literature, which would have been more readable had it been written better. It may perhaps be thought pedantic to insist too strongly upon this aspect of a medical book; but, apart from the pleasure and ease it gives to the reader, good writing demands clarity both of thought and of expression. The lack of these is only too evident and too frequent, the chapter on meningitis being a conspicuous example, and that on Ménière's syndrome another. The authors, however, have made a gallant attempt at the exposition of an extraordinarily difficult subject and display a profound knowledge of the pathological changes that occur in the inner ear. The publishers have given generous support, but the numerous illustrations of morbid anatomy, chosen from the authors' own collection, mostly convey very little to the reader, whereas stereoscopic illustrations would have provided that additional help to the eyes necessary for the appreciation of labyrinthine pathology. In the matter of references, which are a cardinal part of such a book, we find much to criticize, for numerous authors are mentioned in the text without acknowledgment in the references, and, on the other hand, authors appear in the references without mention in the text. Although the defects of the book are evident enough, it does reveal a comprehensive effort to describe from many points of view a subject in which great advances have been made in recent years, in which many problems are still unsolved, and many observations still appear contradictory. The authors at least have not been overwhelmed by the difficulty of their task and the many uncertainties that confronted them.

HUMAN INHERITANCE

The Treasury of Human Inheritance. Edited by R. A. Fisher, F.R.S. Volume IV. Nervous Diseases and Muscular Dystrophies. Part IV: On Pseudohypertrophic and Allied Types of Progressive Muscular Dystrophy. By Julia Bell, M.A., F.R.C.P., With Pedigree Plates XXXIII to XLIV: Figs. 567 to 539. (Pp. 58. 12s. 6d.) Cambridge: The University Press, 1943.

In previous reviews and annotations we have found much to praise in this beautifully produced series of monographs. The present example does not fall short of its predecessors either in the manner in which an extensive literature is summarized and presented or in the interest of Miss Bell's brief introductory remarks. She shows that it is possible to group cases of progressive muscular dystrophy into three fairly distinct clinical types. This differentiation, though imperfect, does show a marked correspondence with the mode of transmission, which,

as is so often the case in the human subject, may be different in different families. Recessive cases are commonest, though the more striking sex-linked pedigrees have been more frequently recorded. Dominant cases are very rare, though direct transmission, when it does occur, may lead to very large numbers of affected persons in a single family group, and in a civilized community the pedigree will almost certainly appear in the medical literature. Thus three genes at least may produce the condition, but the number is greater than this, for the correlations between members of a single family group as regards both age at onset and age at death are very high. This is an indication that even within the limits of one mode of transmission different genes are at work in different families.

Once again the value of the monograph is enhanced by the inclusion of a series of consecutive cases, 113 in number, seen at the National Hospital, Queen Square. The pedigrees are, as always, clearly presented, there is a full bibliography with an index, and extensive summaries are given of the original clinical notes. This publication is a welcome addition to the *Treasury* which Prof. Karl Pearson inaugurated and which has been continued on the same generous scale by Prof. R. A. Fisher, his successor in the editorship.

"ROSE AND CARLESS"

Rose and Carless Manual of Surgery for Students and Practitioners. By Cecil P. G. Wakeley, F.R.C.S., and John B. Hunter, M.Chir., F.R.C.S. Volumes 1 and 2. Seventeenth edition. (Pp. 1,766; illustrated. 35s.) London: Baillière, Tindall and Cox, 1943.

A book that reaches its seventeenth edition in forty-five years must have many virtues to account for its prolonged success. This is certainly true of *Rose and Carless's Manual of Surgery*, so well known to all the older generation of doctors. When it first appeared in 1898, and for many years afterwards, its popularity was unchallenged; within recent years, however, some formidable rivals have come to dispute its supremacy. There can be no doubt that the modern student is inclined to look with less favour upon "Rose and Carless" than did his father. The reviewer was reared on this surgical vademecum and has in consequence always felt a great and friendly interest in its fortunes. For that reason the present edition has been examined critically to see if any change in its character could be detected to account for the loss of popularity among students and teachers, for at its inception this book was a considerable contribution to the education and teaching of the aspirant to surgery. It will be seen, therefore, that any criticism is inspired by friendliness and proffered in a spirit of helpfulness.

The most significant change to be noted is a tendency to loss of balance, uncommon conditions being sometimes given two or three pages of description and fully illustrated, when really important, but perhaps somewhat less interesting, diseases are inadequately dealt with. In a short review it is not possible to give more than two examples of this. Under the heading "Varicose Veins" surgical treatment is dismissed by the statement, "Excision of varicose veins, although practised extensively in the past, has been entirely replaced by injection treatment"; no mention is made of the Trendelenburg operation, which, combined with injection, is now probably one of the most frequently performed and successful methods of dealing with many cases. Yet we have an account and a good illustration of intramedullary tractotomy in the treatment of trigeminal neuralgia, while pineal tumours occupy some five pages of text and illustrations. Again, there is no mention of excision as a method of treatment of fractured patella, though this has now been used long enough to prove its value in suitable cases, but Dandy's method of treating hydrocephalus by cauterization of the choroidal plexus through a ventriculoscope is thought worthy of both description and illustration. In extenuation the authors explain in the preface that the revision for this edition has not been as thorough as they would have liked owing to wartime conditions.

The illustrations are good: it is pleasing to see that some of the originals have stood the test of time and still appear. The general production also is good, and the continued use of surfaced paper has enabled the illustrations, both coloured and plain, including the radiographs, to reproduce well. Despite the criticisms, therefore, we still think that "Rose and Carless" is a very fine representative of the English student's textbook of surgery; he is unlikely to go far wrong in following its precepts.

Notes on Books

Minor Surgery, the latest of the handbook series to be published by the Practitioner (Byre and Spottiswoode, 16s.), is launched with an introduction from Sir Alfred Webb-Johnson, P.R.C.S., whose quotation from the Prayer Book on the honourable estate of matrimony applies equally well to the high standard which should be expected in performing even the so-called minor procedures of surgery. The book is composed of revised articles which originally appeared month by month in our contemporary. Fractures are not dealt with, as these comprise a separate and recently published book which has already been noticed in this column. As samples of the eighteen chapters which comprise the present book we may mention: varicose veins, ulcers, and phlebitis, written by Reginald Payne; gynaecology, by Douglas Macleod; wounds, by C. P. G.

Wakeley; anaesthesia and analgesia, by C. Langton Hewer; the eye, by J. S. Arkle; the ear, by C. P. Wilson; sprains, by G. J. Girdlestone; and minor surgery of the genito-urinary system, by Clifford Morson. Bursae and ganglia make an interesting article by H. Jackson Burrows, and skin infections by Prof. Rendle Short should be most helpful to the general practitioner, whom most the authors apparently have in mind and who is likely to benefit most from the book. Wartime economy has required the illustrations to be grouped together into a series of plates, but these are well produced, and the whole forms a very convenient little book in which practitioners will find well-written and brief accounts of modern methods of dealing with those apparently trivial, but really by no means trivial, maladies which may cause him to enter the realms of surgery, even if it is not to proceed very therein.

Preparations and Appliances

RESUSCITATION AND OXYGEN-THERAPY APPARATUS FOR INFANTS

Dr. RODERICK H. O'HANLON, late auxiliary medical officer, Rotunda Hospital, writes:

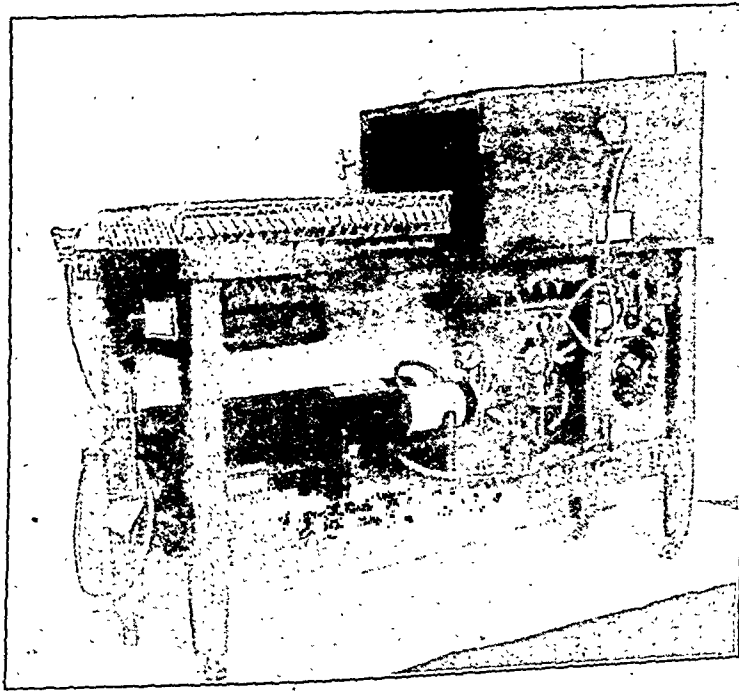
The accompanying photograph illustrates the combined resuscitation and oxygen-therapy apparatus for infants now in service at the Rotunda Hospital, Dublin. Experience at the Rotunda has demonstrated the great value of oxygen in the treatment of all cases of critical asphyxia in the newly born, but the apparatus employed heretofore was unable to cope with the many practical problems which arise in the administration of oxygen to the infant (as distinguished from the adult), and particularly in the treatment of the premature infant. During my term of office as auxiliary medical officer at the Rotunda and under the direction of the Master, Dr. Ninian Falkiner, I made a study of these problems and designed the apparatus with a view to overcoming them.

The resuscitation unit is an adaptation of the method devised originally by Dame Louise Mellroy, and employs a predetermined mixture of oxygen and carbon dioxide in association with a mechanical frequency indicator to assist the operator in regulating application to conform with the normal breathing rate. The cylinder containing the mixture is fitted with an automatic reducing valve, and therefrom a baffled flexible pipe line leads to a pistol-grip trigger-valve and to a baby's anaesthetic mask. After a thorough clearance of the respiratory passages by means of a mucus catheter the infant is placed in the cradle with suitable coverings to promote warmth. The mask is then applied and removed at intervals signified by the frequency indicator. Pressure on the trigger-valve permits a volume of gas to escape just sufficient to produce a very slight positive pressure on the alveoli. Release of the trigger cuts off the flow of gases, and the flexibility of this arrangement, together with an intelligent use of the frequency device, makes it easy for an unpractised operator to develop a sound technique. While resuscitation is in progress the oxygen chamber may be warmed up and, when breathing has been initiated and established, the cradle containing the infant may be slid directly into the gas chamber without delay. The baby is then subjected to oxygen therapy under proper conditions of humidity and temperature for as long a period as may be desired.

The oxygen-therapy unit, which is an open circuit, comprises two oxygen cylinders fitted with reducing valves and cross-coupled in such a way that when one cylinder becomes empty the other cuts in automatically and starts to deliver gas. The empty cylinder may then be removed and a full one substituted in a few minutes,

so that, if necessary, operation of the apparatus may be continued over a long period. The gas flowing from the cylinder goes to a standard adjustable flowmeter and thence to a standard humidifier to the injector, or, if desired in very hot weather, via a specially insulated ice-box to the injector. The gas enters the chamber downwards, so that the cold oxygen admitted lies on the bottom and warm air is displaced upwards and passes out—thus keeping loss of oxygen at a minimum during flooding. The temperature and humidity of the gas delivered to the chamber may be varied within limits. The chamber is flooded with known quantities of oxygen, depending on what initial concentration of oxygen is required. Thereafter it is maintained or varied by regulation of the injector. The gas chamber is constructed of hard wood with plate-glass top, a metal floor, and a gastight door. When the door is opened downwards the wire cradle containing the infant

bedding may be slid in or out of the gas chamber on rollers run on slides. Wet- and dry-bulb thermometers are fitted in a way as to be readable from outside the chamber. Immediately beneath the metal of the gas chamber explosion-proof electric heaters are fitted with a metal reflector backed with asbestos and hard wood. The heaters are thermally controlled by thermostats, one of which is variable between 67° F. and 77° F. and the other is a stand-by safety device to prevent the temperature of the chamber from rising above 80° F. The thermostats may be "locked" for higher temperatures if desired in an emergency and the treatment of the mature infant the



temperature inside the chamber may be raised to the desired level very quickly, since the heaters are wired in such a way as to cut both or one or half of one to be put into operation by a convenient switch. Once the desired temperature has been obtained the power is cut down, and thereafter the temperature is maintained by the thermostat. Provision has been made for the important detail of intervenous drips to the infant during treatment in the gas chamber. The entire gas chamber may be tilted from the horizontal by turning a handle. Since the cradle is reversible the body of the infant may be inclined in either direction.

I have to acknowledge the kind co-operation of Mr. L. of the Electricity Supply Board in regard to the heating arrangements, to thank Mr. Aitken and Mr. Swan of Medical Gases, for the run of their laboratory for experiments, and to express gratitude to Mr. Peter McCarthy of Messrs. O'Dea, Ltd., who undertook and completed the construction of the apparatus during the drastic limitation of all supplies resulting from the war.

THE PUBLIC CORPORATION

BY

D. HARCOURT KITCHIN

Barrister-at-Law

[Concluded from p. 400]

The Assistance Board

The Assistance Board was set up under the Unemployment Assistance Act, 1934, to supplement the unemployment insurance scheme by assisting those who had exhausted their benefits whose benefits were not enough, and so making it unnecessary for them to apply for public assistance. In 1940 the Board was renamed the "Assistance Board" and given the extra work of granting supplementary pensions to old age pensioners and elderly widows. Soon afterwards, by emergency legislation—the Prevention and Relief of Distress Rules—it was authorized to relieve any distress directly resulting from the war. As agent for the Ministry of Pensions it pays injury allowances to civilians injured by enemy action, and investigates applications made to the War Services Grants Committee. On behalf of the Board of Trade it makes grants to replace clothing and essential furniture destroyed in air raids.

The Board is composed of five members with long experience of social work, appointed by the Crown. It was originally responsible only to the Minister of Labour, but now no longer than eight Ministers may speak for it in Parliament on the various aspects of its work. Its grants are paid through the labour exchanges or the post office. Dissatisfied applicants may appeal to a tribunal composed of an independent chairman, a representative of the Board (not in practice a member of it), and a representative of labour. The Board receives indispensable help from local advisory committees and from other statutory and voluntary social services. Its local administration is done by its paid staff, who are directly responsible to the central office.

The Assistance Board is perhaps more significant to the question of a medical services corporation than is any of the other bodies that have been described. It has no commercial functions but purely philanthropic ones. It has a nation-wide organization, and is financed entirely from the Treasury. It renders services that concern the intimate personal lives of very many subjects. Unfortunately, this particular Board, which contains a far closer precedent for the projected corporation than do any of the others, has aroused in its time far greater public hostility than have all the rest put together. It was created as an experimental means of dealing with a very urgent social problem—a large and growing number of persons unemployed through no fault of their own whose needs hampered the existing insurance scheme. It was the centre of very strong and widespread political emotion. Immediately it started its work it aroused a storm of fury among the unemployed and their political champions by paying many allowances smaller than the "transitional payments" which the applicants had previously been receiving. The Government could certainly have been defeated if it had not at once suspended the operation of the Board by the famous "Standstill," provisionally a decision of the Board to pay allowances at transitional rates until a new set of regulations could be adopted.

The "Standstill" lasted for two years, and since its ending with the introduction of a more generous scale of allowances and better regulations the Board has gradually won for itself general public confidence and approval. The crisis at its birth was not due to its form or constitution, but to the insufficiency of the funds which the Government and Treasury were willing to allot to it, to the inevitable inexperience of its staff in the use of discretion, and to the clumsiness of the Government in trying to shelter behind it. The Board has never had anything like the independence of the commercial public corporations, but none the less has learnt to do its work so well that it has been given heavy and important additional duties—not a bad test of the merits of an organization or an individual. The projected medical corporation might be similarly hampered by inadequacy of funds, and its work might be similarly bound up with politics. Its advocates would have to be prepared for close co-operation with the Minister and detailed scrutiny in Parliament at least for some years to come.

Agriculture in Wartime

It is profoundly interesting that one of the most striking examples of an independent body administering a public service should have arisen out of the needs of the country at war. At a time when the whole tendency of national administration is towards bureaucracy, the Minister of Agriculture and Fisheries, using his almost dictatorial powers, has created one of the freest and most democratic of all our public institutions. The County War Agricultural Executive Committees have succeeded in producing from the fields of the country an amount of food which no one before the war thought possible, and in immensely lightening our shipping problems.

The Defence Regulations made in Council under the Emergency Powers Act give the Minister of Agriculture (along with other Ministers) a very free hand in matters within his province. Under those powers Sir Reginald Dorman-Smith, himself a farmer, appointed in each administrative county a War Executive Committee, taking as a nucleus the members and staff of the existing agricultural committee of the county council and adding persons whose position in the agriculture of the county would make them valuable members. The executive committee works through a varying number of district committees appointed by itself from the principal farmers and landowners of the districts. (These are not the rural districts, but have been marked out *ad hoc*.) The district committees' functions are advisory only; the county executive committee has wide powers delegated to it by the Minister under various statutory Orders, but in general it is bound to obtain the approval of the Minister for very drastic actions, such as dispossession. Through its large and expert staff it is informed of every detail of the county's agriculture practically from day to day; it decides what shall be done with every acre of land and how many animals each farmer shall keep. It controls the issue of feeding stuffs and seed, subsidizes ploughing, sends machines and men to work where they are needed, and cultivates with its own labour pool large tracts of reclaimed land. It regulates its own procedure, chiefly on county council lines. Its legal status is obscure, for it was created by an executive, not a legislative, act of the Minister, and is probably not in law a corporation at all. It has no common seal, but acquires land and property by requisition as an agent of the Crown under the Minister's emergency powers. A person wishing to sue it issues his writ against the chairman and the executive officer. Nevertheless, it is so like a corporation in its structure and behaviour that it may fairly be treated as one.

Each executive committee is in constant touch with the Ministry through its officials, and is guided in policy, and no doubt also in many details of execution, by confidential circulars. It constantly instructs and receives reports from its district committees. It appoints subcommittees to deal with different departments of its work, and their members spend much time on the land in contact with the farmers and labourers. Its patience, gentleness, and practical wisdom give the farmers that security and confidence which men must have if they are to create and produce. These wholly admirable qualities have flowered in a situation full of urgent compulsive necessity. Whether they could be evoked after the war, when they will appear to be merely desirable and not indispensable, is part of the fundamental question of our times.

Space does not permit more than the bare mention of the other little-known but useful public corporations like the Land Drainage Boards, the Coal Commission, the legal owner of the coal mines (appointed by the Board of Trade), the Herring Industry Board, the various agricultural marketing boards, and the War Damage Commission (appointed by the Treasury).

A Health Services Board

These are the chief examples of the public corporations at present working in this country. Obviously this form of administrative body can be successfully applied to a great variety of public services: to any service, in fact, which is vital to the public good and which implies a monopoly. None of the services rendered by the existing corporations, however, has much in common with the projected national medical service. Many new problems would be encountered in an attempt to organize a public corporation which should provide the comprehensive medical benefits of a scheme on the lines

of Sir William Beveridge's report, and in many ways such a body would differ from any of its predecessors.

The committee which met to design it would have first to settle its size and composition. None of the conditions which Gordon lays down as appropriate for a representative, as opposed to an appointed, board is here fulfilled. Geographically the work would extend over the whole country, the interests which could justly claim representation are innumerable, and the many million "consumers" of the services would be neither organized nor organizable. The board would have, then, to be appointed, but the drafting committee might well ask themselves whether the appointments should not follow a broad plan of representation—e.g., that a stated number of members must be medical, or that one or more members must be lawyers, or actuaries, or labour leaders, or women. The next question is who is to appoint these members. The committee would have to consider whether they could trust a Minister, or whether they would put responsibility for selection on the Crown—i.e., the Prime Minister after consultation with the members of the Government concerned—or on some special appointing body of eminent persons like that which fills vacancies in the L.P.T.B. They would then have to lay down the number of the board, remembering that it must be large enough for the necessary committee work and not so large as to cease to be a team.

Next, would the chairman be a whole-time salaried executive—a managing director as in the C.E.B.—or would he and the board direct policy through the executive officer? What would be the tenure of office and the salaries of the board? Should members of Parliament be excluded, and would it be necessary to forbid the retention by members of the board of any financial interest in the medical services? Who would have the right to remove a member from office for misconduct, incapacity, or absence? Would a retiring member be eligible for reappointment?

Then, what would be the manner of the board's responsibility to Parliament? In discussions on the formation of the board with representatives of the Government, it might perhaps be urged that the board should be entitled by statute to an actuarially just proportion of the contributions to the general insurance fund, and that this proportion should not be subject in lean times to the arbitrary raids by the Treasury which have so handicapped the B.B.C., or to the arbitrary reductions in allocated revenue which have so handicapped the Forestry Commission. It would thus not be dependent upon an arbitrary allocation, or subject to continuing control by either the Treasury or any other Department over the way it used its revenue, still less over its day-to-day administration. Granted that the board disposed of adequate financial, economic, and actuarial skill, experience, and advice, it should be left a free hand to make the best possible use of its resources. To tie its hands by detailed rules and restrictions would cripple its initiative, creative force, and effectiveness. It must not be made a subdepartment. So long as it showed each year that it had made reasonable use of the funds entrusted to it, the Treasury and the Ministry should leave it alone.

Who would be responsible to Parliament for the general policy of the board and speak there in its name? The Forestry Commission is represented by one of its number who is a member of Parliament and who interprets to it the will of the House. This arrangement, as the Commissioners' report says, "is well enough"; but the work of the Forestry Commission does not touch the individual intimate personal lives of millions of people, and cannot arouse the perpetual interest and controversy which would certainly surround the work of the projected board. The drafting committee might think it probable that neither Parliament nor public opinion would be satisfied with such a tenuous link as a parliamentary commissioner between the House and a board spending millions of pounds and caring in countless ways for the health of millions of citizens, but would demand that this vital service be supervised by a Minister of State. The Minister would presumably be the Minister of Health. Even if the Government saw fit to place, as has been suggested, the whole of the country's health services under the projected board, the Minister of Health would probably continue to exist in order to fulfil the many functions outside the health services proper which he now discharges. The suggestion has been made that the board should

be placed under the supervision of the Privy Council, but the drafting committee would have to take account of a number of serious objections to this proposal. The Minister of Health certainly appears at first sight to be the most suitable constitutional guardian and spokesman of the new board.

The drafting committee would also have to plan the ramifications of the board's structure: to decide whether the board's activities should be directed from London or executed by its officers throughout the country, or whether regional satellite boards should be created, dependent on a central board for policy but autonomous in its execution. The committee might also make provision for the setting up of advisory committees. The board's powers to contract with persons and bodies for services and for the sale or lease of property would have to be precisely laid down, and arbitral and appellate mechanism devised. Its financial powers and duties would have to be set out in detail. The right of employees to superannuation might also demand provision. When the drafting committee had settled these questions it produced a sound scheme and a draft Bill, the harder work of persuading the Government and Parliament to adopt it would begin.

Nova et Vetera

BRITISH AND AMERICAN MEDICINE YESTERDAY

A writer in the *Edinburgh Review* in 1820 concluded an article on American medical statistics with a series of rhetorical questions: "In the four quarters of the globe, who reads an American book? or goes to an American play? or looks at an American picture or statue? What does the world owe to American Physicians or Surgeons?" These questions reflected the European attitude towards the United States merely during the beginning of the last century but well into this. To these slights Nathaniel Chapman answered in a characteristically American manner. In that same year he brought out a journal which was the precursor of the present *American Journal of the Medical Sciences*, and the title-page of the journal carried as its motto the quotation from the *Edinburgh Review*. No love was lost between the two English-speaking branches of medicine. Chapman in 1824 pointed out the "impertinence and presumption" of English critics, who claimed that a particular technique for the treatment of strictures of the urethra, said to have been first described by an English surgeon, was in fact described by an American the year before. Contemporary English medical literature provided Chapman with full opportunities for questioning English gentility. Thomas Wakley, founder of the *Lancet*, used choice descriptions such as "bats," "owls," "cocksparrows," and "ninny hammers" for prominent British practitioners, and these appellations were matter of fact to American critics were unlikely to ignore. Minor events, such as the exploits of John St. John Long, brilliant charlatan who imposed on pre-Victorian society, were further grist to the American mill. Streaks of sanity did however, occasionally break through on both sides. Wakley in 1831, could praise the *American Journal of the Medical Sciences* as being "in most respects superior to the great majority of European works of the same description"; an American editor in 1846 could make the common-sense observation, "Where is the American who would not be pleased, and gratified, to see his works republished, with or without annotations, in Great Britain?" None the less, the dreary game of fault-finding went on throughout the century, charges of ignorance and incompetence being apparently one of the main items of trade between the two countries. One of the earliest signs that this unedifying utility was subsiding was a comment in the *British Medical Journal* in 1883. "Medical journalism in America shows great activity," it says, and speaks approvingly of a series of American publications. In retrospect the Anglo-American hostility, as reflected in medical literature, has little to justify itself, and the conflict has ceased to have a meaning to the present generation, for the conditions from which it arose have long ago disappeared.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY OCTOBER 2 1943

CORPORATION OR DEPARTMENT?

he "corporate body" advocated last week by the Representative Body as the most promising means of building and administering a national medical service is, strangely enough, no novelty. Nearly a hundred years ago, in 1848, this country had a General Board of Health. That board was not responsible to any Minister. The principle of Ministerial responsibility, now recognized as vital if the people are to retain any control over a highly specialized executive, was then fighting for existence against the principle of "expert" or "judicial" administration. The Board of Health, the Poor Law Commission, and other similar independent bodies were experiments in applying the second of these two theories to the problems of a new age. The Poor Law Commission perished in 1847 because, as Walter Bagehot¹ said, the House of Commons would not let it alone. In 1858 the Board of Health followed it, having lost its independence four years earlier. Those were the years of the *Communes* and Garibaldi: peoples all over Europe were revolting against autocratic rule, and modern democracy was being painfully born. Ministerial responsibility, however, has the defects of its qualities. Because a Minister knows that the most trivial act of any of his subordinates may lead to a question or derogatory speech in Parliament, he and his Department tend to aim at forestalling complaint rather than at achieving progress. Decisions are referred through an unwieldy hierarchical pyramid to the man at the top instead of being taken by the officer face to face with the problem. Overmuch labour is devoted to records and statistics. These and other drawbacks—not insuperable, nor peculiar to government by responsible Ministers—partly explain the survival of the public board as an administrative service, and its recent access of scope and importance. As a contributor has shown in these columns during the past fortnight, the variety of public services run by more or less autonomous boards is very large. It includes port facilities, the supply of water to London and electricity to the whole country, broadcasting, forestry, London passenger transport, wartime agriculture, produce marketing, land drainage, the relief of distress, and the control of the medical, dental, and nursing professions.

Superficially the autonomous board might seem to owe its success to its freedom from Parliamentary and Ministerial control over its day-to-day functions. Yet a closer examination shows this appearance to be a fallacy. The reverse is the fact: a board's immunity from Parliamentary criticism and Ministerial interference is earned by its success in satisfying the public. The Port of London Authority, the Metropolitan Water Board, and the London Passenger Transport Board have never excited much criticism in Parliament, just because their functions and their discharge of these have never aroused acute political controversy. When the British Broadcasting Corporation's charter was renewed seven years ago Parliament freely criticized its doings in detail. The Unemployment Assistance Board was set up in 1934 by a Government which was misguided enough to think it could escape the odium

of reducing dole payments by giving the task to a theoretically independent body. This Board instantly became the centre of such a furious political storm that the Government escaped extinction only by suspending for two years its discretion to pay allowances lower than the transitional rate of benefit. The whole Parliamentary history of public boards from the earliest times shows that if Parliament really wants to scrutinize and criticize them Parliament will succeed in doing so just as if they were Government Departments run by a Minister. No statutory provision will avail to insulate them from substantial Parliamentary pressure, or from the consequent Ministerial pressure, without injuring the Government of the day. The utmost their autonomous status does is to enable a Minister to resist questions and criticisms which touch administrative detail and are not backed by any considerable public feeling. This protection from "sniping" is admittedly important to the quasi-commercial boards. Nevertheless, a board administering a comprehensive national health service under the Beveridge plan—a service which would affect nearly every citizen in the most intimate details of his life—would inevitably attract continuous and intense interest, criticism, controversy, and without doubt also hostility. Because most of its beneficiaries would belong to the poorer classes and many to trade unions, much of this feeling would be political in expression if not in origin. Unless the appropriate Minister were prepared to take the fullest responsibility for it, stand wide open to criticism of all kinds, and entertain willingly and positively every suggestion for improvement, the board would not live a month.

If, then, it is a fallacy to suppose that a corporate body created for this purpose could shelter behind its "independent" status, its creation would have to be justified on the ground that it would be likely to build and run a comprehensive national medical service more satisfactorily than a Government Department could. On this question there are two powerful and conflicting bodies of opinion. The advocates of the corporate body point to the shortcomings of Government Departments: their lack of initiative, their arrogance, dilatoriness, ignorance of real life, complacency, excessive centralization, parsimony; and other faults from which Departments suffer. They point on the other hand to the boldness, originality, and efficiency with which the London Passenger Transport Board, the B.B.C., and the War Agricultural Executive Committees have overcome difficulties, and the flexibility with which they tackle new problems and meet new demands. The advocates of the Government Department condemn the tendency of the independent and irremovable board to ignore or resist popular feeling, and its insulation from Parliamentary influence over such matters as its treatment of staff; they brand its relative autonomy as hostile to democratic principles, as the thin end of a Fascist wedge. They declare, moreover, that whatever may be said for "public" quasi-commercial services such as electrical supply and broadcasting, "social" services paid for by the State cannot be fittingly handed over to an autonomous board but should be run by a Department under a Minister fully responsible to Parliament. They assert that a Minister is able under the present departmental system to find sufficiently talented and creative persons within the Civil Service, and that he may also bring anyone he pleases into the Department *ad hoc* from outside; he may if he likes form them into a board, as in the Defence Departments or the Post Office, or he may adopt some other means of co-ordinating their work. These partisans of departmental enterprise point to the efficiency of the Post Office, the Stationery Office, the Children's Branch of the Home Office, and many other Departments.

¹ *The English Constitution*, p. 189.

The truth is probably that in running a social service far more depends upon the personal qualities of the administrators and far less upon the mechanism than is usually admitted. But the fact remains that on two occasions the Representative Body has voted in favour of a public corporation as the most satisfactory form for the central administration of medical and health services. The debate on this last week brought forth the highest level of utterance of the whole meeting. Those present listened with sustained interest. It is clear that behind the approval of a public corporation lay a deep-felt distrust of an unreformed Ministry of Health. And this was itself based on a still deeper distrust of the influence of party politics on the development of medicine, and also of the effect on it of the civil service mind and procedure. It seems clear that, until this question of central administration is settled to the satisfaction of the medical profession, no Government will be able to count upon the whole-hearted co-operation of the doctors of this country in working out plans for the development of a comprehensive medical service.

RESEARCH IN OPHTHALMOLOGY

As announced in the *Journal* of Sept. 18 the University of Oxford has launched an appeal for funds for the foundation of a Department for Ophthalmic Research after the war. This is an event of real significance deserving of every support. There is no doubt that during the last generation British ophthalmology has by no means distinguished itself in academic fields, however good it may have been in the practical side of the work of its exponents. Previously—indeed, ever since the study of the diseases of the eye had become a specialized branch of medicine in the middle of last century—the names of British pioneers were always of international repute; to-day these are the exception and the output of fundamental research has been scanty. It may be that to some extent this is explained by the fact that ophthalmology offers a ready economic opportunity to the newly qualified medical man because of the ease with which he can slip into the routine work of well-paid refraction clinics and thus can side-step junior hospital appointments with their facilities for research. But to a greater extent it is probably due to the undoubted dearth of the stimulus and opportunity for ophthalmic research in this country to-day.

There is no question that the problems awaiting solution in ophthalmology are many—in physiology, pathology, and therapeutics. The present appeal for funds for Oxford is addressed in the first place particularly to the industrial community, and it is obvious that the returns ophthalmology can give to industry are large. Most obvious is research on the prevention and cure of industrial diseases, particularly in such trades as chemicals and engineering. Mining is another example: thus recent research on the action of certain sulphonamides on infections of the cornea resulted in the hypopyon ulcer so commonly met with in miners becoming an out-patient incident instead of an extremely serious disease usually leading to much permanent incapacity; while improved lighting has reduced to a very considerable extent the drain on the mining industry caused by heavy compensation for miners' nystagmus. Less obvious are the very great problems of factory illumination, a factor in industrial efficiency much neglected in this country, the value of which can be appreciated only by those who have experienced the increased output and improved morale which follow the application of scientific principles to the problem. Commercial aviation, moreover, involves a multitude of problems yet unsolved. It is interesting that a very large amount of yet unpublished research has been going on continuously since the war

began to meet demands of the most varied nature in the three Services; few of these problems are not met in some degree in times of peace, but hitherto it has required the urgent stimulus of war to excite active response to hasten their solution. The financial returns of such policy carried on in normal times would be large. In this country four and a half million pounds are spent annually on the mitigation of the distress caused by blindness: the spending of a quarter of a million on the endowment of research as is asked by the University of Oxford may do not a little to reduce this bill, not to speak of the potentialities it may have as an investment in industrial progress.

If it is for the lay community to provide the opportunity it is for the medical community to provide the stimulus and the spirit. The time is past when advances in knowledge could be attained by relatively simple methods of a single investigator; the great complexity of the problems now awaiting solution demands ever-increasing complexities in technique and ever finer methods of analysis which can be met only by a team working in close liaison with a whole congeries of related branches of science all working under a similar inspiration. Ophthalmological research must concern itself with the problems of biophysics and biochemistry, of physics and physiological optics, of pharmacology, bacteriology, and pathology, of embryology and genetics as well as of general medicine and surgery, and their investigation requires the laboratories of a university as well as the beds of a busy general hospital. In this country to-day there is only one university chair in ophthalmology—that at Glasgow. Oxford would be an ideal centre for teaching and research in the Provinces. The related sciences are fully represented and the atmosphere is pregnant with the spirit of research. A large general hospital is available, and next door to it and in close relation with it the Oxford Eye Hospital (due to be rebuilt through local appeal) still has the tradition of Menteith Ogilvie and Robert Doyne. Moreover, under the proposed regional scheme of the Joint Hospitals Board this hospital will assume greater importance by becoming the regional centre for the counties of Oxford, Buckingham, and Berkshire for ophthalmic work and teaching. To complete the scheme for the whole country, and to allow British post-war ophthalmology to assume its rightful place as a leader of progress throughout the Empire at the world, there remains to establish similar research and teaching facilities in London. It is to be hoped that this will not be too long delayed, though perhaps it will await the co-ordination and encouragement expected from the Goodenough report.

LORD DAWSON OUR PRESIDENT

The death of Sir Beckwith Whitehouse on July 28 in the British Medical Association without a President at the time (through the dislocations of wartime) without a President-Elect. In this unforeseen situation the Executive Committee took a bold and imaginative step. It proposed that Viscount Dawson of Penn, our President at the Centenary Meeting of 1932, and an old and tried member of Council should be asked once again to wear the badge of office as titular head of the Association, this time not in an atmosphere of ceremony and rejoicing but in hard days of warfare and professional crisis. The Council with one accord approved this recommendation on the morning of September 21 and passed it on to the Representative Body, which less than an hour later unanimously elected Lord Dawson as President for 1943-4. On September 22 at the statutory Annual General Meeting of the Association he was inducted to the vacant chair and gave the address which we print at page 429 this week. Before the end of the

Lord Dawson had applied himself whole-heartedly to future of medical and allied services, and his idea of shape of things that might befall ran through the pages he report of the Consultative Council to the Minister of Health, of which he was chairman. That report languished 20 years in departmental files, even though in 1930 B.M.A. put forward publicly its proposals for a general dental service for the nation, and later revised and ended them. Again, at the close of 1940, the B.M.A. like once more into the long silence of Whitehall, and Medical Planning Commission which was then set up to the advantage of Lord Dawson's help as one of its vice and most influential members. The Interim Report of the Planning Commission and the Beveridge Report, which is to be followed now by the Government White Paper, have brought the whole matter into the forefront of dental politics and economics; and it can but be echoing the voice of the 44,300 members of the Association to say how fortunate we are to have the senior medical spokesman as our President in the difficult year to come.

ANILINE INTOXICATION

Aniline, like many other amido- and nitro-compounds of benzene, has long been known to cause symptoms of intoxication associated chiefly with its capacity for producing methaemoglobin. But this question of methaemoglobinæmia has been a matter of much discussion and controversy. While some authorities have been able to demonstrate its presence in man and in the dog—an animal known to form methaemoglobin readily—others have failed to produce it in other animals. Similar disagreement has arisen about the exact cause of death in acute aniline poisoning, whether from cardiac failure or from respiratory depression. A recent series of experiments¹ on dogs, with varying dosage and speed of administration of aniline, have gone far to solve many of these problems.

Briefly, it appears that aniline exerts its toxic action in two ways: first, indirectly, by the production of methaemoglobinæmia, with the consequent effects of oxygen deficiency on the various physiological systems; second, directly, in conditions of high concentration, by circulatory depression and cardiac arrhythmia. The formation of methaemoglobin is a direct effect not of aniline itself but of its conversion into an "active" compound, probably aminophenol, which forms methaemoglobin almost instantly *in vitro* in the presence of oxygen and very rapidly *in vivo*. One of the most striking features of the administration of aniline to dogs in these experiments was the "time lag" in the accumulation of the maximum methaemoglobin. Thus, administration of 10 mg. of aniline as a 2% solution in saline produced the maximum (about 20%) of methaemoglobin in two hours, while increasing the dosage up to 100 mg. resulted in a progressively greater methaemoglobinæmia (up to 70%) in periods of eight hours. That this time lag was not entirely due to the time required for absorption was shown by a similarly marked delay after intravenous administration. It is suggested, therefore, that the delay represents the time required for the conversion of aniline into the active agent, and that this is probably a catalytic effect. The most important effect of methaemoglobin anoxia is a progressive depression of the brain, and neurological signs appear when the methaemoglobinæmia is 55 to 60%, and unconsciousness at 70 to 75%.

Cardiac arrhythmias and circulatory depression are believed to be chiefly a direct aniline effect, though

methaemoglobin anoxia, which also depresses the vasomotor centres and myocardium, demonstrated by fall of blood pressure and changes in the electrocardiogram, was undoubtedly an additive factor in their causation. Smaller doses of aniline were found to cause transient central nervous and circulatory stimulation, due primarily to action on the central nervous system: very large doses caused respiratory and circulatory depression, the latter due primarily to action on the heart.

MANIPULATION OF BIRTH-WEIGHTS

Some weeks ago Dr. Letitia Fairfield drew attention in our correspondence columns (June 5, p. 706) to the practice of some midwives of making a routine deduction of four ounces or some such amount from the birth-weight of infants "to allow for the cord and meconium." This practice has been carried out in a number of maternity units without the knowledge of the responsible medical staff and sometimes without the knowledge of the matron or sister-in-charge. One domiciliary midwife employed by a local authority has explained that her custom has been to deduct nothing for stillborn or premature infants, but to take three ounces off babies of over five pounds in weight at birth, and to use her discretion in taking off more if the baby is very big. The reasons given for the practice are mainly two. The first is to avoid the worry which a fall in the baby's weight after birth is likely to cause to the mother. As to this it would surely be simpler for the midwife to reassure the mother by explaining the facts to her rather than to falsify the figures. The second reason is a more reprehensible one—namely, that the practice defeats an inconvenient hospital rule whereby babies are required to regain their birth-weight before discharge.

The Central Midwives Board has now been apprised of the practice and has issued a circular to the training schools stating that the Board requires the midwife to keep accurate and detailed records, and that the practice of making these deductions, besides being a contravention of the Board's requirements in this respect, makes the records valueless for the purpose of comparison and research. The attention of all midwives in the training schools is accordingly being directed to the requirement that the exact birth-weight shall be recorded as well as the exact subsequent weights. The Board's circular, however, will not necessarily reach midwives who are not attached to the training schools, and there may still be some difficulty in disposing of what seems to have become an occult professional tradition, to be conveyed from teacher to pupil, or from midwife to midwife, in a whisper, perhaps with some secret enjoyment at the idea of befooling a paediatrician who thinks that all infants should make arithmetical progress from birth onwards. It may be argued that the only harm done is in the field of statistics and records, which some midwives may regard as merely material for pigeon-holes. But the fact is that statistics is the groundwork of research, and in this instance certain theories regarding the feeding and care of infants have been built upon the weight chart without any idea on the part of the members of the medical profession concerned that in many cases the birth-weight had been marked down by 5% or so.

Presumably the light now thrown on the subject by Dr. Fairfield will lead to the abandonment of the practice so far as midwives employed in hospitals and maternity homes are concerned, but it may not be so easy to control the reckonings of the domiciliary midwife, who attends nearly two-thirds of the confinements in this country. A doctor called in by such a midwife might be well advised to ask her whether the weight chart owes anything to

¹ Clark, B. B., Van Loon, E. J., and Morrissey, R. W., *J. Industr. Hyg.*, 1943, 1.

imagination. Meanwhile one particular inquiry which was based upon 5,000 birth-weight records is wasted, and we are left wondering whether any other secret understandings lurk among those on whose indispensable and usually most efficient and loyal work the members of the medical profession have to rely. Is the temperature chart exempt from manipulation? This revelation concerning midwives is disconcerting not only because a good many carefully collected and collated statistics are vitiated but because it suggests a certain irresponsibility on the part of some women who enjoy the status of a profession and should be mindful of its obligations, and also because it discloses a failure on the part of the defaulting midwives to realize why babies are weighed or why records of weight are kept at all.

CO-OPERATIVE ANTIMALARIA WORK IN BENGAL

Perhaps owing to insufficient publicity the ordinary medical man in this country has little idea of the very considerable and highly developed organization which exists in India for the control of malaria in that country. In the first place, and naturally the most important, there is the Government organization against malaria which includes besides the different Provincial organizations or malaria departments under each Province and the malaria organizations of the great municipal cities like Bombay, the Central Government organization, the Malaria Institute of India, a great centre of research and control which is not only itself responsible for such huge antimalarial operations as those now being carried out at Delhi, but which advises and assists directly or indirectly almost every antimalarial activity throughout India. There is the excellent work of the Ross Institute carried out especially in connexion with the tea and other industries in Assam and South India. There are important and far-sighted field investigations under the Rockefeller Foundation. Nor does this exhaust the list, for there are many local activities of various kinds, among which may be mentioned a very interesting development in the rural districts of Bengal—viz., the Central Co-operative Antimalaria Society, Ltd. (of Bengal), which has now published its annual report for the twenty-second and twenty-third years of its existence. This society is probably unique of its kind. Bengal has an area about equal to that of England and Scotland, with a population, the densest in the world, of ninety millions. This population is mainly rural, living in scattered villages in country which has ever been the despair of the malariologist, since not only is it in parts an almost uninterrupted sea of riceland but it has become notorious for its malarious decaying rivers and their associated kaals and swamps, an expression of slow secular changes in the great Ganges delta. The Central Society with its 3,000 or so affiliated village antimalarial societies is, as its name implies, of a co-operative character, and it is closely linked with other co-operative activities. One of these, whose annual report was forwarded with that of the Central Society, is the Bengal Co-operative Home Crofters' Association, Ltd., a body which has as its object improvement of malaria indirectly through increased interest of the antimalarial societies and their individual members in intensive cultivation of land about the villages. None of these societies possesses large resources, and the main purpose of the Central Society is not so much to carry out large-scale operations itself, for which it has not the funds, but to create interest in antimalaria work in the villages, especially among the villagers themselves, and to push for urgently needed work in the direction of opening out and keeping clear dead river channels, draining or otherwise dealing with de-

pressed areas and other conditions requiring improvement. It is clear from the reports that the Society's activities have the sympathy and support of many influential persons in Government, and it is to be hoped that a bid of this kind towards self-aid will receive the financial and other help which its meritorious objects deserve.

HEALTH OF HOSPITAL NURSES

A high standard of health supervision of nurses prevails in some hospitals, and for serious illness hospital nurses invariably receive medical and nursing care of a high class. But there is no generally accepted standard for the supervision of nurses' health. The requirements concerning medical examination of student nurses before admission vary at different hospitals, the practice with regard to immunization follows no general rule, and the keeping of health records is defective. A committee of King Edward Hospital Fund for London, under the chairmanship of Sir Charlton Briscoe, has drawn up a memorandum with a view to securing an agreed minimum standard of health care.¹ The outstanding recommendations are that a physician should be appointed for the nursing staff, his responsibilities not to be limited to the treatment of the sick but to relate primarily to the maintenance of a good standard of health; that hospitals should require a detailed medical certificate with full family history from a nursing candidate's own doctor; that there should be a medical examination, with x-ray examination of the chest and haemoglobin estimation, either shortly before or on admission; that such examination should be repeated within six months of entering the preliminary training school, at the end of the first year, and afterwards annually; that full records of these examinations, and of the nurse's weight taken quarterly, should be kept by the physician to the nursing staff; that no candidate should be accepted for training or taken on the nursing staff unless she has been vaccinated against small-pox, and that immunization against diphtheria—at present obtaining in only about one-quarter of the training schools in the King's Fund area—should be the general rule at the start of training. The committee also commends to the medical and administrative staff certain suggestions with regard to nurses' diet, accommodation, and hours of duty. They should have three good meals a day besides tea. Each nurse should, if possible, have a room to herself with a floor area of at least 100 square feet. Baths and lavatories should be provided for the ratio of one to five or six nurses. The 96-hour fortnight should be the maximum in all hospitals. The practice of allowing girls under 18 to nurse cases of tuberculosis and other admittedly unsuitable conditions is deprecated, and the committee urges that the tendency in many hospitals to lower the minimum age of entry should be regarded as only a concession to existing circumstances. On the subject of a sick nurse the committee mentions that there is a complaint in some quarters about difficulties put in the way of nurses "reporting sick," and that there seems to be a general feeling among nurses that it takes a good deal of courage to report sick unless there is a high temperature or some other unmistakable sign or symptom of ill health. The committee suggests that it is a short-sighted and unwise policy not to ensure that even minor ailments receive attention at an early stage. Steps should be taken to encourage nurses to report as soon as they are not fit for duty. All nurses taken off duty should receive medical care immediately, and no nurse should be allowed to return to work until she has been passed as fit by a physician. A sick nurse should be set aside for the nursing staff.

¹ Published by George Parber and Son, Ltd., Furnival Street, E.C.

MEDICAL SERVICE AND SOCIAL CHANGE: SOME REFLECTIONS AND CONVICTIONS*

BY

Viscount DAWSON OF PENN, P.C., G.C.V.O.
M.D., F.R.C.P.

President of the British Medical Association

Members of the Association.—Let me express the deep appreciation I feel at the confidence which you have reposed in me by making me your President at this time of change and stress. For my part, let me say that my sole reason for accepting the honour is the hope that I may be able to make some solid contribution to the solution of the difficult problems which beset equally the public and the profession and which can be solved only by friendly co-operation.

Before moving to business it is meet that I should make reference to the great loss incurred by the death of Sir Beckwith Whitehouse, who was not only a distinguished leader in gynaecology but who gave so freely of himself to the welfare of the profession and the public.

Concerning the subject which is foremost in all our minds, I think I would be serving you best if I were to speak with freedom and detachment, leaving you to do the same, so will you permit me to give utterance to certain reflections and convictions, limited though this must be by the time at my disposal.

The General Picture

I will, with your permission, say a word or two on the general picture, because, after all, medicine does not stand alone: it stands in relation to the whole social organism. An upheaval at once so vast and universal as this war must result in changes in the texture of civilization, and these changes will, for the most part, be those already in seed or in bud and waiting for some impetus to bring them to fruition. Land tenure, planning for town and country homes, industry, social security, health, and education afford examples, and there seems to be a common line of thought running through these projects—namely, that the community as such must, in varying degrees, form a partnership with individual effort so as to give direction and equality of opportunity without blunting the enterprise and zest of the individual to think and strive for the benefit of himself and his kind and thus preserve to personality freedom and scope.

If, in that partnership, the scales are weighted too much in favour of community direction, the result will be regimentation and a deadening uniformity, and if weighted too much in favour of individualism the result will be a haphazard and uncoordinated service. It is the task of statesmanship to find the mean.

I pass to another reflection. The progressive quickening of the social conscience is an outstanding feature of this century, and it has found expression in the humanizing of industry and in a body of social effort without precedent and a body of legislation to improve the health and welfare of the people. But if we pause to inquire whether the achievements of social reform between the last war and this, as judged by the removal of social inequalities and the establishment of social justice, were effective, our answer would have to be in the negative. I need but instance housing, social security, medical services, and education; there has been and there still is a sense of frustration in the community.

A Medical Service for All

To focus on our special concern, is it not a reproach, in view of the way medical knowledge has marched ahead, that a corresponding health and medical service has not been rendered available to all citizens long ere this? In this connexion the pioneer efforts of the medical profession stand forth to its credit, and I am going to stress that historical truth. From 1920 onwards it has, through various agencies, successively and consistently advocated a comprehensive medical service and

co-operation between local authorities and voluntary hospitals and agencies. The latest of these efforts is the Medical Planning Commission—a widely representative body.

In contrast, the Ministry of Health, from the death of Sir Robert Morant in 1920 to nearly the outbreak of the present war, has cold-shouldered or opposed any such suggestions. It is only fair, however, to add that those many years of obscurantism have given place at the Ministry for two or three years past to enlightened co-operation, and let me say further that the present Minister, who is greatly interested in this reconstruction, has repeatedly stated that this comprehensive service should be a partnership between the local authorities and the voluntary hospitals, and that in the administration of such a service doctors would play an important part.

Since the Interim Report of the Medical Planning Commission saw the light of day the Beveridge Report on Social Security has come into the picture. Most of us would say that greater security against want is socially just, but the social security scheme postulates Assumption B, which is concerned with a nation-wide comprehensive health service. The inference is that the foundation of such a service is an accepted policy and, incidentally, it has wide and strong popular support.

Misunderstanding and Criticisms

I come to a matter which has troubled me much recently. In recent weeks there has been public misunderstanding because discussion about the form of the service has been interpreted as opposition to its foundation, and this has led to a considerable amount of criticism of the profession, which shows at present little sign of abatement. An illustration has arisen from the motion passed at yesterday's meeting, when by a large majority "a whole-time salaried State Medical Service" was rejected. No fewer than three intelligent people said to me last evening that they were surprised to see that the Representative Meeting had, after all, voted against a "State Medical Service," which is quite a different proposition, for it is impossible to carry out Assumption B without the State having a general direction.

'Needless to say, in the shaping and organization of the service, doctors must rightly have a big say; after all, they have to work it; they know the complexities of medical practice, and they, with the public good in the forefront of their minds, and subject to the authority of Parliament, must carry a leading responsibility. Be it remembered that the changes in medical practice to be wrought are deep and fundamental and will affect all members of the profession; no other nation, comparably placed, has undertaken so big an endeavour. Is it not obvious, therefore, that this service must be built up in stages, in accord with the Prime Minister's Five-year Plan? Foundations first. If you will permit me I will now pass to consider one of those foundations.

Any service needs administrative direction. The British Medical Association is an example. If properly designed, that direction will not interfere with our freedom, and the Minister has promised that the profession shall have a large share in such administration. What, then, is the best form of local administrative body for this service? That, after all, is the prerequisite to any action of any kind and has to be settled first. Should that local administrative body be the major local authorities, or a joint board embracing several major local authorities with vocational advisory bodies attached—and this latter is an essential condition—or should there be large areas specially delineated for health purposes, each administered by a widely representative Health Council? The last idea is, to my mind, the most far-sighted and attractive proposition. Both for the public and for the doctors it offers the best prospect of future development.

I hope the Government will give it favourable consideration; but we must remember this—that the Minister of Health is between the upper and the nether stones. On the one hand he has to pay attention to the medical profession and wishes to do so, but, on the other, he has to carry along with him the local authorities. It may be that local authorities would not be too eager to agree to the larger plans which I personally would favour—namely, "health provinces" administered by a representative Health Council.

* A brief address on his election to the Presidency of the Association at the Annual General Meeting on September 22, 1943.

A Comprehensive Service

I pass to my next point. In the light of Assumption B the Beveridge report leaves to the medical profession and the community the devisal of the comprehensive service. The social security payment for sickness is only a maintenance payment, and the Beveridge report favours voluntary insurance to be "jam" for the "bread." Here contributory schemes would provide amenities according to the taste of the patient. Supposing a grocer who by his industry has become a successful man wants to provide his sick wife with the comforts of a room in a pay-block, is he to be denied that privilege? The service of medicine needs to be infinitely flexible. Man sick is individualistic, and let us beware of the doctrinaires who think in terms of tyrannical uniformity—one of the faults of the Nazi creed. We want the same essential service for all—namely, the best—but no dull uniformity with it. A comprehensive service, free to all citizens, does not necessarily involve a whole-time salaried service for all doctors, nor is it incompatible necessarily—I am not saying desirably—with private practice and pay-blocks. Although, in my belief, more earnings in the future will be derived from salary and less from fees, I am far from convinced that any uniform system of service or payment will meet conditions so multifarious as those attaching to medical practice, and any emergence of official and non-official groups of doctors would, in my opinion, be disastrous.

We must recall that one of the evil consequences of the Ministry of Health not accepting the advice of the leaders of the profession in 1929 was that they thereby instituted in any one town two sets of hospitals and two groups of doctors. If they had then accepted advice and instituted machinery for progressive co-ordination of local government and voluntary services we should be much nearer our goal to-day.

Fortunately, we now have at the Ministry of Health a different order; it is co-operative and anxious to work with the profession. Payment by salary, by fee, by capitation grant, separately or in combination—these admittedly thorny questions can find their solution only in the light of experience.

In conclusion, any satisfactory scheme for a comprehensive medical service can be built up only in stages: foundations first and soon, superstructure later and gradually in the light of accrued experience. Such experience could be obtained by different "try-outs" in different regions during an experimental period, and that applies, for instance, to health centres. Customs, habits, feelings, many of them centuries old, must not be suddenly uprooted; rather must the new order be gradually grafted on to medicine's historic past. Such is our English way. So following, not otherwise, when its reorientation reaches its completion, medicine will have become greater in its comprehension, and will offer to its disciples a life of fullness and content and to the people a steadily enlarging prospect of health and welfare.

Reports of Societies

LABORATORY CONTROL OF ENTERIC FEVERS

At a meeting of the Fever Hospital Medical Service Group of the Society of Medical Officers of Health, with Dr. ANDREW TOPPING in the chair, Dr. A. FELIX opened a discussion on recent advances in the laboratory control of typhoid and paratyphoid fevers with an account of the theory and practice of typing typhoid and paratyphoid B bacilli by Vi bacteriophage and the Vi agglutination tests in the detection of chronic carriers. He said Craig and Yen (1938) found that strains of the typhoid bacillus could be divided into a number of types on the basis of their sensitiveness to specifically adapted anti-Vi bacteriophages. The results of the typing by this method were as reliable and significant as those obtained in streptococcal or pneumococcal infections with the old-established serological tests. More recently Felix and Callow (1943) found that the bacteriophage technique could be applied also to strains of the paratyphoid B bacillus. Anti-Vi phages of *Bact. paratyphosum* B could be adapted to develop a high degree of specificity for particular strains, whereas anti-O phages were incapable of such adaptation. So far four different

Vi-phage types of *Bact. paratyphosum* B had been identified and more than 90% of the strains isolated from patients' carriers in Great Britain during the past three years were found to belong to those four types. This new typing method was an indispensable laboratory aid to the investigation of sporadic cases or outbreaks of typhoid and paratyphoid fever. The detection of a chronic carrier was usually a difficult task, though the methods of isolating typhoid paratyphoid bacilli had been greatly improved through introduction of refined culture media. In all the recent outbreaks of paratyphoid B fever in this country the individuals responsible for spreading the infection were temporary excretors. The true culprits—namely, the chronic carriers—escaped detection. The Vi agglutination test, which originally applied typhoid alone, had now been extended to paratyphoid B. Dr. Felix gave tables showing how this test could be used to help detect chronic carriers among recovered patients, who otherwise might be discharged from hospital because they excreted bacilli intermittently. A decreasing Vi titre would indicate temporary excretion, and a steady or rising Vi titre a possible chronic carrier state.

Application in Field Studies

Dr. W. H. BRADLEY said that since Budd of Bristol recognized typhoid as an alimentary infection in the middle of the 19th century enteric fever had been split up into a number of groups: first, by the identification of the typhoid bacillus Eberth in 1880, and then by the recognition at the turn of the century of the para-organisms and the other salmonellas. Next, by the application of the power of certain bacteriophages to lyse the organisms of typhoid and paratyphoid, it was possible further to classify them into a number of "phage type" groups. Illustrating the use of this in epidemiological field studies, Dr. Bradley said that a number of cases of typhoid which appeared in a cathedral town in the South-West would have defied investigation had it not been found that they belonged to three different phage types; when studied they proved to originate in three separate sources of infection operating simultaneously. It was possible to trace these sources to separate foci outside the city. More recently, fourteen cases of typhoid occurred in an extra-metropolitan borough using its own water supply, which naturally was suspected because an alternative common aliment could not be identified. The appearance of two cases of the same type in persons in a neighbouring locality who had not drunk the water helped to remove the suspicion. Dr. Bradley said it was usual for single cases, apparently sporadic, to occur in a London borough from time to time. For example, although there were only about 50 cases of typhoid notified in London in 1942 they occurred in 22 of the 28 boroughs. It was rarely possible to trace the source of infection or to relate cases in different boroughs. Since the beginning of 1943 they had applied phage typing to the problem. Up to June cases of typhoid had appeared in 16 boroughs; the majority had been related to three foci of infection; of the remainder two cases were imported, another arose in a mental hospital, and one only had proved resistant to investigation. He agreed with Dr. Felix that with careful persistent epidemiological inquiry and specialized bacteriology it should now be possible to account for almost every case and in time to eradicate completely the enteric fevers. Certain changes in current practice were, however, necessary. Previously the objective had been to obtain sufficient negative cultures to clear the patient; now blood, stool, and urine cultures were made repeatedly until the organism was recovered and typed. The organism from every sporadic case and from a sample of the cases in any outbreak should be typed. The date of onset should also be determined as accurately as possible and the medical officer of health who was investigating the source of the disease should be informed of this and the type of organism. There was some clinical evidence that organisms of different types differed also in virulence, and to some extent typing might be of value in prognosis. Vi determinations were useful in detecting carriers. As a preliminary screen for a carrier in a food-handling establishment for instance, the Felix Vi test simplified investigation; taken in conjunction with the evidence obtained from circumstantial inquiry this screen made much of the stool and urine cultures unnecessary, and, what was more important, gave a prompt and more dependable answer.

Discussion

Dr. R. CRUICKSHANK thought that the crux of the situation was the chronic typhoid carrier. Recovery of typhoid and paratyphoid organisms, either in the acute stage of the disease or in convalescence, demanded selective media. This was true over the whole range of bowel infections. For example, their se had demonstrated that convalescent carriers occurred after salmonella infections—a thing never suspected in the past when MacConkey's medium was employed. Dr. A. L. K. RANKIN, describing the clinical features in the small borough outbreak mentioned by Dr. Bradley, said that in the adult cases the onset had been gradual, but two children had gastro-intestinal symptoms. A characteristic of all cases was their mildness. During the stage of advance the temperature had shown morning remissions which he regarded as a good prognostic sign. Leucopenia was present in all cases. The diazo test was consistently negative, but no case was admitted before the 14th day of disease. One woman developed the uncommon complication of mastitis. Col. G. W. M. FINDLAY asked whether it would be possible to treat typhoid by phage given intravenously. Dramatic results had been claimed in India from the combined use of phage and typhoid antitoxin to deal with used products. In experiments on mice he had found it necessary to give phage very early to obtain a therapeutic effect.

Dr. BRADLEY, in reply, said that gastro-intestinal symptoms at the time of ingestion of typhoid bacilli were common: they had been encountered in both the Croydon water-borne and the Bournemouth milk-borne outbreaks. Intestinal symptoms consisting of the passage of blood and mucus were usual to begin with; vomiting came later. The whole upset was usually over in 48 hours. He described a hotel outbreak in which 36 guests had gastro-intestinal symptoms within 48 hours of arrival and 17 subsequently developed typhoid. Dr. FELIX suggested that the gastro-intestinal symptoms were not necessarily due to typhoid or paratyphoid organisms. They might indicate only that the vehicle was heavily contaminated with other organisms, including preformed toxins. He agreed with Col. Findlay that in the phage treatment of experimentally infected mice the results were good in typhoid, whereas no effect could be seen in *aertrycke* infections. This was probably due to the fact that typhoid was not a usual infecting organism in mice, whereas *aertrycke* was. He had used phage in large intravenous doses in the treatment of chronic typhoid carriers, but the experiment was a complete failure. Yet the same phages had been tested in broth and up to 50% ox bile, where they produced complete sterilization. He thought that phage treatment might be tried on carriers of shorter duration where there was less heavy damage at the local focus of infection.

to the above observations retention of salt and water would follow. I am therefore trying now the effect of urea administration in these cases; it is, of course, too soon to speak of results, but there seems a rational basis for this treatment.

My interest in the subject was increased by the paper by Drs. Beaumont and Robertson (*Journal*, Sept. 18, p. 356) in which they describe a syndrome of "pituitary hypothyroidism" in which, nevertheless, the patient was thin to a degree resembling Simmonds's disease. Here the urea clearance and water elimination were reduced. Sodium chloride, among other things, was given freely, and the patient improved. It will be interesting to see whether a disturbance of salt elimination has a definite effect on increasing or decreasing weight.

One other point, incidentally. Years ago Sir Robert Hutchison made the sage remark that protein is one of those things of which we must have too much in order to have enough. The tissues select those amino-acids most suitable for their needs from the welter of them resulting from tryptic digestion, so that a wide choice is advantageous, while the rejected fragments are excreted as urea. May it not be that the widespread complaints of muscular fatigue and twitches are due to the prolonged restriction of choice for muscular repair having a cumulative effect? The effect of a prolonged Chittenden diet is well known. My personal experience during a recent visit to Eire for academic reasons was that although I was working hard an ample meat diet corresponded to a notable diminution of muscular fatigue.—I am, etc.,

Cambridge.

W. LANGDON-BROWN.

Inadequate Hospital Diets

SIR.—Your leading article (Sept. 18, p. 365) is most disquieting. It is scandalous to find in a London general hospital that: (1) the average daily intake of vitamin C was 3 mg.; (2) the nurses were not getting enough to eat and their diets were deficient in vitamins A and C. It is lamentable that improper feeding in hospitals is still being perpetuated. I can recall while a resident in a London general hospital in the late 'twenties being given margarine (non-vitaminized), meat so tough and fish so putrid that we hurled them down the hatch to the kitchen below. The patients' food was fit only for the pig-swill. The official reply to our complaints was that if the residents were better fed then the nurses' diet would have to be improved, with concomitant increase in the cost of hospital maintenance. It is relevant that in Sir Robert Hutchison's own hospital the residents' mess was the envy of all others. You say, Sir, that the hospital kitchen is at least as important as the hospital dispensary. I would up-grade the kitchen staff in status and salary to that of the operating theatre. Why are the numskulls put in the cookhouse? The Minister of Health is alive to the situation, and one hopes that all hospitals will implement forthwith the valuable advice given in the brochure *War-Time Feeding in Hospitals*.

Again you are right when you plead for the hospital-dietitian being in full control of the kitchen. She must be on top and not on tap, and the steward should be subservient to her. When will medical and lay committees appreciate that proper feeding of all within the confines of the hospital makes for quicker convalescence, better service, and a happy and healthy community?—I am, etc.,

London, W.1.

W. C. W. NIXON.

Correspondence

Urea and Water Metabolism

SIR.—I was much interested in Dr. J. A. Brown's article on urea for migraine (Aug. 14, p. 201), though from a different angle. Since the war I have been greatly struck by the number of girls, both in the Services and out, who come complaining of increasing weight, which has proved entirely refractory to thyroid. In one such case 20 gr. of desiccated thyroid had been taken daily, and on stopping this she only increased 2 lb. a month, so it was clearly contraindicated.

Naturally, one may attribute a good deal of this to the large starch content of war diet; active life makes them sufficiently hungry to eat much of the only food which is plentiful. But in a good many cases the weight has either increased so rapidly or has fluctuated so widely that it seemed to me there must be a disturbed water balance, presumably due to the pituitary, since they nearly all showed the limb-girdle type of obesity. I therefore prescribed mersalyl or aminophylline with restriction of salt intake, but with only varying success.

Dr. Brown refers to the observation of Goldzieher that in migraine there may be retention of 73% of a test amount of salt, together with water retention. It therefore occurred to me that the present low protein diet deprives the body of some of the normal diuretic, urea, since the greater part of this comes directly from the breakdown of protein; and according

Transfusion and Overloading the Circulation

SIR.—The very interesting paper by Dr. R. Drummond on the dangers of circulatory overloading (Sept. 11, p. 319) emphasizes the fact that on occasions over-treatment can be more lethal than no treatment at all. The efforts to save life by blood transfusion will achieve their greatest success only when the clinician in charge of a case can recognize the earliest warnings that the heart is being asked to do more than is within its power. Dr. Drummond quotes Sharpey-Schafer in support of his statement that the earliest sign of overloading is pulmonary oedema, as shown at first by the onset of crepitations. No mention is made of the importance of the pulse rate as a clinical guide. In my opinion it is the most valuable index of danger, and I am sure other observers can confirm my experience in this respect.

Patients in whom haemorrhage is associated with toxæmia, as in severe concealed accidental haemorrhage, well illustrate

the type of case to which Dr. Drummond referred as being particularly liable to react adversely to circulatory overloading. For some years it has been my practice in transfusing these and similar patients to keep an almost continuous observation of the pulse rate, and to record it every few minutes on a chart at the bedside. As the patient improves the rate falls and the volume increases. When in spite of an apparent improvement in the general condition of the patient the pulse rate commences to rise again, the transfusion is slowed or stopped, and within a few minutes the rate again falls. I have been able to demonstrate dramatic responses of this type on several occasions when transfusing desperately ill women. I do not know as yet whether alteration in the pulse rate is an earlier sign than the onset of crepitations, although I believe it may be, but I am certain it is a more important clinical sign in that it is so easily elicited without disturbing a gravely ill patient in whom crepitations may well have been present before the transfusion was commenced.—I am, etc.,

Oxford.

JOHN STALLWORTHY.

Arterial Embolism and Crush Syndrome

SIR.—Uraemia following arterial embolism as described by your correspondent Dr. Guthkelch (Aug. 21, p. 245) is not commonly recognized, and its mechanism is unknown. I have recently had a case of spontaneous femoral arterial thrombosis in which uraemia developed; myohaemoglobin was excreted in the urine, and the muscles at necropsy were blanched, resembling those of the crush syndrome. It would be extremely interesting if such cases could be investigated with this specifically in mind; whether a mild degree of uraemia is of frequent occurrence or a rare complication of embolism or thrombosis remains to be seen.—I am, etc.,

London, W.12.

E. G. L. BYWATERS.

Treatment of Septic Hands and Fingers

SIR.—At this phase of the war, when every man-power hour is precious, it might well repay the Ministries of Health and Labour to circularize every doctor in the country with a short and concise bulletin on the treatment of septic processes of the hands and fingers. It is a matter of common observation that there is much unskilful and even negligent treatment of "septic fingers." The cost to the country in reduced production, sick benefit, and compensation must amount to hundreds of thousands of pounds every year. This, serious enough in peacetime, may prove a menace just now.

The greatest need is to revise our methods as they affect the students. In many of the teaching hospitals the most junior house-surgeons and students are in almost sole charge of the septic cases save for the nominal supervision of one of the surgeons. The latter will often only see these cases when they become so bad that admission is necessary. The supervision of the ripening stage is in the hands of the least experienced of the hospital staff. When incision is indicated the same functionary or, at his discretion, one of the senior dressers, performs the operation under nitrous oxide administered by the most junior anaesthetist or his student deputy. The results of this surgical team work can be seen in large numbers every day in out-patient departments, where the patients attend for hot soaks, probing, and re-incision.

The newly qualified doctor starts in a house job or, worse still, in general practice with some fixed and some confused ideas on the subject. The fixed ideas are based on his personal observations and generally include the following: (1) Septic fingers are the prerogative of the inexperienced surgeon and are seldom taken seriously except by the patient. (2) Septic fingers provide the embryo anaesthetist with excellent and varied material for short administrations of nitrous oxide with, or more often without, oxygen. The absence of the latter may be very noticeable. (3) Septic fingers are invariably chronic cases and too much improvement must not be expected at once. (4) The after-care involves hyper-ionic soaks, radiant heat, probing for sequestra, and much reflection and often regret that the initial incision was so small. (5) That someone called Kanavel has written a book on septic fingers which is generally acknowledged as the last word on the subject. Owing to its special nature, however, it seldom attracts the senior students, who are already overburdened with the more important issues of the after-treatment of gastrectomies and lobectomies, in which the examiners are more interested and on which the lecturers are more expansive.

The confused ideas concern the position and boundaries of the thenar space, the peculiar routes of the tendon sheaths, and the

multiplicity of most excellent incisions. On this type of experience the newly qualified doctor bases the treatment of his septic case in his general practice. Poulticing and the ripening process are a too often over-prolonged, osteitis develops, and stiffness follows. Because of hurry, incisions are too small and strategically badly placed. It is a defect in our legislation that to cut a septic finger under local ethyl chloride "anaesthesia" is not yet a criminal offence, and it is to be deplored that there are still qualified registered practitioners who attempt to do it.

Much of this could be corrected by giving prominence to real sound methods, such as are employed by some clinics. The method of the Birmingham Accident Hospital (at which I recently spent an instructive stay) seems ideal: The septic hand or finger is immobilized on a P.O.P. splint until it improves, as a great many do or until incision is indicated. When the latter is necessary the patient is admitted. Morphine and scopolamine are given 1½ hours before operation. The anaesthetic is pentothal, nitrous oxide oxygen, and, if more is wanted, trilene. The operation is in large theatre and performed by a surgeon of experience. Full aseptic ritual, as for a major abdominal, is observed. Operation is carried out in a bloodless field, secured by the routine application of a sphygmomanometer. The surgeon's need, not the volatility of the anaesthetic, determines the duration of the operation. The same care is given to a septic finger as would be given to a compound fracture of tibia and fibula. Finally, the incision is very lightly packed with vaseline gauze and the limb again immobilized in P.O.P. Hot fomentations are not used, and dressings are infrequent. Rehabilitation is started at the earliest moment, and after-care is not less than care at operation.

No doubt in the future penicillin will banish the bogey of the septic finger, but in the meantime it remains as a great menace to industrial efficiency, and correct treatment by sound surgery and skilful after-care will only become standardized by propaganda on a big scale. It cannot be over-emphasized that a septic finger can be just as incapacitating as a fractured humerus or even femur, and cause nearly as much incapacity and loss of working time.

—I am, etc.,

St. Ives.

E. C. ATKINSON.

Treatment of Lupus Vulgaris

SIR.—I think the annotation headed "Treatment of Lupus Vulgaris" (Sept. 18, p. 366) calls for a few comments. In the first place the Finsen and Finsen Reyn lamps have been abolished as obsolete from the London Hospital since February 1938. The old Finsen lamp needed the attention of one nurse per lamp, and treatment of each individual spot took, roughly speaking, one hour. Now the Finsen-Lomholt lamp is in use: three lamps can be managed by one nurse at a time, and commonly three treatments can be given in the hour on each lamp—a considerable saving. It is true that well-equipped and experienced centres must be maintained for the treatment of lupus vulgaris. Some provision also should be made for dealing with very advanced cases at suitable institutions, but the average case can well be treated at a lupus centre provided sleeping accommodation under suitable conditions is available at a reasonable distance from the centre. Such an arrangement should permit the patient in the majority of cases to continue work during the long treatment, to his own and the national advantage.—I am, etc.,

ARTHUR BURROWS.

Hon. Physician (with care of Out-patients)
to Skin and Light Department, London Hospital.

Issue of Radon

SIR.—The National Radium Commission and the Medical Research Council decided in January, 1943, that the following conditions should govern the issue of radon prepared from radium under their control. The same principles have been accepted by the London Hospital Radon Service and that of the Manchester Radium Institute.

1. It is the intention of the Radon Centres to supply radon only to hospitals which have been approved by the Radium Commission. Radon will not henceforth be supplied direct to individual clinicians.

2. The Radium Commission will in the first instance approve for supplies of radon only those hospitals which have a properly equipped radiotherapeutic department, with a radiotherapist and a physicist as part of the staff, and which have a properly organized follow-up of patients treated by radiotherapy. Such hospitals must undertake responsibility for seeing that the radon is properly used, with adequate precautions against wrong dosage.

3. Where members of the staff of an approved hospital carry out some of their work at other hospitals not able to comply with Condition 2 (above), they may obtain supplies of radon through the approved hospital provided that the radiotherapist of the approved hospital is satisfied that the radon is to be used under such conditions as will provide for efficiency.

Under these conditions the following hospitals have been approved to date—Sept., 1943:

Aberdeen Royal Infirmary	Marie Curie Hospital
Birmingham United Hospital	Middlesex Hospital
Bournemouth, Royal Victoria and	Mount Vernon Hospital and Radium
West Hants Hospital	Institute, Northwood
Bradford Royal Infirmary	Newcastle, Royal Victoria Infirmary
Bristol Royal Hospital	Newport, Royal Gwent Hospital
Burnley Victoria Hospital	Northampton General Hospital
Cambridge, Addenbrooke's Hos- pital	Norwich, Norfolk and Norwich Hospital
Cardiff Royal Infirmary	Oxford, Radcliffe Infirmary
Charlton Cross Hospital	Plymouth, Prince of Wales's Hospital
Edinburgh Royal Infirmary	Rochester, St. Bartholomew's Hospital
Glasgow Royal Cancer Hospital	Royal Cancer Hospital (Free)
Glasgow Royal Infirmary	Royal Free Hospital
Glasgow Western Infirmary	Royal Northern Hospital
Gu's Hospital	St. Bartholomew's Hospital
Hull Royal Infirmary	St. George's Hospital
King's College Hospital	St. Mary's Hospital
Lambeth and Hammersmith Hos- pitals, L.C.C.	St. Thomas's Hospital
Leeds General Infirmary	Sheffield Radium Centre
Leicester Royal Infirmary	Southampton, Royal South Hants Hos- pital
Lincoln County Hospital and Scunthorpe Hospital	Stoke-on-Trent, North Staffordshire Royal Infirmary
Liverpool Radium Institute	Swansea General Hospital
Liverpool Royal Infirmary	Tunbridge Wells, Kent and Sussex Hos- pital
London Hospital	University College Hospital
Manchester Royal Infirmary and Holt Radium Institute	Westminster Hospital
	Wolverhampton Royal Hospital

—I am, etc.,

GEORGE F. STEBBING,

Hon. Secretary, National Radium Commission.

Care of the Child's Eyesight

SIR.—The large sum which is to be devoted to research in ophthalmology at Oxford and to the prevention and treatment of eye diseases has caused much gratification and should bring great benefit to the public. In the meantime much could be done in the prevention of eye troubles at a very small expense. It has always seemed strange to me that, while children attending council schools have their eyes examined at regular intervals, there appears to be no routine examination of the eyes in public, preparatory, or private day schools, except in a very few instances. It would be simple for the visual acuity of these children to be checked twice a year; this could be done by one of the staff of the school with the aid of a Snellen eye chart, and no expert knowledge is required. Any child who did not come up to the normal standard could then be referred to an ophthalmic surgeon, and much valuable time would be saved. Under present conditions, if a child complains that he cannot see the blackboard, the master, instead of sending him straightway to an ophthalmic surgeon, usually tells him to go and sit in a desk in the front of the class, where the child is quite happy for another 12 months while the myopia steadily increases. Myopia usually comes on between the ages of 11 and 15 in those in whom there is a family tendency, and unless the child is examined twice yearly it is quite often unsuspected until the condition is fairly advanced.

I think the following three suggestions would do much for the eyesight of our future citizens: (1) That the visual acuity of all school children should be checked twice a year. (2) That they should work only in well-lighted class-rooms in desks suitable to their size so that they are always in the correct posture. (3) That no child should be allowed to read in bed except in the case of illness, when great care and attention should be given to the lighting.—I am, etc.,

Cambley.

LESLIE HARTLEY.

Health and Tonsillectomy

SIR.—In your annotation entitled "Health and Tonsillectomy" (Sept. 11, p. 334) you sum up by saying: "This study supplies additional evidence to support the view that a large proportion of the tonsil and adenoid operations in children are unnecessary." The "view" may or may not be correct, but I cannot find any support for it in the "study."

The compiler of the first series of statistics quoted by you states that "the tonsillectomized group had no advantage over the group who were not operated on," and most of the others

give expression to the same idea. But why should one expect to find any advantage? Why should any person who has undergone any operation have an "advantage" over another who has not required it?

Consider a single case. Johnny has had his tonsils removed and Tommy has not. In assessing the value of the operation we do not ask whether Johnny enjoys better health than Tommy or has any advantage over him. We ask whether he enjoys better health after the operation than he did before. Almost invariably the parents say that he does. I think that that is the only criterion by which the operation should be judged. The multiplication of the case by 100 or 100,000 does not make any difference to the validity of the argument. The only series of statistics in your list that has any real bearing on the question is that of the 364 boys whose sickness incidence had been studied both before and after operation, and in that series it is admitted that the operation was justified.—I am, etc.,

London, S.E.25.

ALEX ROSE.

Action of Pentose Nucleotides

SIR.—In the article on stimulation of leucopoiesis (Sept. 18, p. 365) there is the statement that pentose nucleotides "act mainly by redistribution and mobilization of preformed leucocytes." It would be valuable if the evidence for this statement could be published. My own experience does not support the contention. I find that, after starting treatment with pentose nucleotides, there is always a period during which no blood changes develop, however large the doses given. This period is about 4 days; and after its expiry there are immature granulocytes in the peripheral blood—a change that cannot be due to redistribution of cells already present in the circulation. In cases in which the treatment fails there are no such blood changes, and any explanation, other than that of new formation of cells in the marrow, must take these facts into account.—I am, etc.,

London, W.1.

A. PINEX.

Arsenic for Vincent's Infection

SIR.—I beg to disagree with Squad. Ldr. E. C. O. Jewesbury's statement in his article (Sept. 18, p. 360) that the employment of intravenous arsenical compounds for Vincent's infection is useless and wasteful.

As medical officer in the V.D. clinic attached to this hospital I have not infrequently seen cases of Vincent's gingivitis or stomatitis develop during arsenical therapy, although I cannot recall a case of faucial ulceration occurring under these circumstances. In most cases bismuth has also been employed, and may by irritating the gums be a precipitating factor in the onset of a Vincent's infection.

In my work in the fever wards of this hospital I again encounter Vincent's infection—cases admitted for diagnosis of diphtheria, or for treatment because of the severity of the condition. As I see all cases outside before admission, trivial or mild cases are not admitted. In those cases of acute faucial angina due to Vincent's organisms I have no doubt as to the efficacy of the intravenous administration of arsenic, as either N.A.B. or mapharside. Pain, fever, and malaise rapidly subside in the great majority of cases, and the local throat condition clears rapidly. I can recall only once having to give more than one injection. The gingivitis which often accompanies the faucial condition does not respond so well, and usually requires local treatment.—I am, etc.,

Isolation Hospital, Southend-on-Sea.

A. B. CHRISTIE,
Medical Superintendent.

The Common Cold

SIR.—The following facts may be of interest to either sufferers from or investigators of the common cold. During the course of twenty-five years' practice of psycho-analysis for the treatment of psychoneuroses I have observed that in them: (1) A cold invariably occurred in a particular emotional state. (2) The occurrence of a cold could be prognosticated whenever this state developed. (3) The cold could be aborted if a different emotional state could be produced in the course of treatment, or could be shortened if it had started. (4) Cold, wet, hunger, exhaustion, and a source of infection do not result in the development of a cold in the absence of the appropriate

emotional state. (5) Cold "prone" disappears completely as a result of successful treatment, and does not recur.

Though these observations have little immediate practical value, my experience demonstrates to me at least that the solution of the problem of the common cold lies in the sphere of preventive psychological medicine. The specific factor is psychological; the microbe one secondary.—I am, etc.,

E. WRIGLEY BRAITHWAITE,
Consulting Psychiatrist, Ministry of Health.

Sterility and Contraception

SIR,—In your issue of Sept. 11 (p. 350) Dr. Gibbon Fitzgibbon of Dublin questions the accuracy of the statement that contraception in nulliparous women is liable to cause sterility, and asks for further evidence of this. His request would seem most opportune, for there appears to be considerable loose thinking upon this subject. Very few authorities are teaching that contraceptive practice and sterility are related, but, should this tenet be true, it is clearly most necessary that the whole medical profession should recognize this fact and teach accordingly. For this reason a full discussion should be welcome.

Dr. Fitzgibbon finds that "the vast majority of causes of primary sterility are conditions which pre-existed marriage." Informed opinion would surely anticipate this conclusion. Mazer and Israel (*Menstrual Disorders and Sterility*, Heinemann) find that non-patency of the Fallopian tubes and faults in the seminal fluid are the two commonest single factors in the barren marriage. By no stretch of imagination could contraceptive practices bear upon these.

Doctrines which coincide with people's deepest superstitions, however unfounded, are always difficult to eradicate. From time immemorial the infertile woman has tacitly accepted her barrenness as a stigma and a punishment. It is a great responsibility, therefore, to play upon fears of this nature. The point is not merely academic. When the late Sir Francis Fremantle announced in Parliament that this alleged danger of contraception must be "preached from the house-tops" he must have brought grave anxiety to countless young married women, and may have caused many to renounce their Service jobs, or munition work, in favour of immediate pregnancy. If such teaching is true, only good can result. But at a time when the mysteries of sterility are beginning to be understood, surely the medical profession must shoulder the responsibility of agreeing upon such matters and giving concerted guidance upon them to the public.—I am, etc.,

London.

JOAN MALLESON.

Artificial Insemination

SIR,—I was interested in Dr. Mary Barton's letter (Sept. 4, p. 312), and while I do not wish to deprecate the value of scientific work on this subject, I feel that the procedure which she suggests where the husband has been proved the sterile partner—namely, the insemination of the wife with donated semen—is likely to worsen rather than improve the marital relationship, and is also handicapping unfairly the child born in this way. I shall deal with the psychological effects in each partner and on the child in turn, as I see them.

First, the mother. She is given the satisfaction of bearing her own child. Is Dr. Barton sure that this joy is sufficiently lasting and sufficiently embracing to give complete satisfaction to the mother, knowing that her husband was not the father? Was the donor carefully selected as resembling the sterile husband in appearance, or in character, temperament, and all these traits which attract a woman to a particular man? Have we any guarantee that the secret of the child's birth will be for ever concealed within the breast of husband and wife? Will the woman's love not tend to fix itself on the child and withdraw more and more from her husband, in spite of his generosity? Does the fact that she agrees to such a procedure not suggest that a child-fixation of her love and affection is almost inevitable?

Secondly, the husband, whom Dr. Barton seems to have left out of her calculations. She speaks of the "generosity" of the husband in giving his consent. I should rather use the expression "generous impulse," and I should fear that such an impulse in times of anxiety and trial would be perhaps bitterly regretted. I can see the sterile husband drifting away from his wife rather than being drawn closer to her by such a solution of their problem.

Thirdly, the child. Such a child would, in my opinion, be extremely prone to develop an Oedipus or mother-fixation complex.

To sum up. I am convinced that such a procedure would lead to a constant struggle, obvious or repressed, between the child, and the husband for the woman's love and affection. The effect of such emotional conflict seems to me fraught with danger both to the marital relationship of husband and wife and to that atmosphere of security and happiness in the home which is so essential to the development of a child's personality.

On the other hand, I feel that the couple who adopt a child by mutual consent, after the necessary investigation to make sure that the husband is permanently sterile, have a much better chance of achieving mutual happiness, and that the woman's maternal instinct can be satisfied, sublimated perhaps if you like, by the nurture and care of such a child, in a fashion more lasting than the thrill of the physical act of motherhood.—I am, etc.,

Falkirk, Stirlingshire.

ALEX. LEITCH.

SIR,—May I add to Dr. Barton's plea that careful consideration be given to and greater use be made of artificial insemination. Among its indications are: (1) impotence—more especially for the persistent case of premature ejaculation without penetration; (2) low counts containing some actively motile normally shaped sperms; (3) when the operation of epididymo-vasostomy is not desired or has proved unsuccessful in cases of double epididymal block. Here needle puncture can often obtain 0.2 or 0.3 c.cm. of fluid containing active spermatozoa. By replacing the puncture needle with a blunt Labat this amount can be inseminated without loss, giving the only possible chance of a family. In all these instances the husband's semen is utilized, and there can surely be no objection.

Selected donor semen, frequently that of the recipient's brother-in-law, at the request of and with the agreement of husband and wife, is more widely used in the U.S.A., where it has found much favour. In most cases it has prevented and not caused the drifting apart of two people, and has provided a child far more an integral member of the family than any adopted child would have been, and also satisfied a woman's yearning to have a child of her own.—I am, etc.,

London, W.C.1.

REYNOLD H. BOYD.

SIR,—To-day great interest is being taken in artificial insemination for married women. As yet I have not seen a discussion on its possibilities for unmarried women. Many of the latter do desire children and would be happier, and far less likely to develop into embittered spinsters, by realizing this ambition. The Church would surely be unable to frown on such a practice, as immorality is not involved. I think that the Government should give consideration to this question. Such offspring under present conditions would, I suppose, be regarded as illegitimate.—I am, etc.,

London, W.9.

ANNE ETHEL MCCANDLESS, M.B., Ch.B.

Penicillin

SIR,—Your interesting leading article on penicillin (Aug. 28, p. 269) contains the sentence: "The search for something else as good as penicillin but perhaps more easily produced has therefore failed, as have efforts to synthesize it." This statement is less than just to many first-class organic chemists at present engaged on attacking a problem essentially antecedent to that of synthesis.

Even though to the admiring medical practitioner the organic chemist may seem a wizard, he is not capable of attempting the synthesis of a compound until he knows its constitution. He cannot know the constitution of any compound until he has separated it in substantially pure form. Crystalline salts of penicillin, it is reported, have only just been obtained for the first time, and even these may well be less than 100% "pure." Hence characterization of pure penicillin has so far been out of the question. How much more so any attempt at synthesis! To say, therefore, that efforts to synthesize it have failed is not fair comment. To state, on the other hand, that its isolation in pure form has so far not yet been achieved is correct, and is undoubtedly due to the extraordinary chemical properties of this extraordinary product of an extraordinary organism.—I am, etc.,

Greenford, Middlesex.

A. L. BACHARACH.

Mosquitoes and Static Water Tanks

SIR.—Your observations (Sept. 11, p. 332) on a potential danger of the static water tanks becoming the birth-places of mosquitoes, especially of *Anopheles maculipennis*, are timely. Many years ago, when I was medical officer of health of Lahore (Punjab) (larger than Portsmouth and consisting of an interesting but very congested native city, a well-laid-out civil station, and certain villages in the outskirts of its boundaries), I made some investigations into the utility of certain small fishes as natural enemies to the larvae. I read a paper on the subject, as a delegate from the Punjab Government, at the All-India Sanitary Conference at Simla, and I took with me bowls of three species of fishes and larvae of *Culex* and *Anopheles* to show how voracious these fishes were in destroying the larvae, especially a beautiful specimen with golden bands on each side. The size of these fishes varies from one to one and a half inches. There must surely be in each country some species of fish which are natural enemies to these larvae. The best antimalarial measure would be the breeding of such species for this use. Oil has its limitations and is impracticable in some areas, and at present it cannot be used on a large scale.

The mosquito is mainly a nocturnal biting insect, and all through its life history shade plays an important part. The female by instinct seeks dark places to lay its eggs; so we find that inlets of the banks of streams with overhanging grass, reeds, shrubs, or trees are common breeding grounds. Thus it is not the size of the tanks which is a factor in the choice of a breeding place, but rather the position in which the tank is placed so that the water in it may be darkened by shade as by branches of trees above or by the side or sides of a building. Again, anything like leaves or algae will give a certain amount of shade and hiding place for larvae. I think it will be found that tanks out in the open, away from trees, hedges, or buildings, will not breed any mosquitoes. In my opinion, no static water tanks should be placed in a shade. If they cannot be removed the best plan would be to cover them with sections of well-fitting thin boarding, which can be rapidly removed when required. This will save nuisance, possible sickness, oil, time, and man-power. As oil acts mechanically by preventing air entering the breathing tubes of larvae it should not be impossible to find a chemical which would act as a larvicide. Where the eucalyptus tree grows no mosquitoes exist for long distances from them, and a few drops of eucalyptus oil on the pillow or handkerchief near by is a not unpleasant protection against mosquito bites.—I am, etc.,

Southsea.

A. G. NEWELL.

Pasteurization of Milk

SIR.—In recent discussions on pasteurized milk the following facts appear to have been overlooked. It is generally agreed that living tubercle bacilli in raw milk from tuberculous cows are responsible for a large proportion of cases of (a) intestinal and peritoneal tuberculosis, (b) spinal tuberculosis, (c) tuberculosis of other bones and joints, and (d) tuberculous glands. According to the Registrar-General's statistical reviews deaths from these forms of tuberculosis in 1921 were, respectively, (a) 2,147, (b) 667, (c) 417, (d) 123, whereas in 1938 the corresponding deaths were (a) 595, (b) 319, (c) 175, (d) 45. This means that from these forms of tuberculosis the death rate per million living fell from 88 in 1921 to 25 in 1938, a reduction of 72%. The fall in the death rate from all other forms of tuberculosis during the same period was from 1,037 to 607 per million living, a reduction of 42%.

It is also generally agreed that most cases of (e) tuberculosis of the respiratory system and (f) tuberculosis of the central nervous system are the result of successful infection from human sources. Deaths from these forms of tuberculosis in 1921 were, respectively, (e) 33,505 and (f) 3,365, whereas in 1938 the corresponding deaths were (e) 21,930 and (f) 1,744. This means that from these forms of tuberculosis the death rate per million living fell from 973 in 1921 to 574 in 1938, a reduction of 42%.

These figures prove that the greatest percentage reduction (72% in eighteen years) has been in the mortality from those forms of tuberculosis most associated with infection from milk. In the absence of compulsory pasteurization this implies either:

(1) a great reduction in the amount of tuberculous milk sold to the public, or (2) a great increase in human resistance against bovine tuberculosis. It would be interesting to know to what extent pasteurization has been voluntarily adopted throughout England and Wales; and also whether there is any positive correlation between pasteurization and the incidence of those forms of tuberculosis associated with tuberculous milk.—I am, etc.,

London, W.8.

HALLIDAY SUTHERLAND.

Refresher Courses for Service M.O.s

SIR.—I have read with interest and entire agreement the very pertinent letter from Fl. Lieut. E. L. Graff (July 3, p. 19). I have been serving in the Navy since early 1941, and for the last year and a half have been in an aircraft-carrier. The whole question of "picking up the threads" of civilian medicine after the war has been in my mind for some time, and I am sure that thousands of G.P.s such as ourselves have been similarly exercised about it. Incidentally I assume that Fl. Lieut. Graff writes from the viewpoint of a general practitioner. Only a few weeks ago in a letter to my partner in London I commented on this very question, and urged him to try and get the matter taken up.

Service medicine, especially connected with flying, has many very interesting aspects, and here I imagine I have a fair amount in common with Fl. Lieut. Graff, but this is hardly likely to be of much value to the G.P. who hopes to return to civilian practice after the war, unless it be that he is able to appreciate a little more some of the strains and stresses—not all of them physical—to which mankind is subjected.

It is discouraging but inevitable that any case of illness likely to be prolonged cannot be kept in the sick-bay but has to be sent ashore as soon as convenient. This somewhat literal "clearing the decks for action" probably applies to a fighting ship at sea in wartime even more than to land-based units. Thus so much of one's medical care and treatment depends not upon clinical findings but upon what the ship is likely to do in the immediate future. It is only possible, of course, for a relatively small proportion of medical officers in any of the Services to serve in hospital ships or hospitals, and even this closer contact with medicine and surgery obviously cannot embrace a large number of the things one used to encounter in civilian practice.

This letter is not intended as a complaint, because the situation cannot be avoided, but it is an endorsement of one solution of a very important problem which will present itself as soon as the war is over. I venture to suggest that most of us when finally demobilized will be immediately required for the needs of civilian practice, not least that of relieving hardworking colleagues and partners who have held the fort in our absence. In fairness to all let us do this as efficiently as possible. May it not be said in after-years that the immediate post-war period of world war No. 2 showed a decline in the standard of civilian medical service through lack of a little not too difficult forethought and planning.—I am, etc.,

W. B. MUMFORD, M.R.C.S., L.R.C.P.

Medical Boarding for the Merchant Navy

SIR.—When Dr. S. H. Waddy's letter appeared in your issue of Aug. 21 (p. 248) it was not the intention of the Shipping Federation to make any comment. It was felt that he was no doubt recording his honest opinion, but that thinking people would realize that the sweeping generalizations which he made, apparently as a result of one voyage in a British ship, were hardly likely to present a true picture. If the physical standards were as low as he suggested and so many men had to be paid off immediately before sailing through real or pretended disabilities, hardly a ship would get to sea without extraordinary delay. The Ministry of War Transport and those who are responsible for managing our ships know that this does not occur. Moreover, "physically miserable specimens" could hardly have endured 4 years of strain, always in the front line, with the added trials of voyages to North Russia in mid-winter, days in open boats, and long periods in West African ports. As, however, two further letters have now appeared in your issue of Sept. 11 (p. 340), in one of which the Shipping Federation is specifically mentioned, it seems necessary to make one or two brief comments.

Dr. G. D. Gray says that the Shipping Federation has shirked its responsibilities in the matter of medical organization. What seems to be forgotten so often is that the Merchant Navy is an industry and its members are civilians. So far as I am aware no civilians can be compelled to undergo any special form of treatment, or remain in a particular hospital for observation, or submit to vaccination and inoculation. Dr. Gray goes on to say that men suffering from such disabilities as fits, diabetes, tuberculosis of the lung, hernia, duodenal ulcer, and venereal disease can put to sea as easily as Grade I men. This statement cannot be accepted for one moment. The medical officers appointed to examine seamen before each voyage are responsible and qualified men, and further comment seems unnecessary.

Although Dr. Alec Wingfield opens up a wide subject in his very reasonable letter, there is only one statement which should be corrected at once. He suggests that it is within the arbitrary power of one Federation medical officer to deprive a man for ever of his livelihood. Even in peacetime the fact that a man was turned down by a Federation medical officer before a particular voyage did not debar him from the sea for ever. In wartime, now that there is an Essential Work Order covering seamen, a man who is declared unfit by a Merchant Navy Reserve Pool medical officer cannot be discharged from the sea service unless the medical opinion is supported by that of a medical referee appointed by the Ministry of War Transport; and even after the medical referee's opinion has been given the seaman has the right of appeal.

The above comments are only intended to correct mis-statements, and no attempt is made to deal with all the questions that have been raised. The industry and the Government are fully alive to the problems which must be faced if the health of seamen—as of all industrial workers—is to be maintained and improved, but it is impossible to discuss them fully and impartially through the medium of correspondence columns.—I am, etc.,

Ealing, W.5.

H. W. GREANY,
Secretary, the Shipping Federation.

Stilboestrol for Prostatic Enlargement

SIR,—It would indeed be unfortunate if the letter from Dr. McGee in your issue of Sept. 25 (p. 403) were allowed to influence the use of stilboestrol in the treatment of carcinoma of the prostate. We are not aware of any scientific observations on the treatment of benign enlargement of the prostate with oestrogens, but we have had considerable experience of the treatment of carcinoma of the prostate by means of these agents. There exists an extensive literature, mainly from American sources, on the rationale of this treatment. Dr. McGee can find an excellent summary of this in A. Haddow's able article in the symposium of the Faculty of Radiologists (1943, discussion, pp. 16, 31).

We ourselves have observed eight cases of carcinoma of the prostate which have been rendered completely symptom-free by stilboestrol treatment. From private information we are informed that some American cases are still completely controlled after 4 years of treatment. In our experience side-effects are slight, and often entirely absent. Even in their worst form, however, when contrasted with the sufferings associated with carcinoma of the prostate, they pale into insignificance. It would be most regrettable if sufferers from this fatal condition were to be prevented from obtaining the relief that stilboestrol can give on account of Dr. McGee's letter.—We are, etc.,

E. C. DODDS.
KENNETH WALKER.

Childhood Infection and Adolescent and Adult Phthisis

SIR,—To quote from Dr. A. N. Robertson's letter (Sept. 18, p. 373)—“that according to the hypothesis in Report V these symptomless adolescents are the very people who eventually will develop manifest disease, and that in the majority of these cases the expected spread of the disease comes sooner or later after a variable interval.” This purports to represent Dr. Macpherson's view in Report V of her article in the *Journal* of July 24 (p. 98). Dr. Macpherson has made it clear that the

cases referred to are symptomless, but with radiological evidence of active disease. This is clearly stated in paragraph 5 of Report V of her article. I entirely agree with Dr. Macpherson that artificial pneumothorax is the correct form of treatment for these cases. Once it has been decided that the disease is active there is no point in waiting until symptoms develop. I find it difficult to understand those tuberculosis physicians who wait for T.B.-negative cases to become positive cases before attempting artificial pneumothorax. I would suggest to Dr. Macpherson that all artificial pneumothorax cases should be kept under supervision in a sanatorium for six months as a precaution against complications, which are more liable to occur during the first part of the treatment and which can be dealt with effectively in a sanatorium.—I am, etc.,

Chesterfield.

H. P. FERNANDES.

Future Health Services

SIR,—It is to be hoped that every member of the profession has read Dr. Anderson's masterly address (*Supplement*, Sept. 4). Not everyone will agree with all the opinions expressed, but few could desire a more level, realistic, and orderly appraisal of the present situation. It is curious how rarely medical men appear to retain the sincere scientific approach apart from their actual dealings with patients. If Dr. Gaskell's estimate is correct (Sept. 11, p. 342), 95% of his colleagues simply refuse to recognize the history, signs, and symptoms of the body politic. Or can he possibly mean that these “non-politico-aquiescents” are contemplating a *coup d'état*? In which case they would do well to ponder the advice given in Dr. Anderson's last paragraph under the heading “100% v. 90%.”

I agree with Dr. Gaskell that remuneration under the Factory and N.H.I. Acts is very low, but I do not think that “this is a sample of Governmental valuation of our professional services.” In my view it represents the valuation we have set upon ourselves by lack of corporate idealism and the debasement of our members to the level of competitive business units. And being “equipped neither psychologically nor occupationally for mass combination and resistance” we can hardly be surprised at the general tone and outcome of our dealings. Yet if it were so minded the profession has the opportunity to establish for itself a position of independence and dignity comparable with that of His Majesty's judges. I cannot agree that a vocation free to direct its united effort in the cause of science and humanity would lack a sufficiency of the right type of entrants if it were easily accessible to the right type of man. It is true that “a different type of person would begin to enter it,” and it is not surprising that many present members of the profession consider that it would be unsuited to them. But it does not follow that “the entire status of the profession would infallibly be lowered.”

Dr. Gaskell is mistaken in saying that I deprecated delay pending demobilization.—I am, etc.,

Eye, Suffolk.

J. SHACKLETON BAILEY.

British Schools and Austrian Doctors

SIR,—It should be recorded in the history of the Vienna School (discussed in your issue of Aug. 21, p. 240) that after the invasion of Austria by Hitler the British medical schools gave studying facilities to fifty Austrian doctors. To many of them, who were deprived of all means by the Nazis, free study for two years has been granted by the British teaching hospitals. With the permission of the British Government and the aid of the B.M.A. opportunity to qualify under special conditions was given to assistants and students of men whose names are still well known in the medical profession of this country. Böhler, Eiselsberg, Freud, Holzknecht, Marburg, Neumann, Pirquet, Wagner-Tauregg, Wenckebach, Wertheim, and others attracted many British doctors. These and other British medical men, for reasons of humanity and as a protest against Nazi oppression, organized a hospitality in an unprecedented way in the history of medicine. The sympathy for Vienna's music and Austria's mountains might have endorsed their decision.—I am, etc.,

Royal National Orthopaedic Hospital,
Stanmore.

F. FREUND.

Obituary

SURG. REAR-ADML. SIR WILLIAM WHEELER

We are indebted to Prof. T. GILLMAN MOORHEAD for the following appreciation:

It is not easy to write with detachment concerning one who has been a close and intimate friend for more than forty years. Wheeler entered the Medical School of Trinity College in 1896 along with the present writer and some fifty others. From the outset he took a keen interest and played an important part in many college activities, including the Dublin University Biological Association. Of this association he soon became a member of council, later secretary, and finally, as a comparatively young graduate, was elected president. His presidential address on the occasion of his opening meeting dealt with the novel subject of the plating of fractures, and among the speakers on his platform was Sir William Arbuthnot Lane, who was then approaching the zenith of his surgical fame.

As a student Wheeler sustained a serious accident which at one time looked like proving a calamity. Walking with friends one evening in St. Stephen's Green, the party broke up, some electing to return home. After a moment's hesitation Wheeler decided to join the home-going group, and, turning, ran to join them. The night was very dark and he collided with an iron railing which protected a tree in the pathway. The railing had projecting spikes situated at a dangerous level; one of these penetrated his eye, inflicting a serious wound. Immediate removal of the damaged eye was recommended, but Wheeler naturally hesitated. A few days later, however, signs of irritation in the other eye developed and so immediate enucleation became imperative. On recovery Wheeler was advised to claim compensation from the Board of Works for their negligence; the Dublin Corporation resisted the claim, and litigation followed. Various novel legal points were involved and the case dragged on from court to court. At last the Board, realizing that judgment was likely to be given against them, offered a settlement out of court; this was accepted and Wheeler was free to resume his interrupted studies. He was determined to adopt surgery as his profession and in no way to permit the misfortune he had suffered to handicap or interfere with his work. Shortly afterwards he gained an appointment on the staff of Mercer's Hospital, and so began his brilliant surgical career. Of that career and of his contributions to surgery I do not attempt to write. It was after his graduation that he and I joined together as teachers of surgery and medicine respectively, and the association then begun continued for the rest of his life. Only a few days before his death I received a letter from him telling me of an impending visit to Dublin and of his joy in coming back for a few days to a country that he loved so well. He always felt happy in Dublin. In London, where he had settled some years before the war, he never felt quite at home. He missed the easy *camaraderie* of Irish life, where friends and acquaintances constantly drop in for a casual meal, a chat, or merely to pass the time of day.

As a surgeon and as a man of affairs Wheeler early showed much independence of mind and great courage in stating and defending his opinions. As a companion he was always entertaining; no company was dull which included him as a member. Often gay and light-hearted, he possessed a puckish humour resembling that of George Bernard Shaw, with whom he was proud to claim kinship. With great charm of manner and a vivid personality, he was a good talker and a sympathetic listener. He was no respecter of persons, was unconventional, and, not infrequently, controversial. When occasion demanded he could be serious. On committees he was shrewd and adroit, an excellent chairman, and full of resource. If in private life one consulted him on any matter of difficulty he would always listen patiently, and his advice was almost invariably wise. One felt he had great knowledge of the world, was prudent and far-sighted. As a surgeon, as I knew him, Wheeler was a brilliant operator. A great believer in travel and in seeing personally the work of other surgeons, he early recognized the value of team work. Soon after qualification he paid a visit to Kocher of Berne and renewed his visit for several years. During those visits in the afternoons we had many a pleasant bathe in the river and walks and talks on the terrace. Later he made a point of visiting all the important centres in England: Sir Robert Jones in Liverpool, Moynihan in Leeds, and, in more recent years, Wilkie in Edinburgh and many others. He was an intimate friend of both Willie and Charlie Mayo, and paid several visits to Rochester. He also visited Crile in Cleveland and other American and Canadian centres. Many will remember the speech he made when, as President of the Royal College of Surgeons in Ireland, he entertained the Mayos, who had that day been admitted to the Honorary Fellowship. As a teacher he was most attractive; his classes at Mercer's Hospital were always thronged. Up-to-date and incisive, he did not hesitate to condemn methods and practices of which he did not approve or

which he had found faulty. His many communications to surgical journals had the same quality of incisiveness and lucidity of diction, and displayed strongly held opinions.

When on holiday he loved the country though quickly became impatient to return to work. He was a good shot and a keen fisherman. On one occasion he killed six salmon between dinner and bedtime on a summer evening. He looked forward when the war was over to returning to Ireland, where he intended to write his reminiscences; already, indeed, he had collected much material for the purpose. The annals of medical biography will be the poorer for the lack of a volume which would undoubtedly have been an alive and lively record of many and varied experiences.

Surg. Rear-Adml. G. GORDON-TAYLOR writes:

Sir William Wheeler lived an eager life of unremitting activity. He had practised in two capitals—his own native Dublin and London; he served in two wars; he held high rank in each conflict in a different branch of the Forces; death came to him suddenly when he was one of the Consulting Surgeons to the Royal Navy. He came of a famous surgical stock, for his father, like himself, was President of the Royal College of Surgeons in Ireland, and almost from his own cradle he had been in personal contact with such surgical giants as Butcher and Stokes of Dublin. Wheeler was always immensely proud of the medical and surgical tradition of the Irish capital and of the hospitals where he received his early training and where the major portion of his surgical life was spent. He adhered with staunch devotion to those methods of surgical technique in which he had been schooled or which he had embraced as a postgraduate disciple in clinics in Britain, America, or Europe; he admired Moynihan, worshipped Kocher, and adored Robert Jones. Yet he was no mere *laudator temporis acti*, despite his hero-worship and his rich knowledge of surgical, and especially Irish surgical, history. Though intensely loyal to the Thomas splint, he was not blind to the value of plaster-of-Paris; he was not merely a suprapubic prostatectomist, but also a master of endoscopic resection; the first occasion on which I saw de Martel's intestinal clamp used was in Mercer's Hospital about 1923.

Till the end of his life Wheeler retained that feeling "which impels a teacher to be a contributor and to add to the stores from which he so freely draws." His surgical interests and writings were catholic in their scope. The list of his contributions bewilders by reason of the number and diversity of subject, and the reader is enthralled by the manner of presentation and captivated by the impeccable language in which each communication is couched. Wheeler had a very special interest in the injuries and diseases of bone—indeed, he was president of the Orthopaedic Section of the British Medical Association in 1933, and served for many years on the Medical Advisory Council on Artificial Limbs, Ministry of Pensions. He was an intransigent opponent of all who dared to decry Syme's amputation, and hostile criticism of the operation only made him champion the procedure more ardently.

ALES HRDLICKA, M.D., D.Sc.

Dr. Ales Hrdlicka, the world-famous anthropologist, who died in Washington on Sept. 5 at the age of 74, was Czech by birth. He was born at Humpolec, Bohemia, on March 29, 1869. After studying in his native town he emigrated with his parents in 1882 to New York, where he studied medicine, graduating M.D. in 1892. He then proceeded to Paris, where he graduated in 1894, returning to join the N.Y. State service as research alienist, becoming later an associate in anthropology at the State Pathological Institute. In 1899 he took charge of the section of physical anthropology of the Hyde expedition to Mexico and South-Western United States, financed by the American Museum of Natural History of New York. In 1903 he became associated with the U.S. National Museum in Washington, an association that was to last 39 years, during which he made that museum the greatest in the world. With his more erudite and senior colleague Dr. Franz Boas, who died at the end of 1942, he made the American contribution to anthropology highly respected in Government and scientific circles throughout the world. In 1918 he founded the *American Journal of Physical Anthropology*. His name, already a household word, became linked with the theories that the Amerind is of Asiatic origin, that the original home of *Homo sapiens* was European and not, as usually held, Asiatic, and that Neanderthal man was not a species of *Homo sapiens* but represented a phase in his evolution. Perhaps in no other departments of science than the twin ones of archaeology and anthropology are theories just mere working hypotheses to be discarded whenever newer facts emerge. Hrdlicka's conclusion that Neanderthal blood persisted in late Palaeolithic time as a result of direct evolution of Neanderthal man into *Homo sapiens* is by no means acceptable to other workers. Against

his denial of the Asiatic origin of *Homo sapiens* and his affirmation of his European origin may be mentioned the fact that the Rhodesian and Boskop skulls from Africa, the Wadjak and Solo ones from Java, as well as the Talgai skull from Australia, are Pleistocene specimens at least contemporaneous with, if not ancestral to, the Aurignacian in Europe. He was elected an Hon. Fellow of the Royal Anthropological Institute in 1918, and awarded the Huxley Medal in 1927. A powerful and prolific writer, his loss to science and to medicine, which he never abandoned throughout his life, is a heavy blow.

R. E. G. A.

H. G. BAYNES, M.B., B.Ch.

Dr. H. G. Baynes, who died on Sept. 6, came into the foreground of medical psychology in England as interpreter of the views of C. G. Jung, whose confidential assistant he was at Zurich for three years after the last war, and he organized and took part in Dr. Jung's expedition to East Africa in 1925-6 for purposes of psychological research among the Masai tribes of Mount Elgon, Kenya. The neglect of Jung's views compared with those of Freud and Adler in this country has been partly due to paucity of exponents. After the death of Dr. Constance Long Dr. Baynes was almost alone in the field.

Born at Hampstead on June 26, 1882, Helton Godwin Baynes was educated at Reading, at Trinity College, Cambridge, and at St. Bartholomew's Hospital. At Cambridge he played football for his college and swam for the University, but he became best known as a fine oarsman. A man of exceptional physique, he was in the Cambridge boat which beat Harvard in 1906, and rowed five in the Cambridge crew which beat Oxford in 1907. At Bart's, after qualifying in 1910, he served as house-physician. He was surgeon-in-charge of the Red Crescent Mission to Turkey during the Balkan War of 1911-12, and then worked as a general practitioner at Wisbech for two years; he left that in 1915 to serve in France, Mesopotamia, and Persia with a temporary commission in the R.A.M.C. Before going to Zurich he was for a short time on the resident staff of the Maudsley Hospital, and he returned to England for a year to work as consulting neurologist under the Ministry of Pensions. Thenceforward Godwin Baynes devoted himself to analytical psychology, and published many papers and books on this and kindred subjects. He was the translator and editor of Jung's *Psychological Types* and two other of Jung's works. An early indication of his bent had been given in Baynes's Cambridge M.B. thesis (1912) on "Fear as the Principal Causative Factor in Hysteria." While at Zurich in 1921 he contributed a paper on psycho-analysis and the psychoses to the *Journal of Mental Science*, and three years later wrote on primitive mentality and the unconscious for the *British Journal of Medical Psychology*. In 1939 he published a book *Mythology of the Soul*, being a research into the unconscious from schizophrenic dreams and drawings, in which he elaborated a technique for exploring the unconscious, and gave a full-length study of the schizophrenic make-up. It was reviewed at some length in these columns by Sir Walter Langdon-Brown on May 18, 1940. Baynes's last published book was *Germany Possessed* (1941).

Dr. MARTIN HALLAM died at his home, Leas Lodge, Yalding, Kent, on Aug. 18. He came of a medical family, and was educated at Repton School, the London Hospital, and Sheffield University. After qualifying M.R.C.S., L.R.C.P. in 1909 he held resident posts at the Royal Hants Hospital, Leicester Royal Infirmary, Wolverhampton General Hospital, and the Jessop Hospital, Sheffield. He served in the R.A.M.C. 1914-18 and afterwards began practice at Yalding. He had a keen interest in clinical medicine and availed himself of postgraduate instruction whenever opportunity permitted. He was anaesthetist to the Kent County Ophthalmic Hospital for a number of years. His pleasure was country life, and from his early youth he had a never-failing fondness for birds, trees, and flowers. He is survived by his wife, his son—Squadron Leader Ian Hallam, who is a prisoner of war in Germany—and daughter. Dr. Hallam kept the Maidstone Division going for a long time and worked hard for the B.M.A. In the words of an old colleague, "he was a very good man."

Lt.-Col. Felix Smith, R.A.M.C. writes: Many hundreds of doctors in the R.A.M.C. who have done a tour of duty in West Africa came to know Dr. E. C. SMITH, and will learn of his death with great sorrow. Those of us who disembarked at Lagos received from him a short course of instruction which

converted us all into enthusiasts for the subject of tropical diseases, so great were his knowledge and his gift for teaching. Even more shall we remember the visits, half professional and half social, to his laboratories at Yaba. For several hours he kept us entranced, passing through the extensive laboratories, libraries, and experimental animal houses. There was no showmanship in Smith's teaching; it was clear, concise, and modest, and one realized that this was a man who not only knew but had to a large extent created his subject. In his charming bungalow, where he would entertain his little group of students, he had created an atmosphere of the very best type of home, and those visits remain in our memories as one of the oases in the course of the war. We in the R.A.M.C. mourn the loss of a man of great intellectual attainments and great gentleness of spirit.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Many of the professorial chairs in the University have become vacant during the war and the elections to most of them have been held in suspense by the Council of the Senate. In six cases the suspension has been terminated by Grace of the Senate, and among those elected to the vacant chairs are Dr. A. C. Chibnall, F.R.S., to the Sir William Dunn Professorship of Biochemistry; Dr. R. A. Fisher, F.R.S., to the Arthur Balfour Professorship of Genetics; and Dr. David Keilin, F.R.S., to the Quick Professorship of Biology (re-elected).

At a Congregation held on July 31 the following medical degrees were conferred:

M.D.—L. J. Bendit, J. Yudkin, and R. Wylie-Smith.
M.B., B.Chir.—J. Attenborough, E. H. Back, R. A. J. Baily, H. W. Balme, D. R. Barnes, C. H. Barnett, R. F. Bates, D. L. Bridgewater, R. A. P. Brown, W. L. Calnan, D. J. Conway, R. A. D. Crawford, J. Davenport, M. B. Devas, D. H. Drennan, R. M. Forrester, H. A. Fraser, M. R. Geake, R. N. R. Grant, H. C. Gupta, B. Haigh, E. H. Hare, H. Harris, J. K. Hinds, G. Hildick-Smith, P. H. Huggill, P. F. Jones, J. O. Laws, J. Lister, J. C. Lloyd, R. E. Loder, C. S. McKendrick, D. H. Makinson, N. M. Mann, P. G. Mann, A. S. Mason, R. G. May, P. H. Mitchell, P. A. G. Monro, T. Norman, J. E. Oliver, W. J. L. Pain, J. McE. Potter, J. R. Robinson, K. C. Robinson, P. H. Rogers, P. H. Schurr, O. L. S. Scott, E. L. Simons, P. S. Smith, I. S. Staddon, T. R. Steen, R. V. Stone, J. D. Trethowan, L. R. Twentymann, G. S. Udall, D. Vétel, D. B. Beckwith Whitehouse, E. H. Williams, O. H. Wolff, W. D. Wylie.
* By proxy.

During the months of July and August titles of the degrees of M.B., B.Chir. were conferred by diploma on J. Hardy and Mrs. A. B. Wilcock, both of Girtton College.

UNIVERSITY OF LEEDS

The inaugural lecture of the Faculty of Medicine will be given by Sir John Graham Kerr, F.R.S., M.P., emeritus professor of zoology in the University of Glasgow, in the Riley-Smith Hall of the University Union, on Wednesday, Oct. 20, at 3.30 p.m. Subject: "Medicine and Education."

The following have been successful at recent examinations:

M.D.—A. J. E. Barlow, D. M. Davies.
FINAL M.B., B.Ch. (Part II).—Marjorie Aldred, Elizabeth C. Armstrong, H. J. Balsham, Ruth Blackwood, T. P. Burton, H. S. Capcore, Winifred M. Davies, J. Dawson, Sybil D. Dawson, J. R. Edge, R. H. Foxton, R. P. Goulden, J. S. Groves, R. Harris, G. Harrison, M. Hutchinson, A. R. Hyslop, G. I. Isaacs, A. Jervis, J. R. Kirby, Joyce M. Longley, W. Marshall, H. B. Milner, S. N. Nathan, Marjorie M. Neil, Dorothy C. Newell, F. M. Parsons, D. I. Peacock, Elcanor R. Raistrick, J. Ruston, M. Silverman, M. H. C. Stone, D. R. K. Street, Margaret A. Sufferm, M. N. Tempest, J. S. Thorburn, D. Weiner, W. Whitaker, R. C. Woodcock.†

* With second-class honours. † Distinction in therapeutics.

The following awards have been made: West Riding Panel Doctors' Prize and William Hey Medal—O. Magidson. Edward Ward Memorial Prize in Surgical Anatomy and McGill Prize in Clinical Surgery—G. Harrison. Hardwick Prize in Clinical Medicine—W. Whitaker. Scattergood Prize in Obstetrics and Gynaecology—Divided between D. Weiner and W. Whitaker.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Moynihan Lecture will be delivered at the College, Lincoln's Inn Fields, W.C., by Air-Cdre. P. C. Livingston, O.B.E., A.F.C., on *Visual Problems of Aerial Warfare*. Part I—Night: Studies in the Dark-adapted Eye, on Tuesday, Oct. 5, at 4 p.m.; and Part II—Day: The Influence of Flying Conditions upon Vision, on Wednesday, Oct. 6, at 4 p.m. Fellows and members of the College are invited to attend. Students and others who are not Fellows or Members of the College will be admitted on presenting their private visiting cards.

The following lectures by members of the scientific staff of the Imperial Cancer Research Fund will be delivered at the College, at 3.30 p.m., Thursdays, Oct. 7 and 14 respectively. Mr. H. G. Crabtree: Metabolic Disturbances and the Cancer Problem. Prof. W. E. Gye, M.D., F.R.S.: The Problem of Chemotherapy in Cancer. The lectures are open to medical practitioners, scientists, and advanced students.

The Services

The following have been mentioned in recognition of gallant and distinguished services in North Africa: Major-Gen. (acting) E. M. Cowell, C.B., C.B.E., D.S.O., T.D., late R.A.M.C.; Col. W. D. Arthur, M.B.E., late R.A.M.C.; Col. (temp.) J. R. N. Warburton, M.C., and T. Young, R.A.M.C.; Major (temp. Lieut.-Col.) J. C. Barnetson, R.A.M.C.; Capt. (temp. Major) E. G. Houghton and W. Ironside, R.A.M.C.; Capt. (acting Major) J. W. Totten and Capt. D. Collins, E. O. Low, and M. Young, R.A.M.C.

The following appointments, awards, and mentions have been announced in a *Supplement to the London Gazette* in recognition of gallant and distinguished services in North Africa:

O.B.E. (Military Division).—Col. (acting) W. E. Underwood, Col. (temp.) C. H. K. Smith, M.C.; Lieut.-Col. (Brevet Col.) G. W. R. Bishop, T.D.; Majors (temp. Lieut.-Cols.) J. H. J. Crosse, P. T. L. Day, A. S. Hollins, R. G. M. Keeling, M. MacEwan, D.F.C., T.D., J. J. O'Connell, and J. Trotter, R.A.M.C.; Capt. (temp. Major) W. A. Law, H. W. Rodgers, A. R. Clarke, and W. C. Gledhill; Capt. C. J. Cobbe, R.A.M.C.

D.S.O.—Col. (temp.) A. L. Crookford, M.C., T.D., R.A.M.C. Bar to M.C.—Capt. R. R. Gordon, M.C., R.A.M.C.

M.C.—Capt. G. S. Hodge, G. D. Park, and D. Wright, R.A.M.C. Mentioned in *Dispatches*.—Brig. (temp.) E. W. Wade, D.S.O., O.B.E., late R.A.M.C.; Brig. (temp.) H. L. Garson, O.B.E., M.C., T.D.; Col. (temp.) J. H. Donnelly, T.D., T. B. H. Tabuteau, and M. J. Whelton; Col. (acting) P. F. Palmer; Lieut.-Col. R. Coyte; Majors (temp. Lieut.-Cols.) G. Anderton, A. Angus, T.D., J. J. M. Brown, E. A. Downes, R. W. Fairbrother, J. C. Gilroy, W. Graham, N. G. Hill, M.C., T.D., H. H. Kenshole, F. P. L. Lander, F. R. Langmaid, J. D. P. Macpherson, W. R. Martine, M.B.E., T.D., J. W. Orr, M.C., A. S. Pern, T.D., J. K. Slater, K. S. Smith, J. G. E. Vachell, D. S. P. Wilson, A. J. Pitkeathley, and R. V. Phillipson; Major H. W. L. Nichols; Capt. (temp. Major) S. S. Chesser, D. S. Cowrie, W. H. Gabb, E. H. C. Harper, B. Holden, J. R. Kingston, W. R. Merrington, L. O. Mountford, W. L. Ogle, C. L. Owen, J. B. Pirie, and E. C. Zorab; Capt. T. P. Blanshard, J. Braham, J. G. Cassidy, J. P. M. Donnelly, C. D. Farris, C. C. Fenwick, R. A. Hooper, N. A. Jevons, D. G. Liversedge, H. M. MacFie, M.C., J. McKerrigan, J. M. McKiddie, M. D. Milne, O. D. Morris, D. F. O'Neill, A. Paterson, A. Percival, W. R. Perry, L. J. Samuels, D. G. Sheffield, A. W. Sloan, M. G. Sutton, E. R. Winkelman, and A. B. White, R.A.M.C.; Lieut. W. H. G. M. Ling, C. W. Richards, and T. Williamson, M.C., R.A.M.C.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the rising trend of scarlet fever and diphtheria continued, with increases of 226 and 75 respectively. Notifications of whooping-cough were down by 177, of measles by 158, and of dysentery by 37.

The higher incidence of scarlet fever was general throughout the country: in Yorks West Riding notifications were up by 45. A small upward trend in diphtheria has occurred for four consecutive weeks, and the disease is at the highest level since May.

Notifications of dysentery still continue to be high, although there are 37 fewer cases than in the preceding week. The most important of the new outbreaks was in Bedfordshire 29 (Bedford M.B. 21, Luton M.B. 8). Other centres of infection were Kent 29 (Rochester M.B. 20); Hertfordshire 23 (Watford M.B. 20); Buckinghamshire 21 (Wycombe R.D. 12, Aylesbury R.D. 9). The three counties of Leicestershire, Gloucestershire, and Yorks West Riding had 18 cases, compared with a total of 99 in the preceding week.

In *Scotland* there was an outbreak of measles, 58 cases, in Lanark County. Dysentery fell by 24, but was still at a high level, the decrease being due to the North-Eastern area, where the cases dropped from 53 to 18. The largest returns were in Dunbarton County 39, and in Glasgow 15. In the House of Commons on Sept. 21 Mr. Westwood told Mr. McNeill that from Jan. 1 to Sept. 11, 1943, 5,245 cases of pulmonary tuberculosis and 2,204 of non-pulmonary tuberculosis were notified in Scotland.

In *Eire* the returns of infant diarrhoea and enteritis were affected by the inclusion of 46 cases which occurred in a Dublin hospital during the preceding month.

The Week Ending September 18

The returns of infectious diseases in *England and Wales* during the week included: scarlet fever 2,639, whooping-cough 1,531, diphtheria 723, measles 491, acute pneumonia 365, cerebrospinal fever 44, dysentery 268, paratyphoid 8, typhoid 7.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept. 11.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (including London), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	33	3	19	—	—	62	4	21	—	2
Deaths	—	—	1	—	—	—	1	1	—	—
Diphtheria	700	36	180	72	16	855	39	202	46	18
Deaths	6	1	1	2	—	17	—	2	—	—
Dysentery	201	8	112	—	—	146	13	64	—	3
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	—	—	1	1	—	1	—	1	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	37	11	1	—	54	8	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	52	6	14	28	8	73	6	12	156	6
Deaths	—	—	—	—	—	—	—	—	—	—
Measles	516	41	87	6	4	2,644	221	124	9	25
Deaths	2	—	—	—	—	1	—	3	—	1
Ophthalmia neonatorum	95	2	20	1	—	76	5	6	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	5	—	1	—	—	7	2	1	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza*	308	23	7	—	4	319	20	4	3	4
Deaths (from influenza)	6	—	1	—	1	3	—	—	—	—
Pneumonia, primary	—	150	7	—	—	—	124	12	—	—
Deaths	—	16	4	4	—	—	7	—	—	5
Polio-encephalitis, acute	3	—	—	—	—	2	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	9	1	—	3	—	20	—	2	15	1
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	4	16	—	—	—	1	15	4	—
Deaths	—	1	—	—	—	—	—	—	—	—
Puerperal pyrexia†	157	14	9	1	1	125	6	14	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	2,432	235	303	36	75	1,618	83	318	36	47
Deaths	—	—	—	—	—	—	—	—	—	—
Small-pox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	9	1	6	3	4	33	—	1	11	1
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	1,751	123	255	43	19	1,074	99	63	112	4
Deaths	12	—	3	1	—	3	—	—	—	—
Deaths (0-1 year)	305	31	70	52	21	313	32	53	30	17
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	3,628	453	564	177	125	3,403	459	483	161	97
Annual death rate (per 1,000 persons living)	—	—	—	—	—	—	—	—	—	—
Live births	5,811	729	817	318	261	5,890	702	809	355	259
Annual rate per 1,000 persons living	—	—	—	—	—	—	—	—	—	—
Stillbirths	211	27	28	—	—	226	17	37	—	—
Rate per 1,000 total births (including stillbirths)	—	—	—	—	—	—	—	—	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical Notes in Parliament

Recruitment and Allocation of Doctors

On Sept. 21 Sir E. GRAHAM-LITTLE asked the Minister of Health what body was now responsible for the allocation of doctors for civilian services and the fighting Services respectively; what was the relationship between the Central Medical War Committee and the British Medical Association; and how far this committee was subordinate to the Shakespeare Committee in respect of the allocation of medical man-power. Mr. BROWN replied that the Medical Personnel (Priority) Committee, of which Sir Geoffrey Shakespeare was chairman, was responsible for advising, within the limits of any direction that might be given to it by the Government, on the number of doctors to be allocated to the civilian and fighting Services and on matters incidental thereto. The Central Medical War Committee was related to the British Medical Association only to the extent that its secretariat and offices were provided by the Association and that about two-thirds of its members were office-holders or nominees of the Association. The Central Medical War Committee, among other functions, advised on the selection of individual doctors for allocation to the various Services, and was not subordinate to the Shakespeare Committee except in the sense that it must conform with the recommendations of the latter committee as adopted by the Government.

Housing and Health

On Sept. 21 Miss HORSBRUGH informed Mr. Craven-Ellis that the Minister of Health was not aware of statistics giving a direct quantitative relation between housing conditions and infectious disease, but crowding must naturally tend to favour the spread of such disease. Increased density of population involved generally both a higher incidence of infectious disease and an earlier average age of attack.

Medical News

To-day, Friday, Oct. 1, at 3 p.m., Miss Margery Fry, M.A., will give the inaugural address at the London (Royal Free Hospital) School of Medicine for Women, in the Medical School, 8, Hunter Street, Brunswick Square, W.C.

The opening of the 101st session of the College of the Pharmaceutical Society of Great Britain and the presentation of prizes will take place on Wednesday, Oct. 6, at 3 o'clock, at 17, Bloomsbury Square. The inaugural sessional address will be given by Mr. William Spencer Howells, president of the society.

A Radiotherapy Section meeting of the Faculty of Radiologists will be held at 32, Welbeck Street, W., on Saturday, Oct. 16, at 10 a.m., when there will be a discussion on "The Treatment of Carcinoma of the Lung."

Dr. Ethel Browell, medical officer in charge of a first-aid post, Civil Defence Casualty Service, Sunderland, has been commended for brave conduct in civil defence.

Only a few hospitals have made a second application for films for testing the amount of radiation received by x-ray workers (*Journal*, Nov. 28, 1942, p. 644). The Ministry of Health (Circular 2718A) reminds hospital authorities that these tests should be repeated at intervals of three months where the reports are satisfactory, and earlier in other cases.

Viscount Weir, chairman of the Glasgow engineering firm of G. and J. Weir, Ltd., has marked his jubilee with the firm by giving £10,000 to the fracture clinic of the Victoria Infirmary, Glasgow. Five years ago Lord Weir established the clinic with a gift of £7,000, and his latest contribution is intended to develop and extend the work of a service which has proved of the utmost value.

By an Order made under the Defence Regulations which comes into force on Sept. 20, all nurses and midwives (other than members of the Civil Nursing Reserve) aged 18 to 40 must in future obtain employment through a local office of the Ministry of Labour. Employers will not be able to engage a nurse or midwife except through an appointments office unless she possesses an exemption certificate. These certificates will be issued to hospitals and similar institutions in respect of appointments to grades equivalent to that of a ward sister or above.

The address of the Royal Institute of Public Health and Hygiene is 28, Portland Place, W., and not as stated in the announcement of the series of lectures on national health (Sept. 25, p. 409).

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be sent to the Secretary.

TELEPHONE No.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES.—EDITOR: *Attilology Westcent*, London; SECRETARY: *Medisecra Westcent*, London.

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Potassium in Allergy

Q.—In "Discovery" some time ago it was stated from an American source that chloride of potash is most effective in the treatment of hay-fever. Has any experience of this been recorded in this country?

A.—The use of potassium salts has been frequently recommended in allergic conditions such as urticaria, asthma, and hay-fever. The theory behind this recommendation is that in many respects the physiological action of potassium is similar to that of adrenaline. In practice it has proved disappointing. Although enthusiastic reports have at times received wide publicity in the public press and radio in America, most of those who have used potassium chloride critically would agree that it is of limited value in allergy; that it produces many side-reactions, some of them extremely uncomfortable; and that it is decidedly less effective than acetyl salicylic acid (in cases not sensitive to aspirin) or ephedrine plus phenobarbitone in the relief of symptoms. No recent experience in this country is available.

Hyperidrotic Axillae

Q.—How can excessive perspiration in the axillae be checked? The patient concerned is a healthy girl of 24; she perspires tremendously in the axillae—not elsewhere—soaking and ruining her clothing, despite the use of rubber shields, of various proprietary applications for checking perspiration, and despite extremely careful personal hygiene. She is very sensitive about this condition, and now tends to avoid social functions, dances, tennis functions, etc., and is consequently adopting a somewhat "anti-social" attitude. Further suggestions for the treatment of this condition will be much appreciated.

A.—Hyperidrosis of the axillae is often maintained by a nervous disposition and over-consciousness of the dysfunction, so that a mild sedative such as tinct. belladonnae, mx , in a bromide mixture is often of value, combined with reassurance that the condition will improve. Locally, one might try a saturated solution of alum, to which 1% of formalin may be added if the skin tolerates the substance. X-ray therapy in doses of 200 r (90 kV) may be given thrice at two-weekly intervals. This has a temporary effect which encourages the patient, and combined with other measures is well worth trying.

Examining the Sputum in Pneumonia

Q.—I was much interested in the report of a meeting of the Section of Medicine of the R.S.M. held on March 23, in which a discussion took place on atypical primary pneumonia. During the last two winters I saw a large number of cases which correspond closely both clinically and on radiological examination with those described at the meeting. Examination of the sputum of many of these patients by direct smear often revealed fairly large numbers of pneumococci, usually together with a small proportion of other organisms such as streptococci. I have never been quite clear as to how much reliance could be placed on the results of sputum examination in determining the cause of a pneumonia, and I should be grateful for information on this point.

A.—Claims are made from time to time for the diagnostic and prognostic value of the naked-eye appearances or microscopical examination of sputum in pneumonia, but apart from the classical and practically constant association of rusty sputum with lobar pneumonia, it is doubtful if these claims can be substantiated. Certainly little significance can be attached to the finding of Gram-positive diplococci in a stained smear of sputum, since *Str. viridans*, constantly present in the nasopharyngeal cavity, often appears in diplococcal form. The presence of numerous pus cells and oat-shaped diplococci with a negative halo is, however, suggestive of a pneumococcal infection. Demonstration of capsular swelling

(Neufeld quellung) after mixing the sputum with antisera of the different pneumococcal types is the only reliable method of identifying pneumococci by direct microscopical examination, and it is a pity that this technique has never become popular in this country. With it the identification of certain pneumococcal types—for example, I, II, V, and VII—in the sputum of a febrile patient will almost always mean lobar pneumonia. Other pneumococcal types may be present in the throat as saprophytes. Purulent sputum in which there are many small clumps of staphylococci or short, thick Gram-negative bacilli is suggestive of the rare staphylococcal or Friedländer pneumonias, but streptococci in the sputum have no particular significance because the mouth streptococci may occur in short chains.

Renal Calculi

Q.—Can an oxalate renal calculus be made friable and break up into small fragments by taking large doses of calcium chloride or herbs? To prevent recurrence, what are the items of diet to be avoided? Are tea, chocolate, lettuce, grapes, and eggs contra-indicated? Why is the excretion in urine of calcium oxalate excessive when free HCl is given by mouth, and also when there is an absence of free HCl from the gastric juice? Does vitamin B₁ affect renal calculi?

A.—An oxalate calculus is very difficult to break up since calcium oxalate is soluble only in relatively strong acid. If the calculus is a mixture of calcium oxalate and phosphate—the commonest form of oxalate stone—it may be possible to attain solution of the phosphate by acid treatment—such as with calcium chloride or acid-producing herbs—although even this is hindered by the presence of the colloidal material which binds the salts together in the stone. If, on the other hand, the calculus is a mixture of oxalate and urate, acid treatment would tend to cause deposition of urate. A rational method of treatment cannot be advised without a knowledge of the composition of the stone.

Items of diet containing considerable amounts of oxalate and which should be avoided are spinach, rhubarb, and strawberries. There are small amounts in cocoa, coffee, tea, and pepper. Lettuce, grapes, and eggs are oxalate-free.

Excessive excretion of oxalate when free HCl is given is due to increased absorption of the calcium oxalate in foods owing to the increased acidity. Alkaline treatment diminishes excretion of oxalate by hindering absorption of calcium oxalate from the food. In the absence of free HCl in the gastric juice, carbohydrate is liable to undergo fermentation, during which oxalic acid is formed. Thus in this condition excessive oxalate might be excreted even on an oxalate-free diet.

There is no evidence that vitamin B₁ affects renal calculi. (Calcium phosphate stones are favoured by a high-calcium low-vitamin-A dietary.)

Diet in Pregnancy

Q.—In the past various restrictions in the diet of pregnant women were recommended, often enough without much basis in reason. I should be glad to know whether, for the normal pregnant woman, any restrictions of diet are indicated at any stage of pregnancy, and whether, too, supplements of, for example, iron, calcium, and vitamins should be made to the diet, especially in the last two or three months of pregnancy.

A.—Restrictions of diet are unnecessary in normal pregnancy. During the last trimester of pregnancy nutritional strain is at its greatest. Provided she eats all her rations, varies and properly cooks her food, there is no need for the expectant mother to have supplements except cod-liver oil and orange juice. The present milk and cheese rations should suffice to cover her calcium needs. The administration of iron should be governed by the Hb level.

Distension of Bowel

Q.—I have two cases that present great difficulty in treatment. Both patients are women and they suffer from enormous distension of the bowel. The distension is not apparent, or at least not marked, in the mornings, but towards night the abdomen presents the appearance of a 7-months pregnancy, with, of course, a highly tympanitic note throughout. Constipation is not present and liq. paraff. produces a loose motion. What is the aetiology of this condition, and what treatment has any really good result? Neither is of a nervous temperament, but are hard at work in munition factories, while their husbands are in the Middle East.

A.—There appear to be three possible explanations of the cases: 1. Intestinal carbohydrate dyspepsia, in which the colon becomes distended by gas produced by fermentation of starch which has escaped digestion in the small intestine. Clinically this can be recognized by the relief of discomfort and disappearance of distension on passing flatus. The stools contain undigested starch granules and ferment on incubation. Relief follows avoidance of root vegetables and rice.

2. Interference with portal circulation. This is constant in cirrhosis of the liver and intermittent in obstruction caused by partial volvulus, which is often associated with megacolon. Relief follows

injection of 1/4 to 1 c.cm. pitressin, which completely evacuates the faeces and gas accumulated in the colon.

3. As the condition is described as intermittent and no mention is made of relief by passage of flatus, it is probably, like pseudo-cystitis, the result of abnormal descent of the diaphragm and not of intestinal distension. This may appear and disappear suddenly as a result of spasm of the diaphragm, which is generally hysterical in origin. But as in the two cases described the "distension" develops towards night in women who are hard at work all day, it may be the result of relaxation of the abdominal muscles caused by fatigue with consequent ptosis of the diaphragm. In this condition of pseudo-tympanitis x rays show no excess of gas in the colon, no excess of flatus is passed, and the base of the thorax is drawn in, in contrast with its expansion in ascites and when excess of gas is present in the colon. Relief follows instruction in diaphragmatic breathing, and in cases associated with fatigue the use of an abdominal support, or, preferably, rest in the recumbent position for half an hour after the midday meal.

Pest of Flies

Q.—What is the best way to deal with the fly pest?

A.—Fly sprays are difficult to obtain now because the pyrethrum supplies are all required by the Army. The following poison bait is a good alternative: 40% formalin, 15 parts; sugar, 15 parts; water, 70 parts. A tablespoonful is placed in several saucers every morning, and this will kill large numbers of flies. If the formalin is old, formic acid may be present, which should be neutralized with a pinch of sodium bicarbonate. Measures against adult flies are only palliative. It is essential to find the breeding site and, if possible, deal with that. Manure heaps, refuse, or other sources of decaying organic matter should be inspected for fly maggots. The local health department should be approached for measures to deal with these sites.

Bee Stings Again

Q.—I was called to a woman aged 42 who had been stung by bees the previous evening—in the scalp, left forearm, and right leg. All three areas were intensely swollen and painful; the patient was suffering from headache, malaise, and nausea. As the condition suggested an urticarial reaction, I injected 7 minims of a 1:1,000 solution of adrenaline subcutaneously. About a minute after the patient complained of faintness and became blanched; this was followed by a violent shivering and by a series of attacks in which the trunk became arched, as in tetanus, and there was bronchial and laryngeal spasm, causing difficulty in respiration. The pulse was full and bounding, and the patient retained consciousness, though she had difficulty in speaking. These attacks occurred at intervals of about five minutes for nearly three-quarters of an hour, then gradually decreased in violence and intensity and finally ceased, leaving the patient exhausted. There was a violent local reaction at the site of injection—a raised white wheal surrounded by a zone of redness. Why should adrenaline have such an unexpectedly violent effect? Can one be forewarned against such occurrences? And what is the best treatment? Is morphine or atropine indicated for relief of the spasm? The patient is a healthy woman at present having a course of weekly injections of oestrogen for relative sterility.

A.—This patient exhibits simultaneously symptoms resulting from two different causes: (a) Those characteristic of the allergic reaction to the bee stings: local swelling at the site of the stings; general symptoms—(1) mild and prodromal (headache, malaise, nausea); (2) allergic (bronchial and laryngeal spasm, difficulty in respiration, arching trunk—for by throwing the head well back breathing is facilitated). (b) Those characteristic of the pharmacological action of adrenaline: faintness, blanching, shivering, exhaustion. These normal pharmacological effects appear sooner and after smaller doses in some people than in others, and seem to be related to the patient's glycogen stores, as adrenaline converts stored glycogen into blood sugar, which is soon burnt up or excreted. Such effects can be mitigated by ensuring a good supply of glucose, and by keeping the patient recumbent. The "violent local reaction" described is probably the usual local blanching effect of adrenaline in an urticarial skin or during a dermatographic phase.

Where symptoms appear hours after the bite the treatment is: (a) To give a subcutaneous injection of 5 minims of 1 in 1,000 solution of adrenaline, and to leave the needle in position and give a further 2 minims each 5 to 15 minutes until no further general allergic symptoms are apparent, as the duration of the beneficial effect of an injection of adrenaline is very temporary. A 1 in 100 spray of adrenaline by mouth may be soothing if available. (b) To give ephedrine hydrochloride 1/2 gr., and repeat in three hours if any allergic symptoms remain. (c) To give plenty of glucose to combat unpleasant effects of the adrenaline, to which the addition of alcohol is not necessary whilst the pulse is "full and bounding." (d) To keep the patient lying down as long as possible.

The way to administer adrenaline with the least unpleasant effects is to give it in small repeated doses, the patient being recumbent, and an adequate glucose intake assured. Morphine is never indicated, and atropine only if the choking is due to mucous secretion rather than to oedema of the glottis.

LETTERS, NOTES, ETC.

Q.—Is there any reliable information about the value of medical diathermy in the treatment of diseases of the eye?

A.—Thermopile observations have shown that hot fomentations raise the local temperature of tissues very slightly, and this rise is confined to the superficial layers. There is no tangible increase of temperature in the anterior or posterior chambers of the eye or in the vitreous. Diathermy overcomes this limitation, and should be ideally effective in all inflammations of the eye. Clinically, diathermy has proved superior to fomentations in acute iritis and iridocyclitis, and possibly also in congestive secondary glaucoma, but the results have not been particularly striking.

Girl with Facial Hair

Q.—What is the best treatment for a moustache and beard in a young, healthy lady patient of 24 years?

A.—If there were any better way of removing hair from the face than shaving every man would use it, and there is no doubt it is the best way for women also if they can be persuaded to try it. Inferior alternatives are the removal of the hair by pulling it out with epilating wax. This is extremely painful on the upper lip. It produces a perfectly smooth face for some one to two weeks, but the hair has to be allowed to reach a certain length again before the wax can get a grip on it. Rubbing the face night and morning for a few seconds only with a piece of smooth pumice stone will often keep the hair short after it has been removed from the face in the first instance by shaving. Even without shaving, the regular application of pumice stone will eventually break the hair off and keep the face smooth, provided the growth is not too strong. Other alternatives are the application of depilatories, electrolysis, and diathermy. Depilatories such as are based on the alkaline sulphides keep the face smooth for rather longer than shaving, because they erode the hair for a short distance below the surface, but as they also erode the epidermis comparatively few people can use them on the face. Electrolysis and diathermy are only suitable for a comparatively small number of strong hairs. No form of radiation treatment can be considered safe for the permanent removal of hair from the face. In patients whose only abnormality is excessive hair on the face, endocrine treatment has not so far proved to be of any use.

The A B C of Syphilis

Q.—*A* is attending *B* for syphilis. *B* is engaged to *C*, a girl of 19. *C*'s mother calls *A* in to see her daughter, who has a "boil on her privates." *A* finds that the "boil" is a primary sore. How should *A* deal with the case, and what should he tell the parents?

A.—1. A should take steps to see that C is adequately treated without delay by either himself or someone else fully competent to do so. Treatment should extend over a period of at least one year and throughout any pregnancy. A should forbid marriage, or at any rate pregnancy, for at least five years.

2. It is probable that B infected C, but it is not a certainty. A should tell the parents that the girl is suffering from primary syphilis, and inform them what that entails in the way of personal hygiene, treatment, postponement of marriage, etc. He should *not* tell them how she may have contracted it, nor should he, without the permission of the parents, tell her fiancé or anyone else that she is suffering from syphilis. He would be wise to obtain their permission to tell B in order that the necessity for postponement of marriage may be explained. In fact A would do well to arrange a conference of the parents, B, C, and himself in order that all necessary arrangements could be made.

INCOME TAX

Adjustment of Depreciation Allowance

"PH" has claimed an adjustment of the depreciation allowance for the past two years, the agreed reductions in the tax paid for those years to be set against the tax for 1943-4. The amounts of the increased allowance are respectively £26 and £48, and in each case the inspector of taxes proposes to deduct 1/10th earned income relief. Is that correct?

•• Yes. If the allowances had been claimed and given in the first instance—i.e., by deduction from the gross assessment—the tax payable would have been affected by 9/10ths of the allowance (e.g., £800 - £26 = £774 less 1/10th would have been assessed), and the same result must be reached if the allowance is given late.

Earnings of Wife—Post-war Credit

E. B. is a married woman and will be assessable for 1943-4 on earnings of £420. She inquires whether the increase in the special personal allowance in respect of wife's earnings—from £45 pre-war to £80—constitutes a set-off from the post-war credit due in respect of earned income relief.

* No. The post-war credit due on the £420 assessment—assuming that tax is paid at 10s. in the £—will be due on (1/6th—1/10th=) 1/15th of £420—i.e., £28 at 10s.=£14.

Failure of Nail Growth

Dr. D. A. MacDONALD writes: The following case has been under my observation for some time, the patient being an N.C.O. For the past 9 months there has been failure of growth of all nails of both fingers and toes. The nails start growing, and after they have reached a length of a few millimetres from the nail-folds they crack and peel off. The nail beds have become dry, and the finger tips and the skin have become hardened and marked. The nail which attempts to grow is soft and pliable and of no thickness. The condition is rather disabling as the toes and fingers are subject to trauma. The patient has been seen by several specialists and the condition has been diagnosed as: (1) vitamin deficiency—a full course of vitamin therapy was instituted with no effect; (2) a fungous infection of the nails—antiseptic treatment has proved useless. The N.C.O. is in perfect health, teeth in good condition, and there are no signs of alopecia. Advice is sought regarding the aetiology of the condition and a possible treatment.

Sterility and Contraception

Dr. V. P. GONSALVES (Nightingale Lane, S.W.12) in the course of a letter on this and other subjects writes: I wrote a letter to you for information about the alleged connexion between contraception and sterility. You either ignored it or perhaps thought it reference to that subject (Sept. 11, p. 350) an adequate reply to my inquiry. But that is merely a statement that your correspondent was not cognizant of any changes therein. But it does not disprove the existence of the power of conception before and its disappearance after contraceptive measures nor the contrary. It is well known that an organ obstructed repeatedly in the performance of its function loses partly or even completely that power—e.g., amblyopic eye with error of refraction or eyes in ponies kept long underground in mines. What changes are visible in the perceptive faculties? These facts may have weighed with the expert gynaecologists whom I mentioned in my letter when they cautiously stated that contraception may possibly lead to sterility. But your correspondent is very dogmatic and states that he has seen no physical changes and therefore no harm has resulted.

Treatment of Gynecomastia

Dr. J. C. JONES (London, S.E.25) writes: I have found that the administration of stilboestrol is effective in the few cases that I have treated in general practice; 2 mg. per day seems to be sufficient.

Survival after Wiring an Aneurysm

Mr. G. H. COLT, F.R.C.S., writes: It might be of interest that the late Sir William I. de C. Wheeler held the world's record for the duration of life, with excellent health and working, of a patient after the wiring of an aneurysm. It was a case of abdominal aneurysm and the man lived 17 years 8 months after the operation. The next longest was Sir D'Arcy Power's—a thoracic aneurysm 10½ years, but in poor health.

Medical Books for Prisoners of War

Since the first appeal in these columns in 1941 for medical books for doctors and others who are prisoners of war, the demand has greatly increased. Many works that are asked for are unobtainable through the ordinary channels, and the Educational Books Section of the War Organization of the British Red Cross and the Order of St. John appeals especially for copies of the following:

Armstrong, Aids to Anatomy and Physiology. Ashdown, M., Complete System of Nursing; Complete System of Nurses. Bantley, J. C., Elementary Practice of Nursing. Bentley, A. O., Principles of Therapeutics. Bertram, Pharmaceutical Chemistry. Borradaile, Zoology. Boydell, The Elements of Laceration, Symptoms and Signs in Clinical Medicine. Copestake, Theory and Practice of Massage. Greisheimer, E., Anatomy and Physiology. Kimber and Gray, Anatomy and Physiology. Knipers, K. D., Essentials of Chiropody for Students. Macaulay, E. I., Textbook for Mental Nurses. Pearce, E. C., Anatomy and Physiology for Nurses; Textbook of Orthopaedic Nursing. Price, Textbook of Medicine. Rose and Carless, Manual of Surgery. Running, E. G. V., Practical Chiropody. Sears, W. G., Medicine for Nurses. Turner, Disease of Nose, Throat, and Ear. Watson-Jones, Fractures and Other Bone and Joint Injuries.

This appeal needs no emphasis from us, but we would ask doctors to look along their shelves to see if they have any of these volumes that they no longer use, or, indeed, any other suitable, medical books. They should be clean, published since 1935, and should not be marked in ink. The address of the Educational Books Section is The New Bodleian, Oxford.

" Morton's Metatarsalgia "

Dr. J. E. J. PALSER (Thecydon Bois, Essex) writes: Mr. W. Sayle Creer (*Journal*, July 24, p. 126) says: "It [*Morton's metatarsalgia*] was first described in 1875 by Prof. D. P. (or T. G.—various books give different initials) Morton." *Gould's Medical Dictionary*, 1941 p. 887, says, "*Morton's disease*—[Thomas George Morton, American surgeon, 1835-1903]. See *M's foot* . . . *Morton's foot*, a painful affection of the metatarsophalangeal joint of the fourth toe metatarsalgia."

LONDON SATURDAY OCTOBER 9 1943

INFECTIOUS MONONUCLEOSIS

WITH AN ACCOUNT OF AN EPIDEMIC IN AN E.M.S. HOSPITAL

BY

JAMES P. A. HALCROW, M.B., M.R.C.P.Ed., D.P.H.
Resident Physician

LLOYD M. OWEN, M.B., Ch.B.
Ex-Resident Medical Officer

AND

NORMAN O. RODGER, M.B., Ch.B.
Medical Registrar

Emergency Medical Service. Scotland

In August, 1942, an epidemic of infectious mononucleosis, presenting some unusual features, was discovered in an E.M.S. hospital, and was also apparently widespread in surrounding districts. During the past few years interest in infectious mononucleosis has increased and many articles have been published. The condition was reviewed in a most comprehensive manner by Bernstein in 1940 and again by Smeall in 1942. Paul and Bunnell, by their discovery in 1932 that the serum of patients with this disease contains an antibody which agglutinates sheep's red cells in high dilution, did much to establish it as a separate entity. The disease may vary in severity from cases with symptoms so mild as to pass unrecognized to an acute illness with severe sore throat, glandular enlargement, and pyrexia, followed by a long period of debility and frequent exacerbations.

Diagnosis

The clinical manifestations are protean, and diagnosis on clinical grounds alone may be almost impossible; examination of a blood smear and a Paul-Bunnell test, however, will soon confirm diagnosis. Tidy, in his papers on this subject, has dealt thoroughly with the clinical manifestations. He subdivides the disease into three groups—anginose, glandular, and febrile types. In the glandular type the onset is usually characterized by slight pyrexia, frontal headaches, and pain and stiffness at the back of the neck. The first glands to be enlarged are usually those in the posterior triangles, often on the left side, and later all other groups of glands may be involved. Glandular enlargement may persist for many months after all other symptoms have disappeared. Tidy states that in about half the cases the spleen is also involved. The anginose type may closely simulate severe acute tonsillitis or diphtheria. Vincent's organisms are often the predominant flora obtained from the throat. The febrile type occurs more commonly in adults, and is characterized by a fairly sharp onset with severe frontal ache and stiffness of the neck. Rashes may occur with this type and may raise the suspicion of typhoid fever, especially if there is splenic enlargement (Tidy, 1934). Moriform and scarlatiniform rashes also occur. In this type, glandular enlargement may not be present until late in the disease and toxæmia and weakness may be prominent features. In all three types various complications may arise: red cells in the urine; epistaxis; purpura; eruptions have been described (Downey and McKinlay, 1931). In some cases the symptoms referable to the central

nervous system may be so severe as to simulate meningitis, and in some there is an increased cell count in the C.S.F. with definite meningitic signs. These cases may closely simulate acute lymphocytic meningitis—here again the Paul-Bunnell test is of great value in differentiation.

Jaundice has been described in infectious mononucleosis, and in these cases catarrhal jaundice may be closely simulated, especially as the blood pictures are not unlike. Bernstein suggests that some cases of catarrhal jaundice with enlarged spleens are probably cases of infectious mononucleosis.

Serological Diagnosis

The Paul-Bunnell reaction is of great value in establishing the diagnosis of infectious mononucleosis. There is, however, much dispute in the literature regarding the titre which can be accepted as diagnostic of the condition. Tidy (1939) regards a titre of 1:64 as specific, but other writers do not accept a titre of less than 1:256 unless the absorption test is also positive. Paul in 1941 stated that a titre of 1:64 is nearly always of diagnostic value, while a titre of 1:32 is suggestive of it. Smeall (1942) gives the results of Paul-Bunnell tests performed on 765 patients not suffering from infectious mononucleosis or serum sickness; in 66.8% of these no agglutination was observed, while only 0.4% gave a titre of 1:64. Barrett in 1941 tested the sera of 100 normal healthy people and found only 4 with a titre of 1:40; none exceeded this figure. Paul and Bunnell in their original work found that 273 control cases gave only low titres. The Paul-Bunnell test may become positive very early in the disease, but in some cases a positive result is not obtained for three to four weeks. In view of this it is essential that in a suspected case of infectious mononucleosis repeated Paul-Bunnell tests be done, as a single negative reaction does not rule out this diagnosis. In cases with a low titre the absorption test is useful to distinguish the infectious mononucleosis antibody. It has been found that sera from cases of infectious mononucleosis contain antibodies which are absorbed by ox cells but not by guinea-pig kidney. Sheep-cell agglutinins occurring in serum from normal people are absorbed by guinea-pig kidney but not by ox cells, while the agglutinins found in the sera of cases treated with horse serum are absorbed by both the ox cells and the guinea-pig kidney (Barrett, 1941).

In cases of infectious mononucleosis in which the Paul-Bunnell titre does not rise above 1:32 this absorption test is of great value. The Paul-Bunnell reaction may remain positive for many weeks after clinical manifestations of the disease have disappeared.

The Blood Picture

Great care in the study of blood films is necessary in establishing a diagnosis of infectious mononucleosis. It is well known that the characteristic finding is a relative and absolute increase of the lymphocytic series of cells. Tidy (1934) states that the total white count ranges between 6,000 and 15,000 per c.mm.; in many instances, however, the count has greatly exceeded this figure. Rarely, the disease may be ushered in by a leucopenia. Paul (1939) noted that in about half his cases leucopenia was a feature. Tidy mentions that the polynuclear cells often show a shift to the left, and he draws attention to the statement that the eosinophils may be low or absent during the acute stage and increased above normal during convalescence. Tidy also mentions the initial polynucleosis at the onset of the disease. It is, however, in the mononuclear cells that striking changes occur: these cells often constitute 60% and upwards of the total white count (Bernstein, 1940). Bernstein comments on the fact that mononucleosis occurs more commonly in sporadic cases than in the epidemics, and he attributes this to the fact that only the more obvious cases of the sporadic type are recognized, while in a known epidemic slight changes in the blood are looked for and found.

The mononuclear cells in infectious mononucleosis may be divided into three groups: Group 1, normal lymphocytes; Group 2, monocytes; Group 3, abnormal or atypical lymphocytes. Groups 1 and 2 correspond to cells found in normal blood. The atypical lymphocytes show great variation in morphology; they vary in size and shape, and the nucleus may be oval, indented, or show lobulation. Nuclear chromatin often shows fenestration. Downey in 1923 divided abnormal lymphocytes into three types: Type 1 corresponds to the cell described above, and in Type 2 cells the chromatin of the nucleus is not so condensed and the cytoplasm does not show vacuolation; Type 3 cells resemble those of acute lymphatic leukaemia, the nucleus possessing nucleoli and a basophilic cytoplasm. It is generally agreed that the erythrocytes and the platelets are not affected in infectious mononucleosis, and bleeding and coagulation times are normal. The blood picture typical of infectious mononucleosis is characterized by a relative and absolute lymphocytosis and the presence of abnormal lymphocytes.

Many writers describe cases of infectious mononucleosis in which serological tests for syphilis have been positive. Bernstein states that 18% of his cases were serologically positive for syphilis, while Radford and Rolleston drew attention to this phenomenon in 1930. Paul in 1939 described several cases in which a positive Wassermann reaction was obtained. Kahn in 1939 drew attention to the fact that these false positive serological tests for syphilis may persist for several months.

The Marrow

Freeman in 1936 found an increase in lymphocytes and sometimes a slight shift to the left of the myeloid leucocytes in marrow from cases of infectious mononucleosis. Israël in 1941 found, in a few cases he examined, that the marrow showed an increase in plasma cells and abnormal lymphocytes; Vogel and Bassen in 1939, however, in four cases found no change in the marrow. Sternal puncture would certainly help to differentiate between acute lymphatic leukaemia and infectious mononucleosis.

Pathology of Lymph Glands

All authors agree that there is marked hyperplasia of lymphoid and reticulo-endothelial cells. Pratt in 1931 described great hyperplasia of the reticulo-endothelial cells. Downey and Stasney referred to similar pathological findings in 1936. Longcope in 1922 gave an essentially similar picture. The gland architecture is maintained, and the abnormal lymphocytes found in peripheral blood can be demonstrated throughout the glands (Gall and Stout, 1940).

The changes found in lymph glands are not diagnostic, and could be confused with any non-specific adenitis, although biopsy of a lymph gland would readily differentiate between infectious mononucleosis and more serious conditions such as lymphatic leukaemia and lymphadenoma.

Most epidemics of infectious mononucleosis have occurred among children. Tidy and Morley (1921) reckoned that 85%

of epidemic cases of this disease occurred in children under years of age. Nolan in 1935 described an epidemic of infectious mononucleosis in which only 5 cases out of 220 in adults. The Paul-Bunnell titres in his cases ranged 1:80 to 1:320, and most of the cases appeared to be mild. Most epidemics of infectious mononucleosis have occurred in hospitals and institutions. The incubation period usually from 5 to 11 days. Boyd (1940) states that studies of a healthy medical students during an epidemic show many mild cases probably pass undiagnosed. Keyersbael and Lenert (1941) describe 16 cases among 108 children who receiving convalescent treatment after rheumatic fever. Of these 16 cases showed symptoms or signs; the blood picture was apparently typical, although the predominating cell the small lymphocyte and the Paul-Bunnell reaction negative. Smith (1941) describes leucocytosis with absolute lymphocytosis occurring in children without symptoms of disease being manifest.

Description of the Epidemic

The epidemic described below differs in many respects those previously recorded. The age incidence was from 14 to 45 years; the outbreak occurred in a selected population, young soldiers who, although in hospital, were relatively healthy. The disease was distributed equally between males and females. Two older cases may be specially mentioned here: one that of a woman aged 84 who had no clinical manifestations of the disease, but had a Paul-Bunnell reaction of 1:128; another of a woman aged 65%; the other was that of a woman aged 48% who had no clinical manifestations, a negative Paul-Bunnell reaction, but a very typical blood picture with a mononucleosis of 48%. These patients were the oldest observed. The incubation period in our cases varied from 5 to 10 days; in this instance it was exactly 5 days.

The most interesting feature of the epidemic was the occurrence of cases without clinical manifestations. In many instances the Paul-Bunnell antibody was present along with typical blood changes—i.e., a relative and absolute mononucleosis with abnormal lymphocytes present in the peripheral blood—but clinical manifestations were completely lacking.

The first case to be detected in this outbreak was that of a woman aged 25, admitted to the hospital on Aug. 5, 1942, with a clinical attack of severe anginal infectious mononucleosis. She had a mononucleosis of 83% and her Paul-Bunnell reaction was five times at 1:340. Four other cases were also admitted to the medical unit early in August. On Aug. 12 one of the male medical staff who was in close attendance on the first patient began to show symptoms of the disease, although he made no special comment until Aug. 23, when he had generalized glandular enlargement. From Aug. 12 onwards many members of the nursing medical staff began to suffer from moderately severe symptoms of infectious mononucleosis, and cases also occurred among the medical patients. As the infection seemed to be widespread, blood pictures were examined from all patients in the unit at this time, with the astonishing result that every one was found to have a blood picture typical of infectious mononucleosis, although many were symptomless. On Aug. 26 it was decided to take sample blood pictures from all patients in other units of the hospital, and these again showed blood picture typical of the disease. As a great number of medical staff and patients were now complaining of symptoms it was decided to close the hospital to admissions from Aug. 28, and a thorough investigation was made into the outbreak. At this time 273 patients in the hospital were examined clinically for symptoms and blood pictures, and 97% were found to have infectious mononucleosis and, so far as time permitted, Paul-Bunnell tests were done, together with blood examination. In addition, members of the medical and nursing staffs were investigated, making the total 296. The result revealed that 97% of those investigated showed evidence of the infection. In no instances could the infection be completely excluded; these persons had no symptoms or signs and had normal blood pictures with titres or negative Paul-Bunnell reactions. Of the 296 persons investigated at this time 125 were clinical cases of infectious mononucleosis, and 165 had blood and serological changes but no clinical manifestations of the disease. In addition, relatives of the medical and nursing staffs living outside the hospital developed clinical manifestations of the disease which were quite well marked. Previous epidemics of infectious mononucleosis have been described but none appears to have reached the high percentage of positive cases present in this epidemic. It would seem that the infection was very high, or else the hospital and surrounding districts were subjected to a very heavy dosage, perhaps due to blood conditions.

Cases can be subdivided into groups according to the highest titre of the Paul-Bunnell test.

TABLE I.—296 Cases, plus 23 in which no Paul-Bunnell Tests were Done

Distribution of Cases	Paul-Bunnell End Titre					Paul-Bunnell not Done, but Blood Picture Typical
	1:512	1:256	1:128	1:64	1:32	
Medical unit ..	7	9	25	24	5	3
Aver. W.B.C. ..	10,900	6,600	10,900	9,400	9,900	9,900
mononuc. ..	49%	49%	46%	47%	49%	47%
Orthopaedic unit ..	4	12	34	52	49	22
Surgical unit ..	0	6	16	13	8	3
Cases with clinical manifestations ..	9	15	40	40	16	5
Total cases ..	11	27	75	89	62	23

The cases in the medical unit include members of the nursing and medical staffs. Of the six cases which were entirely negative, five were in the orthopaedic unit and one in the surgical unit. All six negative cases had Paul-Bunnell titres of 1:32 or less. In Table I 23 additional cases are shown: these cases had no Paul-Bunnell tests, but their blood pictures were characteristic. The surgical unit is closely adjacent to the medical unit, in which infection was most severe; the main part of the orthopaedic unit is 1,000 yards away from the medical unit. All the surgical staff of the surgical and orthopaedic units had clinical manifestations of the disease.

As the infection seemed widespread in the hospital it was decided to use as a control group of cases elsewhere, and Dr. E. Neil Reid, County M.O.H., kindly gave us facilities to examine cases in centres at varying distances away. The first group—19 A.R.P. workers—examined was in a town closely adjacent. Paul-Bunnell tests, white blood counts, and differential counts were done on all of them. Of these 19 cases (Table II, Group A), 7 were in close contact with the hospital, and most of the others had opportunities to contact its personnel. A further control group (B) was examined in a town about 5 miles from the hospital, this being the place from which the first severe anginose case was admitted. Group C was drawn from an A.R.P. group in a town about 13 miles and Group D from a small country village about 20 miles from the hospital. In addition, the Department of Health for Scotland arranged for a control group (E) in another E.M.S. hospital about 35 miles distant, and we are indebted to the Department for the results shown in Table II.

TABLE II.—Results of Control Investigations

Group	No. of Cases	Paul-Bunnell Titre				Blood Picture		Clinical Manifestations	
		1:256	1:128	1:64	1:32				
A & B	37	6	12	7	8	3	37	2	35
C & D	35	—	1	3	10	21	31	2	33
E	20	—	—	—	—	20	20	—	20

Clinical Features

Clinically, cases can be divided into four groups:

1. *Latent Cases.*—Cases with a relative or an absolute mononucleosis with abnormal lymphocytes present and a positive Paul-Bunnell reaction, but in which there were no symptoms or signs of the disease.

2. *Mild Cases.*—Cases with symptoms and signs, but not so severe as to lead to abstinence from duty, or would not have done so if the patient had not already been in hospital with some other complaint.

3. *Moderate Cases.*—Similar to Group 2, but with severer symptoms and patient confined to bed for a day or two.

4. *Severe Cases.*—Patients more seriously ill, and diagnosis found difficult.

Symptomatology

Headache.—This was present in 92 cases and was severe; it was frontal in distribution, intermittent in character, and tended to recur daily for several days. Pain behind the eyes was often severe, and a mild conjunctivitis was present in a fair number of cases.

Stiff Neck.—Common, and probably due to the enlarged glands. Definite nuchal rigidity was observed in two cases.

Mental Symptoms.—These occurred in 31 cases, and consisted of slight confusion, inability to concentrate, transient forgetfulness, lassitude, and insomnia.

Pyrexia.—This was not a feature except in anginose cases. In one case pyrexia was the only feature, and continued for many days before glands became enlarged. Another glandular case had pyrexia without the illness.

Polyuria with Lumbar Pain.—Occurred in 34 cases. The urinary findings were negative except in anginose cases in which red cells and albumin were present in the urine.

Glands.—The lymphatic glands were enlarged in nearly all cases, although enlargement had sometimes to be sought for carefully. The glands were fleshy and usually tender, and the groups most frequently involved were in the posterior triangles of neck and axillae, although many cases had generalized glandular enlargement, often including the epitrochlear glands. Glandular enlargement was intermittent, with a tendency to frequent relapses. In cases from which glands were removed for biopsy it was noted that healing was very slow although no sepsis was present. In one case healing occurred only after blood transfusion, but was then rapid. Whitby and Britton (1939) state that glands should not be excised.

Spleen.—Splenic enlargement was present in about 30 cases, but many others had pain and tenderness in the left hypochondrium. In one case the spleen reached to below the umbilicus.

Rashes.—These were observed in 10 cases. (a) Maculo-papular—seen in 3 cases. In two cases the rash began between the scapulae and spread on to the front of chest and abdomen, later spreading to the upper part of arms and legs. In these two cases there was no rash on the hands, legs, or face. In the third case the rash started in the front of the body and spread round to the back and on to the flexor aspects of the arms. These three cases could have been confused with secondary syphilis, as sore throat and generalized glandular enlargement were a feature. However, the W.R. was negative, the Paul-Bunnell titre was positive at 1:256 or over, and the blood pictures were quite typical. The rashes occurred early, usually on the first or second day. (b) Scarlatiniform and morbilliform rashes were seen in the remaining 7 cases, and these rashes were very transient. (c) One case with a purpuric rash on the legs and thighs was observed.

Jaundice.—This was not seen during the epidemic, but the icteric index and the van den Bergh test, done on 15 of the severer cases, showed that 8 had latent jaundice. One case admitted after the hospital reopened had fairly severe jaundice, serum bilirubin 6 mg. per 100 c.cm., and a Paul-Bunnell titre of 1:128 with a positive absorption reaction.

Sore Throat.—Present in 35 cases. The fauces were injected, but only 4 true anginose cases were seen.

Alimentary Symptoms.—Transient diarrhoea was present in 13 cases in the early stage of the disease. Vomiting was also present, and in a few cases vomiting and diarrhoea were severe. Repeated examinations of the faeces for pathogenic organisms in these cases were negative.

Thoracic Symptoms.—Observed in many cases, and often raised the suspicion of pleurisy or pneumonia. Pain in the chest, aggravated by respiration and accompanied by cough, was the main symptom. Clinical and radiological examination of these patients was negative. It seems likely that the symptoms were due to enlarged mediastinal glands, although this was not confirmed on fluoroscopy.

Meningitic Cases.—In 5 cases meningitic symptoms were severe enough to warrant lumbar puncture. In 4 of these cases the C.S.F. pressure was high, and three of these four had a cell count above 5 per c.mm., while the one with normal cell count had an increase in protein. In the fifth case the C.S.F. was normal in every respect.

Epistaxis.—Observed in 4 cases.

One case was observed in which the salivary glands were enlarged; the blood picture was typical and the Paul-Bunnell titre 1:128. Six cases with parotid enlargement were described by Glanzmann in 1930.

In most cases the symptoms subsided completely within 5 to 21 days, but a few went on for longer periods, with relapses, and two were still having relapses after six months.

The Wassermann, Kahn, and flocculation tests were done in many cases during the epidemic and were consistently negative, irrespective of the titre of the Paul-Bunnell; thus the results differed from those obtained by other workers. In 6 cases recently observed by us in which the absorption test for the glandular fever antibody was positive, the W.R. and the flocculation test were negative throughout the course of the disease. In two of these recent cases the Paul-Bunnell titre exceeded 1:2000.

The Paul-Bunnell Test

During the first three weeks of the epidemic about 1,000 Paul-Bunnell tests were done, and in these circumstances it was impossible to put up the serum in dilutions greater than 1:512. The patients' sera were inactivated at 55° C. for 15 minutes, and dilutions of the sera ranging from 1:32 to 1:512 were set up; to these 0.5 c.cm. of 1% suspension of washed sheep red cells was added. The tubes were then placed in the incubator for one hour and afterwards left in the refrigerator all night. After shaking gently two or three times they were read by naked eye, according to the method of Paul and Bunnell. Any result about which there was the least doubt was regarded as negative. Unfortunately, at the time the epidemic was in progress it was not possible to do absorption tests to prove the presence of the true glandular fever antibody. However, one of the patients seen during the epidemic returned to hospital in the middle of December, and the Paul-Bunnell reaction on this occasion was positive 1:32, and the absorption test, using guinea-pig kidney and ox cells, was positive (Barrett, 1941). Much has been written about the diagnostic titre in the Paul-Bunnell reaction. We agree with Tidy that a titre of 1:64 is practically diagnostic. We think a titre of 1:32 is suggestive and is an indication for repetition of the test in a few days' time. In many of our cases the first two or three Paul-Bunnell tests, performed at intervals of 5 to 7 days, were negative at 1:32, and thereafter gradually rose to significant or diagnostic titres. The titres observed in this epidemic are low compared with those of sporadic cases, but are much higher than titres obtained in control groups of cases not suffering from infectious mononucleosis and described by other writers. In our series of 296 cases 202 had titres of 1:64 or over—a finding quite unlike anything previously described on controls done on normal people. It is strong evidence of the presence of some infective agent which has greatly increased the heterophile antibody response in our cases; when coupled with the clinical findings and the blood picture the evidence that the disease present was infectious mononucleosis is almost certain.

The Blood

Blood changes in infectious mononucleosis have been considered very thoroughly by various authors, and the changes found in this epidemic were much in accordance with previous descriptions.

In our series the total white count varied from 8,000 to 20,000, but only a few cases had counts of 20,000. Many had leucopenia fairly early in the disease, as found by Tidy, by Longcope, and by Davidsohn (1937). An initial polymorphonucleosis was seldom observed in this epidemic. In most of our cases the polymorphs showed a shift to the left, and stab cells were often seen; many of the polymorphs showed toxic granulation. Early in the disease we observed that eosinophils were absent; but later on, as recovery ensued, they returned in proportions greater than normal. An unusual feature was an increase in basophils, these ranging from 1 to 3% in a fairly early stage of the disease.

The platelet count and coagulation time (Lee and White) were unaffected. Anaemia was not a feature: one case of hypochromic anaemia occurred in a young adult male; this responded rapidly to iron therapy. In a female anginose case anaemia was severe and the white cells fell to 2,000, which led to a suspicion at first of agranulocytosis, especially as the abnormal cells of infectious mononucleosis have been described as occurring in agranulocytosis.

The mononucleosis varied from 45 to 60%—only in a few cases did it exceed 75%. The most striking change in the lymphocytic series of cells was the almost complete disappearance of small lymphocytes; this occurred early in the disease. The other feature was a marked increase in the numbers of large lymphocytes and the appearance of abnormal lymphocytes. Many of the large lymphocytes had a very pale cytoplasm with the typical pale nucleus of the normal large lymphocyte—in most respects they did correspond to the normal large lymphocyte except that the cytoplasm was paler than usual and often vacuolated. Many of them contained the normal reddish-purple granules in their cytoplasm. Some of the large lymphocytes appeared to be unduly fragile. Films made from early cases contained many smear cells.

The abnormal lymphocytes varied greatly in morphology—in size they ranged from a cell intermediate between a large and small lymphocyte to a large monocyte. The cytoplasm was usually much more basophilic than that of the ordinary lymphocyte and was nearly always vacuolated. Some of the abnormal cells were difficult to distinguish from plasma cells. The nuclei varied greatly in shape—some were oval or rounded, others irregular or lobulated. The nuclear chromatin was dense. Some of the abnormal lymphocytes had irregularities of their cytoplasm which resembled pseudopodia. Many of the abnormal lymphocytes seen corresponded to Downey's Type I and Type II; only in a few cases was Downey's Type III evident. Peroxidase staining failed to reveal any granules in the cytoplasm of the abnormal lymphocytes.

Blood changes usually persisted for several weeks, and a fair proportion of cases still had many abnormal cells present at the end of three months. A true monocytosis was not a notable feature; it occurred late and usually varied from 10 to 13%. An interesting phenomenon previously noted by Barrett was confirmed in this outbreak: the typical blood changes may be present before clinical manifestations make their appearance. This was noted in several cases.

In most of our cases the sedimentation rate was not affected: only in anginose cases and those with pyrexia did the B.S.R. increase. In one case with pyrexia, severe meningitic manifestations, and a C.S.F. cell count of 300 lymphocytes per c.mm the B.S.R. never rose above 4 mm. per hour (Westergren).

Sternal puncture was performed on several cases. Examination of the marrow revealed a definite increase in lymphocytic cells and a slight increase in activity of the myeloid series of cells. In some marrow specimens there was an increase of cells of the plasma cell type, and cells resembling the abnormal lymphocyte in the peripheral blood were also noted. These findings correspond to those of Israëls (1941). It is proposed however, to deal with the findings in a separate paper at a later date.

Pathology of Lymph Glands

Biopsy of lymph glands was performed on several cases, and reports of two, with case histories, are as follows:

Male aged 27.—Sept. 16, 1942: Sore throat and frontal headache; pain in back and axillae. Glands palpable in both axillae. During next 14 days nausea, headache, and pain in axillae and groins were present, and on Sept. 27 there was generalized glandular enlargement with slight splenomegaly. Blood examinations: Sept. 15: W.B.C. 10,600—polymorphs 70%, large lymphocytes 10%, small lymphocytes 2%, monocytes 5%, abnormal lymphocytes 13%. Sept. 23: W.B.C. 12,000—polymorphs 57%, large lymphocytes 11%, small lymphocytes 2%, eosinophils 2%, basophils 1%, monocytes 10%, abnormal lymphocytes 17%. Paul-Bunnell tests: Sept. 9, 1:64; Sept. 23, 1:128; Sept. 30, 1:128; Oct. 17, 1:32.

Report on Gland from Left Axilla.—Well-marked hyperplasia of the lymphoid tissue is present, many of the germinal centres being very large and prominent. A number of the sinusoids show moderate but distinct dilatation and are packed with numerous reticulo-endothelial mononuclear cells, together with a moderate number of small lymphocytes. Scattered areas of old fibrosis, presumably post-inflammatory, are also present.

Man aged 23.—Sickened Sept. 12, 1942, with severe frontal headache, shivering attacks, and pain in both groins. Eyes sore and watering. Glands palpable in both anterior and posterior triangles of neck and in both groins; later developed slight splenomegaly. A blood examination the same day showed: W.B.C. 18,450—polymorphs 69%, large lymphocytes 15%, small lymphocytes 2%, eosinophils 2%, basophils 1%, monocytes 1%, abnormal lymphocytes 10%. Paul-Bunnell tests: Sept. 10, 1:128; Sept. 22, 1:64; Oct. 11, 1:64.

Report on Gland from Right Groin.—Lymphoid hyperplasia is present, but is not a prominent feature. Sinusoidal dilatation is, however, much more conspicuous than in the preceding case. The dilated sinusoids contain numerous reticulo-endothelial mononuclear cells, together with a moderate number of small lymphocytes.

We are indebted to Dr. W. Forbes, Department of Pathology, Edinburgh University, for the report on these glands. The changes described in the glands correspond to previous descriptions. They cannot be regarded as specific.

Treatment

In our cases treatment was mainly symptomatic. In two anginose cases sulphapyridine was given, but no favourable

response was obtained; in fact, in one case the throat condition became worse, pyrexia continued, and blood transfusion had to be given. As the granulocytes are reduced in infectious mononucleosis and many show toxic changes, it is not surprising that sulphonamides do not give good results. Tidy (1941) states that if granulocytes are normal or increased in number no harm is done with sulphonamides. He has seen cases made worse by sulphonamides. Convalescent serum was not used. One case with fairly severe meningeal symptoms, pyrexia, and raised C.S.F. cell count made a rapid response to sulphadiazine.

Discussion

The unusual features in this epidemic were the high infectivity and the presence of latent cases. Before the epidemic started 5 known cases of infectious mononucleosis were admitted to the medical unit. This would increase the chances of spread considerably, but it hardly accounts for cases elsewhere in the hospital and outside. It seems likely that the district had an epidemic of mild infectious mononucleosis which was fairly localized. In view of the protean manifestations of the disease and the difficulty of diagnosis in the absence of haematological and serological tests the outside cases would be regarded as influenza, gastro-enteritis, etc. The difference in the findings between the outside controls near the hospital and those situated at some distance is very striking, and points to a definite localization of the disease. The spread of the epidemic within the hospital is difficult to follow. Efforts to trace case-to-case infection did not meet with any satisfactory result.

Latent cases can be explained on the basis that their immunity was sufficient to prevent the onset of clinical manifestations, as in the manner of diphtheria and meningococcus carriers. In infectious mononucleosis, however, the presence of the infecting virus produces changes in the blood picture and stimulates the production of heterophile antibodies so that latent cases are easily detected.

Differential Diagnosis

Epidemic infectious mononucleosis in adults is a relatively mild condition which simulates many other conditions. The anginous type resembles diphtheria, but here the blood picture is useful to distinguish these conditions: in diphtheria a polymorphonucleosis is invariable, while in a fully developed anginoid infectious mononucleosis absolute lymphocytosis is the rule. The cerebral type may closely simulate a true septic meningitis, but although the cell count may be raised to 300 or 400 per c.m.m. the predominant cell is a small lymphocyte. This, of course, still leaves it doubtful whether or not it is a tuberculous meningitis; to exclude tuberculous meningitis the blood picture and Paul-Bunnell test are of undoubted value. In one of our cases with meningeal symptoms the C.S.F. cell count was 400 per c.m.m. and optic neuritis was present for 8 weeks; the patient also had glandular enlargement, with the usual haematological and serological findings, and made a complete recovery. Cases with thoracic symptoms may simulate pleurisy or pneumonia, while those with severe vomiting and diarrhoea may closely resemble acute gastro-enteritis or typhoid fever.

The blood picture in infectious mononucleosis may be simulated to a certain extent in other conditions, particularly catarrhal jaundice and atypical pneumonia. In catarrhal jaundice abnormal lymphocytes are not infrequent, but here the Paul-Bunnell test and the absence of glandular enlargement help to differentiate the two conditions. In four cases of atypical pneumonia seen by us there was an absolute lymphocytosis, and abnormal lymphocytes were present; some of these had a deeply basophilic cytoplasm and were in many respects similar to the abnormal lymphocytes of infectious mononucleosis. However, in all four cases the Paul-Bunnell test was negative and glandular enlargement was absent. Downey and Stasney have commented on the presence of abnormal lymphocytes in agranulocytosis, a condition which may also simulate anginous infectious mononucleosis. In cases with a rash the diagnosis of secondary syphilis, rubella, or erythema nodosum may be considered. Rubella may be very difficult to differentiate from infectious mononucleosis: in both conditions the posterior triangle glands are enlarged, and the rash of

rubella may be closely simulated in infectious mononucleosis. In rubella the peripheral blood contains many Türk cells and abnormal lymphocytes, rather resembling those of infectious mononucleosis. However, the Paul-Bunnell reaction is of undoubted value, as it is consistently negative in rubella. In three cases of rubella seen by us the Paul-Bunnell test was negative throughout the disease. The rash in infectious mononucleosis may often resemble that of typhoid; and here the diagnosis may be difficult, as false positive Widal tests have been reported in infectious mononucleosis by Bernstein. Again the Paul-Bunnell test is very useful. The more serious blood disorders, such as leukaemia, should never be confused with infectious mononucleosis, for, as Smeall pointed out in 1942, the changes in the red cells in leukaemia make the distinction quite clear. In general it may be said that the diagnosis of infectious mononucleosis should not be made on any one test: the Paul-Bunnell reaction, the haematological findings, and the clinical manifestations should all be correlated before coming to a decision.

It seems likely that infectious mononucleosis, especially in a mild form, is a very common condition which can readily be mistaken for other diseases. Since the hospital reopened we have seen a number of cases of infectious mononucleosis, many of which would have been regarded as some other condition unless blood counts and Paul-Bunnell tests had been carried out.

Summary

An epidemic of infectious mononucleosis is described.

The unusual features were: (a) a high percentage of infected cases in the adult population; (b) the occurrence of cases with haematological and serological findings and no clinical manifestations; (c) the fact that blood and serological changes may precede clinical manifestations.

Attention is drawn to the difficulties in diagnosis, and the necessity for repeated Paul-Bunnell tests before excluding the disease.

The condition is always benign and does not respond favourably to sulphonamide therapy.

We are much indebted to the following for their help and advice: Prof. L. S. P. Davidson, Dr. J. L. Halliday, Prof. T. J. Mackie, Dr. A. A. F. Peel, and Dr. I. S. Sutherland; and to Dr. J. A. Jenkins, medical superintendent, and our colleagues in the hospital for their co-operation and help. We are indebted also to the Department of Health for Scotland for permission to publish this paper.

BIBLIOGRAPHY

- Barrett, A. M. (1941). *J. Hyg., Camb.*, **41**, 330.
 Bernstein, A. (1941). *J. clin. Invest.*, **13**, 419.
 — (1938). *Amer. J. med. Sci.*, **155**, 79.
 — (1940). *Afric. J.*, **19**, 85.
 Boyd, W. (1940). *The Pathology of Internal Diseases*, Philadelphia.
 Davidson, L. (1937). *J. Amer. med. Ass.*, **103**, 289.
 Downey, H., and McKelvey, C. A. (1923). *Arch. Intern. Med.*, **32**, 82.
 — and Stasney, J. (1936). *Folia Haemat.*, **12**, 417.
 Freeman, W. (1936). *Amer. J. clin. Path.*, **6**, 185.
 Gall, E. A., and Stout, H. A. (1940). *Amer. J. Path.*, **16**, 433.
 Glanzmann, E. (1930). *Das lymphomatoide Drüsenfieber*, Berlin.
 Israels, M. C. G. (1941). *Lancet*, **1**, 260.
 Kahn, R. L. (1939). *Arch. Derm. Syph.*, Chicago, **38**, 92.
 Longcope, W. T. (1922). *Amer. J. med. Sci.*, **164**, 781.
 Nolan, R. A. (1935). *U.S. Nat. med. Bull.*, **33**, 479.
 Paul, J. R. (1939). *Bull. N.Y. Acad. Med.*, **15**, 43.
 — (1941). *Lancet*, **1**, 584.
 — and Bunnell, W. W. (1932). *Amer. J. med. Sci.*, **183**, 90.
 Pratt, C. L. G. (1931). *Lancet*, **2**, 794.
 Radford, M., and Rolleston, J. D. (1930). *Ibid.*, **2**, 18.
 Reyschbach, G., and Lenz, T. F. (1941). *Amer. J. Dis. Child.*, **61**, 237.
 Smeall, J. T. (1942). *Edin. med. J.*, **46**, 291.
 Smith, C. H. (1941). *Amer. J. Dis. Child.*, **62**, 231.
 Tidy, H. L. (1934). *Lancet*, **2**, 180, 236.
 — (1939). *Synopsis of Medicine*, Bristol.
 — (1941). *Lancet*, **1**, 227.
 — and Morley, E. B. (1921). *British Medical Journal*, **1**, 452.
 Vogel, P., and Basser, F. A. (1939). *Amer. J. Dis. Child.*, **57**, 245.
 Whitby, L. E. H., and Britton, C. J. G. (1939). *Disorders of the Blood*, London.

Dr. E. H. Claver's report for the year 1942 as Director of the South African Institute for Medical Research, Johannesburg, includes a section on war work. There has been further expansion in various branches of the Institute's activities to meet increasing military needs. Vaccines and sera produced under normal conditions for civilian requirements were wholly inadequate in quantity to cope with the special hazards to which campaigning troops are exposed. Their production had to be enormously increased and new procedures had to be introduced; for example, anti-gangrene serum, not prepared locally before the war, is now being produced on a very large scale. A military Directorship of Pathology, under Dr. Claver as honorary colonel, was set up to undertake the training of staff for the various military hospital laboratories and to supervise their equipment and running.

A NEW APPROACH TO THE TREATMENT OF EARLY SYPHILIS BY INTENSIVE THERAPY

BY

T. R. LLOYD JONES

Surg. Capt., R.N.; Consultant in Venereal Diseases, Royal Navy

AND

F. GORDON MAITLAND

Surg. Lieut.-Cmdr., R.N.V.R.

Our purpose in writing this paper is to present a new understanding of "early syphilis" and of its treatment by a modified form of intensive therapy, with the result of work and investigations done on a series of 100 cases. Our aim has been to try to evolve a scheme of treatment which, while promising to be adequate and effective, may at the same time reduce the toxic effects of existing methods to a minimum.

It has been universally accepted that the earlier syphilis is diagnosed and treatment begun the greater the percentage of cure. But that syphilis can be aborted is proved by:

1. Magian's (1919) self-inoculation experiment with *Spirochaeta pallida*—namely, a single injection of arsphenamine given one hour after inoculation and no subsequent relapse.
2. Fournier and Guenot's (1919) experiments with 40 women treated with from four to six injections of arsphenamine, 20 of whom, followed up, remained free from syphilis for three years after having been infected up to three weeks previously by men with proved contagious genital lesions, while those who refused treatment under exactly similar conditions all subsequently developed syphilis.
3. Paul Padgett's (1941) dictum that patients who received as little treatment as only from four to six injections of an arsphenamine by conventional divided-dose technique have a 60% chance of a five-year cure.

Accordingly we have tried to find out whether there is any reliable guide to the stage of infection that can be aborted by some such small-dosage method.

Moore *et al.* (1941a) state: "It is unfortunate that no method exists by which the probable cures after small amounts of treatment can be picked out before or during treatment, and that this hiatus in our knowledge is responsible for the undoubted fact that some patients receive much more treatment than is actually necessary." We believe that the selection of cases stressed by Moore can be achieved by performing a daily quantitative serum test for syphilis (D.Q.S.T.S.) as evaluated by a Kolmer-Wassermann or some other equally sensitive test. It is on the results of this D.Q.S.T.S. that we have evolved an original line of approach to a more exact method of diagnosis and treatment of early syphilis.

Diagnosis

The Q.S.T.S. performed daily on patients undergoing intensive treatment with the single daily injection has resulted in certain definite findings. These findings can be placed in three main categories.

Category I—the early primary—is that in which the serum of a patient during treatment remains at a constant negative level. There can be no syphilitic reagin present in the serum or it would give a positive or doubtful reading.

Category II—the middle primary—is subdivided into two types. Type A is that in which there is an initial negative phase persisting for anything up to five days after the institution of treatment, followed by a sharp rise to the positive zone. This, persisting for sometimes up to eight days and not reaching above a titre of 17, given by tube readings of 4, 4, 4, 4, 1—i.e., 25% inhibition of haemolysis in fifth tube, which contains 0.005 ml. of serum—reverts immediately to negative before the completion of treatment and, except perhaps in some cases for a slight secondary very transitory rise, remains negative subsequently. Type B is that in which the titre is already rising at the beginning of treatment, but its subsequent behaviour is exactly similar to Type A. This Category II appears to be one which has so far escaped notice, as it must inevitably do when blood tests are taken at weekly or longer intervals.

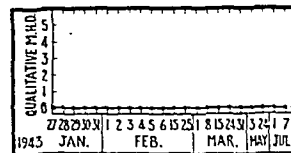
The table on p. 450 shows that this "middle positive phase" has occurred in 19 of our cases, and a possible explanation should be

attempted. We feel that this positive phase: (1) Is not a technical error within the limits of the test (cf. "Laboratory Routine," para. 8), (2) Is not connected with a Herxheimer reaction. Only one of the middle primary cases has had a Herxheimer reaction, and his positive phase did not take place until the fifth day of treatment. (3) Is not due to any provocative drug action, as, if it was, it would show very much more frequently and at the expense of the early primary group. A provocative effect after an injection of arsenic is now disputed, and is considered to be fallacious (Moore *et al.*, 1941b).

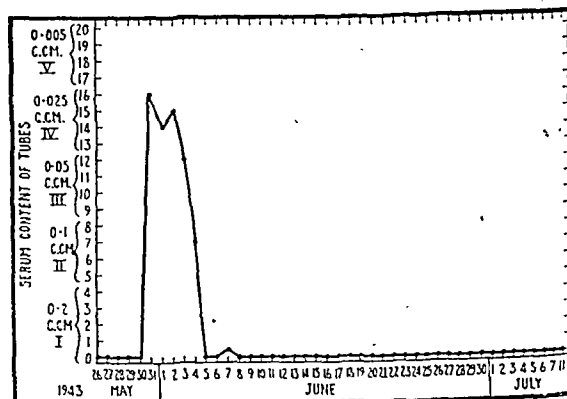
An explanation is that it may well be an "abortive" phenomenon—the early injections not being sufficient to prevent completely the potentially rising titre, but with succeeding doses the positive phase is overcome. But for treatment, such a serum would presumably continue to rise to the high titre of the late primary. It is more than a coincidence that this phenomenon has appeared in one out of every five cases. It is a group which to us seems to be of great importance, as it is a link between the early primary and the late primary groups; unless recognized and treated appropriately it may well be a potential source of relapse.

Category III—the late primary—also occurs in two types. Type A is that in which the serum has already reached a high titre before treatment. This type remains at a consistently high level, which may be maintained for an indefinite period but which eventually reverts to negative. This may take place just before the end of treatment or later, within a period of six months. This fact is important, as, provided a patient with late primary has received his estimated dosage of arsenic, the positive serum should merely be controlled and not considered as an indication for further anti-specific treatment in the absence of negative clinical signs and within this time period. In Type B the titre rise takes place just after the initial injections and remains consistently at a high level for a period of approximately three weeks before reverting to normal thus differing from the middle primary Type A, which shows only a very transitory positive phase before falling again to negative. In our series of Type A cases the serum has reverted to negative in a much shorter time than six months, probably because patients report for treatment earlier than is the case in civilian practice.

For clarity in demonstrating these three categories a graph is drawn for each patient, using the date line as the ordinate and the quantitative titre reading as the co-ordinate. This forms a simple guide to the visualization of the separate group readings.



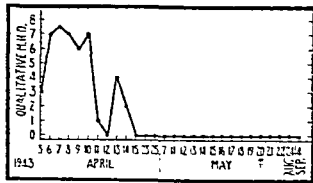
GRAPH I.—Early primary (Category I). Incubation, 6 weeks; *Sp. pallida*, none found at 20 hours; total mapharside dose, 580 mg.; days under treatment, 10.



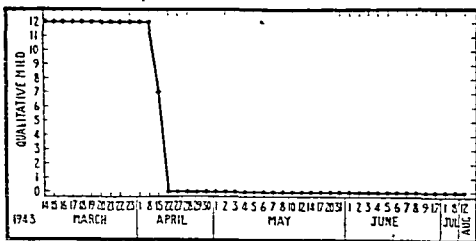
GRAPH II.—Middle primary, Type A (Category II, Type A). Incubation, 6 weeks; *Sp. pallida*, none found at 30 hours; total mapharside dose, 970 mg.; days under treatment, 20.

Our series further demonstrates that there is no definite constant relation between the incubation period of the first clinical sign—the sore—and the appropriate category. Thus in 35 early primary cases the average number of days' incubation of the sore was 27.5, varying from 8 to 63; of 16 middle primary cases 34.9 days, varying from 5 to 84; and of 31 late

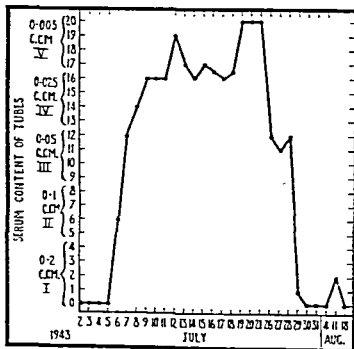
primary cases 61.2 days, varying from 21 to 112. No incubation period could be determined with certainty in a few of the series because of marital relation, frequent exposures, loss of memory," etc. It seems that there must be some human factor of resistance present for the incubation of the primary lesion. Another point of interest is that during positive phases there does occur, in many cases, a daily variation in the amount of reagin present in the patient's serum.



GRAPH III.—Middle primary, Type B (Category II, Type B). Incubation, (1) 10 days, (2) 4 weeks; *Sp. pallida*, none found at 16 hours; total mapharside dose, 940 mg.; days under treatment, 20.



GRAPH IV.—Late primary, Type A (Category III, Type A). Incubation, 6 weeks; *Sp. pallida*, none found at 16 hours; total mapharside dose, 1,430 mg.; days under treatment, 30.



GRAPH V.—Late primary, Type B (Category III, Type B). Incubation, ? 1 month; *Sp. pallida*, none found at 18 hours; total mapharside dose, 1,300 mg.; days under treatment, 30.

Treatment

Moore *et al.* (1941c), Chargin (1940), Shaffar (1943), and others have pointed to the increased toxicity of neoarsphenamine as compared with arsenoxide for use in intensive therapy, so mapharside was decided on as the most suitable preparation for our purpose. In fact, in the Royal Navy mapharside is the drug of choice, and is replacing neoarsphenamine in routine use.

It is usual in courses of intensive treatment to give a dosage of 200 to 1,800 mg. of arsenoxide for all types of cases: primary, secondary, and early latent syphilis indiscriminately. It is, therefore, a fixed predetermined dosage for all types of cases. "Early sero-negative" responsive cases have to risk large drug doses necessary for the resistant case—a dose, hence, associated with all too high mortality and toxic rates. We believe this predetermined fixed dosage for all types of cases to be illogical. Dosage should be regulated according

to the categorized type. Before this investigation was started no control of minimum dosage had been tried on a series of early syphilis differentiated into definite types, but it is only rational to think that an early primary case with a consistently negative blood Kolmer-Wassermann reaction should require a smaller dose than a middle primary case having a positive blood phase—likewise, a middle primary should require less than a late primary having a consistently high serum titre: all presumably representing different degrees of intensity of infection. On this deduction we have based our scale of dosage.

The early primary cases are regarded as a group which can be aborted and so require a small abortive dosage. The middle primary requires a slightly higher dose that is still considered an abortive dose; while the late primary—the well-established group—requires a curative dosage. We began by giving the early primary case a total of 600 mg. in 10 daily injections; but this has now been revised to 15 daily injections of 0.04 g. to 0.06 g.—a total of 600 to 900 mg., depending on the patient's weight. This alteration was made for two reasons: first, because we felt that a small daily dose given over a slightly longer period would lessen the likelihood of toxic effects; secondly, because we had three relapses. However, in fairness to ourselves it should be mentioned that at the beginning of our investigations a less sensitive Wassermann technique than the Kolmer-Wassermann was in use, so these three relapses may well have been missed middle primary cases, but treated with the early primary dosage; this would account for the relapses. The important point is that no relapse has occurred since the introduction of the Kolmer-Wassermann quantitative test. This may, however, be pure chance, as the numbers so far treated have been small.

Not having any previous guide to an abortive dose apart from Padgett's (1940) conclusions, the above dosage was decided upon somewhat empirically, and is subject to revision as experience and results justify. For the middle primary a slightly increased dosage was considered necessary because of the positive phase; accordingly 20 daily injections of 0.04 to 0.06 g.—totalling 800 to 1,200 mg.—were given, depending again on body weight. Originally these injections were given as two series of ten with a rest period; this has now been altered to consecutive doses.

For the late primary a still further increase was necessary, and so 30 daily injections of 0.04 to 0.06 g.—totalling 1,200 to 1,800 mg.—were given; this approximates the standard accepted curative dosage for conventional intensive therapy—i.e., 20 to 30 mg. per kg. of body weight (Eagle and Hogan, 1943). At first these were also given in divided courses of ten with rest periods; this has now been modified to consecutive doses.

It is a dictum that the longer an estimated arsenical dosage can be spread the less are the toxic effects, so the single daily injection was decided on in preference to the multiple daily injection intensive method, so as to spread the dosage. An early cure with the least possible toxic reaction and minimum dosage is constantly in mind. Again we would like to repeat that these dosages are subject to future modification, depending on follow-up results and toxic effects, but they form a basis for trial relative to the described categories. All patients have been treated as hospital in-patients. Bismuth has not been given.

Reactions

The only serious reaction that has occurred so far has been one case of agranulocytosis.

This developed after a dosage of 1,130 mg. in one of the late primary cases. It was diagnosed within 24 hours of the first symptom—pain in the gums—and treatment with pentnucleotide was started immediately. In three days the blood picture had improved, and after 110 c.c.m. of pentnucleotide recovery was complete. Blood counts done since the patient left hospital have shown that improvement has been maintained. Moore states that this condition is very rare, only 78 cases having been reported up to 1941 in all patients undergoing any form of arsenical treatment for syphilis.

The jaundice figures (11 cases in all) are low compared with the high percentage of cases occurring with the routine neoarsphenamine schedules; only 4 of the cases were discharged to hospital. Jaundice seems to occur as two separate types. One type, of which we had 3 cases, developed between the

eleventh and fourteenth days after starting treatment; it was mild in degree and did not necessarily interfere with the sequence of treatment. The other type (8 cases) developed from the ninth to the twelfth week after the initial injection, when intensive therapy had long been finished. This type was more severe, jaundice occurring about the twelfth week in the routine neoarsphenamine schedules.

In any treatment extending beyond the 10-day period toxicoderma may be expected; but this is not usually a contraindication to subsequent arsenic, although a rest of one month is advisable before further treatment, starting with a very small dose and gradually increasing, bismuth being given meanwhile.

Other toxic manifestations, such as arsenical dermatitis, peripheral neuritis, and toxic encephalopathy, have not occurred. The only headaches were those following lumbar puncture, which is performed on every case before leaving hospital.

Relapses

There were three cases of clinical relapse in our series.

The first was in an early primary case whose relapse was discovered 55 days after completion of treatment. It has already been pointed out that this may have been a misdiagnosis, due to a non-sensitive Q.S.T.S. technique. The second sore occurred on the site of the original chancre, and was preceded by a rise in the Q.S.T.S. from the negative zone. There was no history of re-exposure.

The second case was in a middle primary, and again suggested inadequate initial treatment following on a misdiagnosis, as it may well have been a late primary initially. At relapse the serum was negative, and it was only after a further 10 injections, totalling 560 mg., that the serum was shown to be positive by the introduction of the Kolmer-Wassermann quantitative technique. During two months after his last course of treatment this patient has remained consistently negative, clinically and serologically.

The third case was originally diagnosed as an "early primary," again not on the Kolmer-Wassermann quantitative technique. His serum remained consistently negative for one month before the clinical relapse took place, but became positive during subsequent treatment. His second sore was on the site of his original chancre. This case has been classified as a relapse owing to the second sore being on the site of the original chancre, in spite of the possibilities of reinfection due to the known social and alcoholic habits of the patient.

Reinfections

Since the introduction of intensive therapy, Moore, Shaffar (1943), Schoch and Alexander (1943), and others have laid down new and simpler postulates of reinfection. Judged by these standards we have had three cases of reinfection. The first was in an early primary treated case with a definite history of re-exposure. At the time of reinfection the blood serum was negative. The fresh sore was not on the original site. He was re-treated, and has so far remained negative for over three months. As his consort was an unknown "lady of easy virtue," it was not possible to trace her. The second was in a late primary treated case, marital relations being resumed on the patient's discharge from hospital with sore completely healed and Kolmer-Wassermann negative. He reported 52 days later with a fresh sore, not on the original site. *Sp. pallida* was demonstrated and the Kolmer-Wassermann was negative. Treatment was restarted and his fresh infection was categorized as middle primary. As a matter of added interest, from April 7 to Aug. 12, 1943, this patient received a total of 2,380 mg. of arsenoxide with no ill effects at all. His wife, examined by us, was found to be suffering from active secondary syphilis with a strongly positive Kolmer-Wassermann reaction, and *Sp. pallida* was present in two open lesions of the labia. She had been infected originally by her husband, and had never been examined in spite of requests by us.

The third case was a treated early primary discharged from hospital with a healed sore and a negative blood reaction. He resumed marital relations immediately on discharge from hospital, and reported two months later with multiple sores on the penis—not one, however, on the site of the original chancre. His wife had only started initial treatment with bismuth and intramuscular arsenic the day before her husband returned to her. Subsequently examined by us, she had marked ulceration of her cervix, pronounced generalized adenopathy, and a history of rash and sore throat. Owing to treatment which she had subsequently received before we saw her *Sp. pallida* could not be demonstrated. We feel satisfied that these are three clear cases of reinfection.

Laboratory Routine

In all cases the following laboratory routine is carried out

1. Daily urine Ehrlich and albumin tests.
2. Icterus index at beginning and end of treatment, and du treatment if necessary.
3. Complete blood counts at the start of treatment.
4. B.S.R. estimation.
5. C.S.F. examination.
6. Every case diagnosed on the finding of *Sp. pallida*, except cases of early latent syphilis.
7. *Sp. pallida* controlled until "none found."
8. Daily "Q.S.T.S." done in batches of 50 weekly in the laboratory. The Kolmer's published technique (Kolmer and Boern) is done in a laboratory with 400 to 500 sera are tested weekly by both the Kolmer-Wassermann and the Kahn standard. Originally hundreds of control sera were tested with a standard British Wassermann technique in addition. The tests are therefore adequately controlled, hundreds of repeated tests have shown that, although minor variations in sensitivity occur from test to test, the graphs obtained represent—within the limits of the test—the level of syphilitic reaction in the blood.

Table showing an Analysis of Cases

	Type of Case		
	Early	Middle	Late
No. of cases	40	19	41
Average incubation period (days)	27.5	34.9	61.2
Shortest incubation period (days)	8	5	21
Longest incubation period (days)	63	84	112
Average No. days for sore to heal	7.7	7.7	12.2
Primary fever over 99°	5	7	6
Secondary fever over 99°	12	7	15
Toxicoderma	2	—	2
Jaundice	4	4	3
Agranulocytosis	—	—	1
Relapse	2	1	—
Reinfection	2	—	1
Other toxic manifestations	—	—	—

After an average of 20 hours *Sp. pallida* was not found.

It will be noticed that with 0.04, 0.05, or 0.06 g. of mapharside *Sp. pallida* disappeared from the surface lesions in an average of less than 24 hours, thus proving that mapharside removes that organism from surface lesions in a time comparable with 0.45 to 0.6 g. of neoarsphenamine.

Summary and Conclusions

An attempt has been made to present a new conception of "early syphilis" based on the results of the quantitative Kolmer-Wassermann test performed daily on a series of 100 patients undergoing intensive therapy. By this means early syphilis has been recategorized into three distinct groups or types—"early," "middle," and "late primary syphilis."

We look on this recategorization as giving a new and original line of approach to the treatment of early syphilis by intensive therapy. It provides a fair and reliable index of the intensity of the individual patient's infection, thus allowing him the opportunity of a true scheme of treatment—abortive for the early primary, middle primary, and curative for the late primary. The duration of treatment would be 15, 20, or 30 days respectively, with doses of 600 to 900 mg., 900 to 1,200 mg., and 1,200 to 1,800 mg., depending on body weight. That all these groups should be treated with the same fixed predetermined dosage we feel to be unscientific. "dosage-spread" with the longer time-factor should surely be the toxic effects as recorded by results of the intensive therapy standard doses now in general use, and it should be a great help in removing the menace of encephalopathy, which is always lurking in this work. By means of intensive therapy the problem of continuity of routine treatment schedules in the Services owing to the exigencies of war would be overcome, as interrupted schedules with the resulting drop in percentage of cures, are greatly to the detriment of patient and Service alike.

A warning is not out of place here that intensive therapy should be carried out only in recognized treatment centres: the risk is great on indiscriminate treatment by inexperienced people is great. These treatment centres should have the services of pathologists who are familiar with the Kolmer-Wassermann Q.S.T.S., or some equally reliable sensitive quantitative technique, as it is on pathologist's results that reliance must be placed for accurate diagnosis.

It is realized only too well that at this stage it is far too early to offer anything more than a suggested scheme of diagnosis, treatment, but we hope—and feel—that further investigation of a large number of patients will substantiate our expressed views. These times men are drafted to all parts of the world, where perfect facilities are lacking for blood controls and proper surveillance,

time alone will show whether we are correct in our assumptions. We can only be encouraged by our results of the past eight months. No little purpose will have been served if we have sown the seed for a new line of thought and research on the diagnosis and intensive treatment of early syphilis.

We wish to express our thanks to the Medical Director-General of the Navy, Sir Sheldon Dudley, for permission to carry out this work and for his support. Thanks are also due to Surg. Lieut.-Cmdr. Sloan Miller for all his laboratory co-operation, and to the sick-berth staff for their never-failing help.

REFERENCES

- Thargin, L. (1940). *Arch. Derm. Syph.*, Chicago, 42, 248.
 Eagle, H., and Hegan, R. R. (1943). *J. Inform.*, 24, 159.
 Fournier, N., and Guenot, L. (1919). *Presse med.*, 27, 554.
 Kolmer, J. A., and Boerner, F. (1941). *Approved Laboratory Technique*, 3 ed., New York.
 Magazan, A. C. (1919). *Ebull. Acad. M^dl.*, Paris, 75, 81, 657.
 Moore, J. E., et al. (1941a). *Modern Treatment of Syphilis*, 2nd ed., p. 218, Springfield, Ill.
 — (1941b). *Ibid.*, p. 535.
 — (1941c). *Ibid.*, p. 582.
 Padgett, Paul (1940). *Amer. J. Syph. Gon. V.D.*, 24, 692.
 — (1941). *J. Amer. med. Ass.*, 116, 7.
 Schoch, A. G., and Alexander, L. J. (1943). *Amer. J. Syph. Gon. V.D.*, 27, 15.
 Shaffar, L. W. (1943). *V.D. Inform.*, 24, 108, 113.

ASSESSMENT OF LEVEL OF NUTRITION

REVISED PROCEDURE FOR ESTIMATION OF ANEURIN IN URINE BY THE THIOCHROME TEST

BY

Y. L. WANG, Ph.D.

AND

L. J. HARRIS, Sc.D., D.Sc., Ph.D., F.I.C.

(Dunn Nutritional Laboratory, University of Cambridge and Medical Research Council)

The nutritional status of human subjects in vitamin B₁ can be assessed by examination of the urine before and after test dosing, the procedure being in principle analogous to that introduced previously for determining the level of vitamin C (Harris, Ray, and Ward, 1933; Harris and Ray, 1935) and later for nicotinic acid (Harris and Raymond, 1939). In its original form (Harris and Leong, 1936; Harris, Leong, and Ungley, 1938) the test for vitamin B₁ involved a biological assay of the urine, preferably by the bradycardia method (Birch and Harris, 1934). This has been used by various investigators—e.g., Wright and Baker (1939), Guha and Ahmad (1939). Later the perfecting of the chemical method of estimating vitamin B₁ by the thiochrome reaction (Jansen, 1936) has made possible a great simplification in the routine. In previous papers (Wang and Harris, 1939; Harris and Wang, 1941) we described a suitable technique for the estimation of the aneurin in the specimens of urine by a modified thiochrome test. This has been used satisfactorily by workers in other laboratories (e.g., Slater, 1941; Toverud, 1940). We checked its reliability, by comparison with biological assays, using the bradycardia technique, in several series of comparisons; and the agreement was found to be satisfactory (Wang and Harris, 1939; Harris and Wang, 1941).

Given a little experience, the method is found to work smoothly with nearly all specimens of urine; in rare instances, however, samples may be encountered that give an abnormally whitish-green blank and a dark-blue fluorescence on oxidation, which may make it tiresome to effect a satisfactory matching. To overcome this objection we tried treatment of the urine with H₂O₂, a reagent which had been previously employed by McFarlane and Chapman (1941) in estimating aneurin in green feeding-stuffs. This addition of H₂O₂ reduces the blank considerably and renders the final matching very easy even in the most troublesome specimens of urine (Wang and Harris, 1942). The treatment of the urine with the H₂O₂ does not cause any destruction of thiochrome and presents a distinct advantage, and we now use it in all our routine estimations of aneurin. The method is so simple and rapid to carry out

that it may be employed conveniently in regular clinical tests. For this reason it seems worth while to put together here the working instructions for the modified procedure, incorporating the foregoing and several other small improvements (Wang and Harris, 1942).

Method

1. *Preliminary Washing with Isobutanol*.—Measure 5 ml. of urine into a 15-ml. centrifuge tube, add a drop of concentrated HCl, and shake for one minute with an equal volume of H₂O-saturated isobutanol (redistilled). Centrifuge, discard the isobutanol (top) layer, and note the volume of the aqueous layer.

2. *Oxidation of Aneurin and Extraction of Thiochrome*.—Pipette two 1-ml. aliquots of the washed urine into two 25-ml. glass-stoppered cylinders marked A ("unknown") and B ("blank"). Into a third cylinder, marked C ("control"), introduce 1 ml. of a standard solution of aneurin containing 4 µg. per ml. (For urines collected after test dosing, it may be necessary to use a stronger standard—say, 10 µg. instead of 4 µg. On the other hand, with relatively deficient urines, containing little vitamin B₁, 2 ml. of urine may be taken for analysis instead of 1 ml. and added to cylinders A and B; in this case another 1 ml. of water should be added to the control (cylinder C) to equalize the conditions.) A stock solution containing 20 µg. of aneurin per ml. in 25% alcoholic N/100 HCl is kept for use in a cold place: the diluted standard should be freshly prepared from this. Add to each cylinder 2 ml. of methanol and mix well. To cylinder A add 1 ml. of 20% NaOH, mix quickly, and follow immediately by a 10% solution of K₃Fe(CN)₆, drop by drop, mixing thoroughly after each addition, until the colour of the K₃Fe(CN)₆ stays for more than 30 seconds. (Usually 2 to 3 drops are sufficient; large excess should be avoided.) Treat cylinder C in exactly the same way. To cylinder B, the "blank," add 1 ml. of 20% NaOH, but no K₃Fe(CN)₆. Now add 3 drops of 30% H₂O₂ to all three cylinders (if the urine gives an exceptionally high blank more H₂O₂ can be used). Mix well and allow to stand for half a minute. Then add 1 ml. of H₂O to each, followed by 10 ml. of redistilled isobutanol (if H₂O-saturated isobutanol is used the addition of H₂O may be omitted) and shake for 1 minute. Allow the layers to separate, then draw off and discard the bottom aqueous layer. Add 3 ml. of H₂O to each, shake gently for half a minute and again let the layers separate. Pipette off the top layer of isobutanol into three separate dry conical flasks and clarify with 2 ml. of 96% ethanol.

3. *Comparison of Fluorescence*.—Measure 10 ml. of the clear isobutanol extracts of the oxidized unknown A and the "blank" B into separate test-tubes. (These tubes must be of "non-fluorescent" glass, and uniform in diameter. A convenient size is one in which 10 ml. occupies a column of 6 to 7 cm. The bottoms of the tubes should be of the same shape.) Compare the fluorescence in the tubes, holding them in front of a source of ultra-violet light. The u.v. lamp should be enclosed in a case fitted with a Wood's-glass window, and the room in which the comparison takes place should be completely darkened. Incline the tubes at an angle of about 60 degrees to the horizontal and look down the tubes. The bottom of the tubes should rest on a black platform fitted to the Wood's-glass window. Never look for more than a few seconds, since prolonged exposure to the blue colour will temporarily desensitize the eye; but make a quick inspection and decide which tube has the stronger blue fluorescence. Reverse the position of the tubes and look again. By means of a micro-pipette add the standard of thiochrome (from cylinder C) to the "blank" little by little, mixing well after each addition by closing the tube with the thumb and inverting two or three times, until the fluorescence in both tubes is equal. (The thumb should be thoroughly cleaned with soap and water, as traces of grease may introduce considerable fluorescence.) Before the final matching add to the "unknown" an amount of isobutanol equal in volume to that of the standard added to the "blank." For further details concerning matching, including use of colour filters, see Harris and Wang (1941).

4. *Calculation*.—If U is the volume of urine taken for analysis (1 ml. or 2 ml.), v the volume of the standard used for the matching, x the total amount of aneurin (4 µg. or

10 µg.) in the standard solution, and r_1 and r_2 the volume in ml. of the extract before and after the preliminary washing with isobutanol, then the aneurin content of the urine is

$$\frac{xv}{10} \times \frac{r_2}{r_1} \times \frac{1}{U} \text{ µg. per ml.}$$

(= $\frac{4v}{10} \times \frac{r_2}{r_1}$, when, as in usual circumstances, $x=4$ and $U=1$).

5. Interpretation of Results.—Past work has shown that a normal adult male* subject receiving not less than the reputed requirement of vitamin B₁ (300 I.U.=900 µg. of aneurin daily) excretes at least 90 µg. of aneurin daily (Wang and Harris, 1939). The excretion rises with each increase in the intake, rapidly adjusting itself to such changes. On a diet deficient in the vitamin the excretion quickly falls to a steady value of about 60 to 90 µg., where it is maintained for some time (Wang and Yudkin, 1940).

On the basis of observations such as the foregoing, nutritional status may be assessed by measurement of the "resting level of excretion" plus the response to daily test doses. A "resting" excretion of below 90 µg. combined with one or more days' delay before attainment of the plateau of excretion after the daily standard test doses (350 I.U.) can be assumed to indicate an insufficient intake. For further discussion of standards for excretion tests earlier papers from this laboratory may be consulted (e.g., Wang and Harris, 1939; Wang and Yudkin, 1940).

It is perhaps worthy of note that the differentiation between normal and deficient subjects by means of their urinary response is less steeply graded for vitamin B₁ than, for example, for vitamin C, and thus means that saturation tests are somewhat easier for the latter than for the former. Thus, special emphasis has to be laid on the fact that the excretion of aneurin is relatively "labile," adjusting itself fairly rapidly to each change in the intake, as mentioned above. As a result, the "resting level" of excretion may sometimes do little more than reflect the intake during the few days immediately preceding the collection of the urine. With test doses the deficient subject satisfactorily answers to the test by giving less response than the normal subject on at least the first day, or first and second days, of test dosing; yet after a further day or so both deficient and normal will have reached an equal degree of excretion. (With extreme deficiency of long standing the response to test doses may be delayed a little further.) But for vitamin C, in contrast, the deficient subject may give little or no response at all to test doses for a period of some days, and full saturation will not be finally reached (in developed scurvy) until 7 to 10 days: thus the difference between normal and deficient is made more dramatically apparent than for vitamin B₁.

6. Collection of Urine.—If the urine is not to be tested within an hour or two of its being passed it can be preserved by the addition of a few ml. of glacial acetic acid (or HCl) and toluene.

7. Avoidance of Certain Drugs.—It is important that the patient should not take aspirin, quinine, or related drugs for some hours before or during the time of the test, since these may cause the excretion of highly fluorescent substances in the urine and so make an accurate determination of thiochrome impossible.

Summary

Working directions are given for the method of estimating vitamin B₁ in urine in the test for nutritional status, various improvements in technique being incorporated.

REFERENCES

- Birch, T. W., and Harris, L. J. (1934). *Biochem. J.*, **28**, 602.
 Guha, R. C., and Ahmad, B. (1939). *Indian J. med. Res.*, **27**, 465.
 Harris, L. J. (1943). *Lancet*, **i**, 515; *Nature*, **151**, 21.
 — and Leong, P. C. (1936). *Lancet*, **i**, 886.
 — and Ungley, C. C. (1938). *Ibid.*, **i**, 539.
 — and Ray, S. N. (1935). *Ibid.*, **i**, 71.
 — and Ward, A. (1933). *Biochem. J.*, **27**, 2011.
 — and Raymond, W. D. (1939). *Ibid.*, **33**, 2037.
 — and Wang, Y. L. (1941). *Ibid.*, **35**, 1068.
 Jensen, B. C. F. (1936). *Rec. trav. chim.*, **55**, 1046.
 McFarlane, W. D., and Chapman, R. A. (1941). *Canad. J. Res.*, Sect. B, **19**, 136.
 Robinson, W. D., Melnick, D., and Field, H., un (1940). *J. clin. Invest.*, **19**, 399.
 Slater, E. C. (1941). *Austral. J. exp. Biol. med. Sci.*, **19**, 29.
 Toverud, K. U. (1940). *Z. Vitaminforsch.*, **10**, 255.
 Wang, Y. L., and Harris, L. J. (1939). *Biochem. J.*, **33**, 1356.
 — (1942). *Chem. Ind.*, **61**, 27.
 — and Yudkin, J. (1940). *Biochem. J.*, **34**, 343.
 Wright, M. D., and Baker, A. Z. (1939). *J. Hyg., Camb.*, **39**, 633.

* The minimal level of excretion by females may possibly be slightly lower (cf. Toverud, 1940; Robinson *et al.*, 1940). Precise figures for children, and the more detailed standards for varying intermediate degrees of deficiency, such as have now been worked out for vitamin C (Harris, 1943), still remain to be filled in.

LOCAL ORAL MEDICATION WITH SULPHANILAMIDE IN LOZENGE FORM*

BY

PERCY GARSON, M.D.

Captain, Medical Corps, Army of the United States,
Fort Francis E. Warren, Wyoming

The local application of sulphonamides has been the subject of much interest lately, and this method of treating oral lesions is attracting attention, though a report on the use of sulph anilamide following dental extractions was noted several years back in the *Journal of the Canadian Dental Association*. The oral cavity may be a valuable site for absorption of drugs and particularly in the case of oral lesions, should not cause much surprise. The rich vascular bed of the buccal mucosa is readily available, as witness the immediate relief of substernal pain in angina pectoris after the use of a tablet of nitroglycerin sublingually. Intranasal application of drugs also has its advocates. Cattell (1943) points out "that no outstanding new discoveries in the field of sulphonamide therapy have occurred during the past year, but that, on the other hand, the period has been one of continual progress in the application of the sulphonamides."

It was a search for a suitable means of local oral application and absorption of the drug that prompted me, with the advice of sulph anilamide in 1937, to use it in a vehicle that would permit its slow release in the oral cavity and by direct contact promote local healing and defence against such organisms as are inhibited or destroyed by it. Then, as now, the mechanism of action of the drug cannot be regarded as fully settled, but justification for its application need not await complete elucidation of a *modus operandi*. The present report is based on the results of the direct application of sulph anilamide in lozenge specifically for the purpose of testing its efficacy in cases of acute follicular tonsillitis, the aetiological agent being *Str. haemolyticus*, common at Fort Francis E. Warren, and the subject of much concern to all.

The manner of sulph anilamide administration as practised to-day calls for large doses of the drug—some 7 to 9 g. daily—for therapeutic effect upon a small area on the tonsillar adjacent pharyngeal wall. Other tissues resent playing host to the drug by producing an added lesion at times more disastrous than the original condition. Stated in other words, an attempt was made to reverse the order of mass saturation preceding local therapeutics by a maximal local effect with a minimal blood concentration of the drug.

The vehicles used at the time were chicle (chewing gum) and lozenge. The lozenge proved the more satisfactory means. It could be held in the mouth for a period up to 45 minutes was palatable, and liberation of the drug was slow and uniform. Several lozenges could be used daily, and no disturbing chewing manipulations were required. It was satisfactory both for children and for adults. A lozenge weighing 2 g. and containing 0.065 g. of sulph anilamide proved best suited for the treatment. Observations made at the time on mucous staining, using prontosil and methylene blue in chicle or chocolate, agree with those of Arnett (1943).

The present study is a resumption of the above, though on a much larger scale and under better-controlled conditions. It is intended as a preliminary report, for it would have been more satisfactory had the work been carried through the entire winter season. The incidence of upper respiratory infection is as high during March as in any of the preceding months and it is felt that enough clinical data have been obtained to warrant further investigation at a future date.

The increase in upper respiratory infections is an accompaniment of the expanding army. For the time being, fortunately the diseases are mild, though at times of epidemic proportions. Nevertheless, they incapacitate fairly large numbers of arrivals during their basic training period. This is inevitable owing to the close contact of the men, hence the rapid passage of infection from one individual to another. The problem

* This study was made possible through the assistance and operation of Col. D. W. McEnery, post surgeon, Fort Francis Warren, Wyoming.

keenly recognized as an acute one, and attempts at control are in formation (*Army Medical Bulletin*, 1942) even preceding obilization.

Therapeutics

Patients sent to the main hospital received lozenges, those the Station Hospital Annexe had routine therapy consisting aspirin, codeine, fluids, and gargles. Ward records of both situations were compared. At the main hospital, for purposes this study, any non-follicular red throat was regarded as fluenza. It is impossible consistently to separate influenza on non-follicular tonsillitis. Acute tonsillitis, as defined byecil (1941), "is an acute inflammation of the palatine or ucial tonsils, but in nearly all cases the other lymphatic tissues this region are involved. The tonsils are increased in size id hyperaemic. Many cheesy spots project from the crypts, false membranous exudate may be present in other cases id a similar picture present in adjacent lymphoid tissue." This the type of tonsillitis that is so common in this region. Throat ulture of 24 cases on admission showed 22 to be positive for *r. haemolyticus*.

Each patient was given eight lozenges to take—one each ur between 8 and 11 a.m., one at 4 p.m.; two after the eming meal, and the last just before bedtime. The last dose considered important, as the residual sulphanilamide during eep is less subject to removal than at any other time. Fluids id food were forbidden between meals, as they would wash at the sulphanilamide present in the saliva and adherent to e tonsils and pharyngeal mucosa. The patient was encouraged o take fluids at meal-times. When the morning temperature ached normal, even though the previous evening temperature as 99°, and if the patient felt well, he was sent to quarters ith a two-day supply of lozenges—six daily—and was given ght duty for two days. The reason for the early discharge as based on the theory that if the drug was effective in the ospital it would respond in the same manner in quarters. luids were restricted, and further exposures, as entailed in etting out of bed for gargles or fluids several times a day, ere avoided. Blood sulphanilamide estimations on several ases recorded infinitesimal quantities.

Eighty-six cases of tonsillitis thus treated spent on an average .6 days in hospital; 69 treated influenza cases averaged 2.4 ays in hospital. Ten cases receiving a full systemic dosage f sulphonamides during this period were not considered in ulating the statistics. Only 7% of admissions received the rug in full doses. At the Station Hospital Annexe during the onth of March 41 tonsillitis cases averaged 5.1 days in ospital. The average in 71 influenza cases was 5.7 days.

TABLE I

Days	Hospital						Annexe					
	Tonsillitis (March)			Influenza (March)			Tonsillitis (February)			Tonsillitis		
	Cases	H.D.*	Cases	H.D.	Cases	H.D.	Cases	H.D.	Cases	H.D.	Cases	H.D.
1	13	13	18	18	0	0	0	0	0	0	0	0
2	25	50	25	50	0	0	0	0	0	0	0	0
3	38	114	15	45	16	48	4	12	3	4	9	9
4	8	32	6	24	19	76	7	28	7	28	7	28
5	—	—	4	20	27	135	15	75	23	115	23	115
6	—	—	1	6	24	144	10	60	18	103	18	103
7	—	—	—	—	5	35	3	21	10	70	10	70
8	—	—	—	—	6	48	2	26	3	24	3	24
9	—	—	—	—	—	—	—	—	—	—	—	—
10	—	—	—	—	—	—	—	—	—	—	—	—
11	—	—	—	—	—	—	—	—	—	—	—	—
Totals	86	224	69	163	101	527	41	212	71	407	71	407
	Aver. hosp. days, 2.6			Aver. hosp. days, 2.4			Aver. hosp. days, 5.2			Aver. hosp. days, 5.1		

* H.D. = Hospital days.

Many cases at the Station Hospital Annexe had a normal emperature for one and two days before discharge. No riticism of such routine therapy is intended. However, the omparison revealed itself as the work proceeded. If it is ossible to reduce the average stay in hospital to 2.6 days by local oral therapy a considerable saving of beds is made. The esults obtained at the three dispensaries are in accord with hose at the hospital. The opinions of the dispensary medical officers are uniform, and may be summarized as follows:

1. 50% of the usual hospital cases are now referred direct to quarters.

2. There is a fall of temperature to near normal in 24 to 48 hours.

3. Many cases that show the spotted throat and a normal temperature are aborted by use of the lozenge—i.e., no subsequent rise of temperature occurs.

4. There is rapid alleviation of pain and soreness of throat.

5. The dispensary medical officers feel that the lozenge therapy avoids the frequent necessity for walking to and from wash-rooms that gargles and fluids entail at the barracks, and that these interruptions of bed-rest are done away with entirely.

One immediate effect noticed at hospital and dispensary was the relief of throat pain, which may occur within two hours. This relief was so striking that lozenges containing 3 gr. were supplied to the dental clinics for use in cases of multiple extraction and badly healing wounds. Thus far, not enough material has been gathered to express an opinion with regard to their usefulness for the last-mentioned purpose.

As shown in Table I, 44% of tonsillitis patients and 62% of influenza patients were discharged with normal temperatures within 48 hours. At the Station Hospital Annexe only 2% of all patients were discharged during the same period; in terms of hospital days, 131 to 4—a saving of 127 hospital days. No tonsillitis patients in February were discharged within 48 hours. Only 7% of the total hospital patients for March received sulphanilamide in the usual massive systemic dosage, against 30% at the annexe. It is understood that patients admitted to the hospital were at least moderately ill, with temperature as a rule above 100°.

Prophylaxis

The companies used for prophylactic treatment were composed of new men beginning their basic training. Lozenges were taken at 9 a.m., 10.30 a.m., 1.30 p.m., and at bedtime. Fluids were restricted. In order to avoid carrying over cases in process of development the first three days of administration were not included in the statistics. The lozenges were continued for another fourteen days, each company being examined every morning, with the following results:

Co. K, 240 men, examined by Lieut. J. A. Moore; 100 receiving lozenges developed one case of tonsillitis, or 1% incidence; 140 controls showed 14 cases, or 10%.

Co. F, 167 men, all receiving lozenges, showed 3 cases, or 1.8%.

Co. D, 110 men, 55 receiving lozenges, showed 2 cases, or 3.6%; 55 controls showed 10 cases, or 18%.

Co. G, 257 men, all controls, produced 21 cases, or 8%.

Of 24 throat cultures in Co. F, six were positive for *Str. haemolyticus*, while of 24 throat cultures in Co. G 9 were positive for *Str. haemolyticus*. Blood determinations of the drug on all specimens analysed were recorded as too low for reading.

TABLE II.—Results of Prophylaxis

		Tonsillitis		Influenza	
		Cases	%	Cases	%
Co. K	.. { Treated, 100	1	1	14	14
	.. { Controls, 140	14	10	28	20
Co. F	.. { Treated, 167	3	1.8	13	7.7
	.. { Controls, 55	2	3.6	8	14
Co. D	.. { Treated, 55	10	18	10	18
	.. { Controls, 257	21	8	27	10

Owing to a temporary failure in production the supply of lozenges was reduced in the case of Co. F for two days of the experimental period, and none was administered to all companies on the tenth day of the fourteen-day period.

Discussion

Many pertinent questions can be raised regarding this mode of therapy. The saliva drug content was not estimated, as it would not prove the case one way or the other. Arnett (1943) reports that the salivary sulphadiazine level ranged from 33 to 96 mg. per 100 c.cm. of saliva from chewing 0.3 g. of that drug in paraffin for a period of two hours. As noted previously, blood sulphanilamide levels with lozenges being too low to read, one must infer that a local oral effect is responsible for the results. The amount of the drug—0.065 g.—present in the lozenge, spaced at intervals of an hour, can conceivably produce a bacteriostatic action, particularly in persons of good health. No attempt is made to free the oral cavity of *Str. haemolyticus*. Several questions thus arise. After the initial

two weeks of prophylactic therapy, what is the subsequent course? This remains to be answered, though the companies treated are to be followed up while at Fort Warren. Should a longer period than two weeks be tried? Is there a danger of creating a "mass-sulphanilamide-fast organism?" Such a possibility, particularly with the pneumococcus, *in vitro* and *in vivo*, has been indicated in a recent report of Schmidt, Sesler, and Deltwiler of Cincinnati, working with mice. Are there intraseasonal variations that may alter the figures offered in this report?

Summary

The incorporation of sulphanilamide in a lozenge offers a means of prolonged medication for such lesions of the mouth and pharynx as are amenable to treatment with the drug.

The results obtained in several hundred cases treated therapeutically and prophylactically indicate that this mode of sulphonamide medication shows promise.

I am indebted to Capt. Paul Schneider, Lieut. Leo Weyerich, Lieut. Walter Schwebel, and Lieut. James Moore for valuable assistance in formulating the statistical data and in observation of the patients treated therapeutically in the dispensaries. Capt. A. Walter Ecklund of the hospital laboratory kindly performed the laboratory work involved in this study.

REFERENCES

Army Medical Bulletin (1942). No. 64, p. 3.
Arnett, J. H. (1943). *Amer. J. med. Sci.*, 205, 6.
Cattell, McKeen (1943). *N.Y. St. J. Med.*, 43, 428.
Cecil, R. L. (1941). *Textbook of Medicine*, 5th ed., Philadelphia.
Journal of Canadian Dental Association, 3, 571.

adolescent males receives little emphasis in current textbook and the routine examination of recruits throughout the country must have revealed a considerable number of similar cases the following brief clinical report is presented with a view to drawing attention to the condition, which may be more common than is realized.

In each case the anaemia was first noticed in early or middle childhood. Apart from Case 4, the mildest of the series, there is no history of serious illness. None gave a history of haemorrhage, bleeding piles, or jaundice. No family history of anaemia or jaundice was elicited. All the patients had lived a normal life, enjoying the usual boyhood activities and were following occupations normal to their age without difficulty. Their pallor had been accepted as their natural complexion, and in most cases had not prompted them to seek medical advice. Patient No. 9 (aged 45) did not seek advice on account of his anaemia, which he regarded as trivial and incurable. He had lived an active life as an engineer and was in good general health. His history indicates the benign course of the untreated condition. This man showed good general development, but some of the youths looked small and immature for their age. The majority had not started to shave. None of them were aware of any symptoms of ill health apart from slight breathlessness in the most severe cases. All professed to having received an adequate pre-war diet including plenty of meat, vegetables, and fruit. Their post-war diet appeared to be that of the population at large.

On physical examination all the youths had a smooth pale skin with no evidence of jaundice. In four cases the tongue was noted to be smooth; in the remainder its appearance was normal. In nearly all the cases an apical systolic murmur of haemic origin was present. The spleen was just palpable in four cases, and in one, the most severe, was enlarged two fingerbreadths below the costal margin. Four cases showed spoon nails. In one of these the nails were normal and healthy after eleven months' treatment with iron. All but one (Case 10) showed evidence of deficient gastric acidity—complete achlorhydria in 5 cases and marked hypochlorhydria in 4. Table I gives the ages of the patients and the blood counts. Before treatment typical microcytes and ring cells were present and there was considerable anisocytosis with some poikilocytes. Case 5 was the most severe, and showed an unusual number of macrocytes—possibly a response by the marrow to the marked lack of iron. There was no direct evidence of haemolysis, since no case before treatment showed any reticu-

HYPOCHROMIC ANAEMIA IN ADOLESCENT MALES

BY

M. L. THOMSON, M.D., M.R.C.P.

Honorary Assistant Physician, Salford Royal Hospital

Nine cases of hypochromic anaemia in adolescent males have been referred to me by military medical boards in Manchester during the past two years. Their ages range from 17 to 19, and they present a striking similarity in their clinical and haematological features. A tenth case, that of a man aged 45, belongs to the same group and indicates the later course of the condition in the absence of efficient treatment. Detailed observation was hampered by the men's unwillingness to lose work by attending for investigation and review. It has been

TABLE I

Case	Age (Years)	Treatment (Daily)	Period of Treatment	Haemoglobin (% Haldane Scale)		Mean Diameter of Red Blood Cells (microns)		Red Blood Cells (millions per c.mm.)		Leucocytes (per c.mm.)
				Before Treatment	After Treatment	Before Treatment	After Treatment	Before Treatment	After Treatment	
1	19	3 "iron" tablets None	12 months 4 "	56 —	— 110	6.8 —	— 7.2	4.96 —	— 6.6	8,000 —
2	19	6 fersolate tablets 3 fersolate tablets None	15 weeks 8 months 6 "	48 — —	102 116 114	6.8 — —	7.6 7.4 —	3.97 — —	— 6.42 —	5,800 — —
3	18½	3 "iron" tablets	3 "	48	102	6.8	7.4	4.01	5.46	8,000
4	17½	"Iron" tablets, dosage unknown	5 "	72	114	6.8	7.0	4.89	6.47	6,000
5	18½	11 oz. Parrish's food 6 fersolate tablets 3 fersolate tablets	3 " 5 weeks 6 "	36 — —	46 102 112	7.9 — —	7.6 — —	2.55 — —	3.32 5.28 —	4,300 — —
6	19	—	—	50	—	6.9	—	4.49	—	3,800
7	19	—	—	58	—	6.9	—	5.20	—	5,000
8	19	—	—	48	—	6.7	—	4.34	—	6,800
9	45	6 fersolate tablets	10 weeks	58	108	6.9	7.0	5.61	6.41	8,000
10	17	6 fersolate tablets	5 "	46	103	6.9	7.2	4.71	6.30	5,400

possible, however, to note the effect of treatment in seven of the ten cases. These seven cases all responded fully to adequate treatment with iron. No obvious cause was elicited, and to term the condition "idiopathic" is merely to admit ignorance of their origin. Since this type of anaemia in

locyte increase or excess of urobilin in the urine. The serum bilirubin was at the lower limit of normality. The red cell fragility to saline was normal.

Where treatment could be observed all seven cases responded to iron by mouth (Table I). When we were able to undertake

treatment personally two fersolaté tablets were given thrice daily till a normal count was attained. In Table II the details of the gastric analysis are given.

TABLE II.—Fractional Test Meals. (Cases 1, 6, 7, 8, and 9 showed complete achlorhydria)

Case		Specimens (hours)														
		Fasting	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6	6 1/2	7	7 1/2
2	HCl T.A.	6 16	0 8	0 8	0 6	8 12	9 18	6 12	6 18	14 24	0 8	0 8	0 6	0 6	0 6	0 6
3	HCl T.A.	0 10	0 10	0 10	0 12	0 12	0 10	0 10	0 10	0 12	0 10	0 10	0 10	0 32	5 40	12 40
4	HCl T.A.	0 5	0 5	0 10	0 20	5 5	0 5	0 5	0 5	0 5	—	—	—	—	—	—
5	HCl T.A.	0 10	0 10	0 10	0 20	5 20	5 20	5 20	0 15	0 15	0 15	0 10	0 10	0 10	0 10	0 10
10	HCl T.A.	32 44	20 35	8 26	15 24	18 36	32 48	35 55	30 40	8 26	0 15	0 15	0 18	0 18	—	—

HCl = Free HCl N/10 NaOH (% HCl).
T.A. = Total acidity.

It is of practical importance to determine whether a maintenance dose of iron is necessary when the anaemia has been overcome. These cases have not been observed long enough to determine this point. Patient No. 1 had received no treatment for four months previous to his second examination, when his haemoglobin was 110%. Patient No. 2 had received no treatment for six months previous to his last blood count. During this period the haemoglobin was maintained at a high level (Table I).

Discussion

It is not the purpose of this brief clinical report to discuss the many problems of iron metabolism and its relation to hypochromic anaemia. One or two points are worth emphasis. (a) Overt blood loss appears to play no part in the causation of the anaemias. (b) Careful inquiry into the diet gave no grounds for supposing that lack of dietetic iron is responsible for the anaemia. In general these men were particularly fond of the iron-rich foods—possibly a compensatory phenomenon. (c) The high incidence of hypochromic anaemia in the first few years of life and its comparative rarity in school-children suggest that in the present cases there is a specific deficiency. (d) The high incidence of defective gastric acidity suggests a connexion between gastric deficiency and the anaemia.

Summary

A brief clinical report is made of 10 cases of hypochromic anaemia of undetermined aetiology occurring in males. Nine of the cases were revealed by routine examination of adolescent recruits.

Medical Memoranda

Dehydration Fever

Cases of dehydration fever in the newborn are fairly common, but the following case is, I think, almost unique on account of the extreme degree of hyperpyrexia.

Last December I was summoned to attend a baby 3 days old which had been reported by the nurse in charge to have a temperature of 110° F. On arriving at the nursing home I found the infant in a state of extreme prostration; the pulse was weak and uncountable, and the rectal temperature was then 108.4°. This was checked by two thermometers. The child's face and body were almost lilac in colour, the tongue stiff and dry, the lips and mucous surfaces hot, red, and parched.

It was immediately plunged into a tepid bath and after some minutes glucose and saline were run into the rectum (the child being unable to suck). In half an hour the temperature had dropped to 102.4°, and in two hours it had settled at 100.4° F. The baby was by now breathing quietly, his natural colour was restored, and he was able to suck and swallow easily. He is now, ten months later, a fine specimen both physically and mentally.

I do not know how long such a temperature is compatible with life, nor do I know how long the baby had held it before it was first taken. I do know that an interval of 15 minutes elapsed between the recording of the temperature and the institution of treatment.

Swindon.

S. McDERMOTT, M.B., B.Ch.

Reviews

PRINCIPLES OF ORTHOPAEDIC SURGERY

A Practice of Orthopaedic Surgery. By T. P. McMurray, M.B., M.Ch., F.R.C.S. Ed. Second edition. (Pp. 435; illustrated. 30s.) London: Edward Arnold and Co. 1943.

Prof. T. P. McMurray's well-known textbook of orthopaedic surgery makes a welcome reappearance in a second edition. In his preface to this the author states that, though much of the original text has been rewritten and brought up to date and new illustrations have been added, an effort has been made to keep the book, so far as possible, the same size as before. In this object Prof. McMurray has succeeded admirably, and his book is still, as was the first edition, a handy, concise exposition of the basic principles of orthopaedic surgery intended primarily for the young surgeon and senior student. The subject-matter of the various diseases and deformities is clearly set out on a systematic plan with avoidance of too much confusing detail and theory, and under the sections on treatment only those operative procedures which have, in the author's wide experience, given the most consistently satisfactory results are described.

Differential diagnosis of the various conditions is given due weight, though under this heading mention might perhaps have been made of the now proved value of biopsy examination of the inguinal and iliac lymph nodes in tuberculosis of the knee and hip joints respectively. Prolapse of the nucleus pulposus of an intervertebral disc also has acquired so much notoriety of recent years that one wonders it did not find a place in a revised edition of this textbook as a cause of spinal nerve root irritation leading to sciatica, and especially to sciatic and alternating sciatic scoliosis. These, however, are small matters which do not detract at all from the value of an excellent and practical treatise on the principles of orthopaedic surgery in the direct tradition of the great Master of Orthopaedics, to whom the book is dedicated. The young orthopaedic surgeon who bases his practice on the lines so ably laid down for him in this book will certainly have no cause to regret it.

PROCTOLOGY FOR THE G.P.

Proctology for the General Practitioner. By Frederick C. Smith, M.D., M.Sc. Second revised edition. (Pp. 466; illustrated. 54.50.) Philadelphia: F. A. Davis Company.

The most useful chapters in this book, from the point of view of the general practitioner, are those on ano-rectal symptomatology and methods of diagnosis. The author rightly attaches much importance to obtaining a careful history in cases with even minor rectal complaints, and complete routine examination is necessary if mistaken or incomplete diagnoses are to be avoided. The chapters on anaesthesia, parasites, venereal diseases, and constipation are reliable and full of information. The author uses local anaesthesia for minor procedures such as ablation of anal crypts or excision of papillae and thrombotic external piles, but prefers general anaesthesia for what he calls the major rectal operations, such as haemorrhoidectomy, cure of fistula, or excision of pilonidal sinuses. Chapter IX, on anal pruritus, should prove to be particularly helpful to practitioners, and we note that in the author's experience x rays and ultra-violet light have not given good results. He questions the value of undercutting operations. We might point out that the story of the doctor suffering from pruritus who had to devise a gadget to restrain his hands, which is related on page 235, is repeated almost verbatim on page 241.

For cure of anal fissures the only methods described are division of the sphincter and excision; there is no mention of local treatment for recent superficial fissures. Many of the surgical procedures described cannot be recommended and are contrary to the accepted practice in this country. For instance, five methods of haemorrhoidectomy are described, preference being given to the clamp and cautery operation. In particular we cannot support the author's rather loose description of ano-rectal abscesses and his advice that at the primary operation

ments with regard to the Thames and Lee are working satisfactorily and should not be disturbed. The formation of 29 new Boards is envisaged, which with those of the Thames and Lee will take over the duties at present exercised by more than 1,600. It is hoped that with larger financial resources the new Boards would be able to maintain full-time scientific and technical staffs to make expert observations and give expert advice; they should be assisted by a central research organization such as that under the Water Pollution Research Board of the Department of Scientific and Industrial Research. These proposals represent a great advance in the management of our rivers, and it is to be hoped that they will be speedily put into force.

MATERNITY SERVICES IN NORTHERN IRELAND

In 1936 the Ministry of Home Affairs in Northern Ireland appointed a committee to examine the organization of maternity services. Prof. R. J. Johnstone was its chairman, and on his death the chair was taken by Prof. C. G. Lowry. The report¹ is dated June, 1939, but its publication bears the date 1943. We are told that the approach of war held it back, and that in the meantime no legislation associated with the report has been introduced. A select committee on public health services is now sitting in Belfast, however, and possibly the problem of maternity services will be freshly reviewed. The Government, with Sir Basil Brooke as the new Prime Minister, is, we are assured, giving earnest consideration to the whole question.

One of the conditions which the committee lays down as essential is the separation of maternity services from Poor Law administration. In Northern Ireland the public midwifery services provide only for the destitute poor. Generally speaking, for the whole population above the status of pauper, midwifery provision in its broader sense is a private matter. Moreover, the services provided for the destitute poor have regard only to the actual confinement. The Boards of Guardians pay such a small salary that the midwife, if she is to earn a living wage, must undertake private practice, with the result that she may be overworked and her non-paying patients may suffer from lack of attention. The average total income of a Poor Law midwife is said to range from £52 to £92 per annum. The question of ante-natal supervision has been tackled systematically only in the city of Belfast, and even there the proportion of women who receive supervision throughout the whole of their pregnancy is small. The committee has no doubt whatever that a high proportion of fatalities in childbirth is the direct result of the lack of such supervision. Strong adverse criticism of the existing system of maternity services was made by the witnesses who appeared before the committee, including the Northern Ireland Branch of the British Medical Association. The committee recommends that the public maternity services be removed entirely from the Poor Law and reorganized under county councils and the corporations of county boroughs; that a Central Midwives Board be set up for Northern Ireland; that a medical superintendent officer of health be appointed for each county to control the entire medical services assumed by the county council, and that in each of the areas the administrative body be required to provide ante-natal and post-natal services, an adequate staff of well-trained and fully paid midwives, a consultant service, institutional facilities, transport, foodstuffs and medicines in necessitous cases, and the disinfection of clothing and bedding. In the opinion of the committee the sum of £180 per annum is the lowest which is likely to attract the type

of woman whom it is desired to see employed as a midwife; in addition to the salary, housing accommodation should be provided, together with an allowance toward uniforms. (The Rushcliffe Committee, which recently reported on midwives' salaries in England and Wales recommended for a district midwife, if she is also a State registered nurse, a salary of £140, rising by increments of £10 to £200, with, in addition, emoluments of a total value of £100. If she is not a State-registered nurse the salary scale should begin at £120 and have its maximum at £190. An essential of the scheme for Northern Ireland would be compulsory attendance at refresher courses for midwives at intervals of two years, and midwives should be compulsorily retired at sixty.

Northern Ireland has had a deplorably high maternal death rate. In 1938 the death rate from puerperal sepsis per 1,000 births was 1.20—itsself a lower figure than has obtained during the previous ten years—and from other puerperal diseases 4.12, comparing with rates for England and Wales for the same year of 0.89 and 2.19 respectively. In Belfast in 1938 the death rate from puerperal disease was 5.25. It is a great pity that the committee's report has been held up for four years, and we hope that no similar delay will take place before its recommendations are brought into effect.

CHAIRMANSHIP OF THE COUNCIL

Mr. H. S. Souttar, who had been Chairman of Council of the B.M.A. since the Aberdeen Meeting in July, 1939 made it known that he would not seek re-election this year and the new Council at its first meeting on Sept. 23 unanimously elected Dr. H. Guy Dain to the chair. In his brief acknowledgment of this well-deserved honour Dr. Dain expressed the Council's sense of obligation to the outgoing Chairman. Mr. Souttar has had no easy task as chief executive officer of the Association during the first four years of the greatest war in history; but his courtesy and good humour never failed him, whether as Chairman of Council, as Chairman of the Central Medical War Committee, or as Chairman of the Medical Planning Commission. An additional service to the profession was his wartime visit to North Africa, Egypt, Iraq, and India as head of a mission sent by the Secretary of State for India at the request of the Government of India, which led to the immediate formation of the Indian Army Medical Corps. The gracing of public ceremonies, for which he is so well fitted, was denied to Mr. Souttar as Chairman of Council; work and care have been his portion. Dr. Dain, with years of experience in leadership behind him, comes to the chair at a critical time, but with the knowledge that he has the confidence of the Association.

SOCIAL WELFARE IN THE U.S.A.

Social welfare in the United States is as earnestly pursued as in Great Britain, and the discussions on health and economic security, industrial relations, public assistance, and family allowances have much the same ring. But on reading more than fifty papers which were presented at a recent conference at New Orleans¹ one is conscious of differences between British and American sociological approach. The Americans are more scientific, more objective, perhaps—if the word is not misunderstood—more business-like in dealing with social problems. Their cases are wonderfully well classified and docketed and supported by statistics. On the other hand, they seem sometimes to

¹ Cmd 219. H.M. Stationery Office, Belfast. (9d.)

¹ *Proceedings of the National Conference of Social Work*. Selected Papers Sixty-ninth Annual Conference, New Orleans. (Pp. 681. 33s. 6d.) New York: Columbia University Press; London: Oxford University Press.

be less aware of human factors and psychology. There is something about the very thoroughness with which social investigation is undertaken which makes us admire and at the same time stand slightly appalled. It is an excellent thing to follow up the men rejected by medical boards for selective army service, to pursue them, even across a continent, with forms and bulletins, with permissions signed in triplicate and witnessed, with interviews and referrals, with the ascertainment of financial data and family history, with reports from doctors, dentists, clinics, and community agencies, until the man must feel that the very "Hound of Heaven" is after him. There is a very good chance (a 64% chance according to the figures for one group) that the man will be rehabilitated—unless in the meantime he be badgered to death. One paper, by I. S. Falk, who is the director of the bureau of research of the Social Security Board at Washington, gives a rather subdued picture of the progress made since a five-point health programme was established by an interdepartmental committee of the Federal Government six years ago. He says that there has been no substantial achievement since then in the way of expansion of public medical services or the development of health insurance. Federal aid to these ends has been made available only for a venereal diseases programme. No State has developed a programme for medical care on an insurance basis or any comprehensive programme of public health services. Hospitals have grown in number, but the increase has been mainly in Government institutions, most of which are not available to the population as a whole, and health and diagnostic centres and clinics and out-patient facilities have not substantially improved since 1937-8. An interesting but not too cheerful picture of the United States in its first year of war.

One paper in the collection is by Mr. Malcolm MacDonald, on wartime social services in Britain. Mr. MacDonald paints with a cheerful brush. We wonder how many rescue squads would endorse his remark about air raids that even "when houses get smashed their householders usually escape without a scratch. They emerge hale and remarkably hearty, only they suddenly have no roof over their heads." Again, he describes evacuation as if it were a picnic, with everything in the country garden lovely. Perhaps the transatlantic perspective is needed in order to appreciate how shadowless is the landscape of wartime England.

POLIOMYELITIS

The advancement of our knowledge about poliomyelitis has hitherto been retarded by two special difficulties confronting the experimental investigator. In the first place monkeys are the only readily available animals susceptible to virus from human sources, and even they are relatively resistant to infection. Secondly, many of the crude materials which contain virus are so toxic and so heavily contaminated with bacteria that only small doses are tolerated, and they cannot be administered by the most sensitive—intracerebral—route of inoculation. Isolation of virus from the excreta of cases and carriers and from sewage has therefore been largely a matter of chance. A recent paper by Melnick¹ introduces a method of virus concentration and purification which may eliminate the second difficulty. By means of the ultracentrifuge the virus contained in as much as 30 g. of faeces is obtained in a volume of 1 c.cm., the whole of which can be inoculated intracerebrally into a monkey. Comparative titration experiments indicated that the new method is at least 100 times more sensitive than the best of the older methods. If this is substantiated it represents an advance of great

practical importance, because the solution of many outstanding problems depends upon the isolation of virus strains from as many different sources as possible.

The classical conception of poliomyelitis as a disease caused by a single virus, spread by droplet infection, and invading the central nervous system from the nasopharynx via the olfactory bulbs, is no longer wholly tenable. The trend of modern research is to focus more attention on the intestinal tract, both as a portal of entry and as a route of elimination of the virus. Apart from the very frequent reports of isolation from stools, the pattern of virus distribution in a series of fatal cases was considered by Sabin and Ward² to point to the alimentary tract as the primary site of attack and to exonerate the nasal mucosa and saliva from participation in virus multiplication and dissemination. Such a view demands a reasonable hypothesis to replace the droplet infection hypothesis. Direct case-to-case transmission presents no difficulty, but how does the virus survive outside the human body during interepidemic periods and how does it regain access to the human alimentary tract? Trask and Paul³ consider that circumstantial evidence points to some extra-human host in the chain of transmission, and have recorded two instances in which virus was detected in flies collected during epidemics.⁴ Most of the available evidence, however, suggests the mouse or other small rodent as a possible reservoir of infection and intermediate host. The mouse appears to be particularly prone to virus infections of the central nervous system, and the naturally occurring mouse encephalomyelitis bears striking resemblances to human poliomyelitis. Moreover, two human strains of poliomyelitis virus have been successfully adapted to mice. On the other hand, the numerous failures to adapt strains to mice should not be forgotten. Recently Jungeblut and Dalldorf,⁵ by inoculation of hamsters, cotton rats, and mice, have isolated two viruses during an outbreak of poliomyelitis which involved five cases in a sharply circumscribed area: one was from the cord and medulla of a fatal case, the other from a grey house mouse found dead in the house of the same patient. An important question is whether they can be accepted as true poliomyelitis viruses. All the circumstantial evidence favours an affirmative answer, but the authors themselves realize the risks involved in using rodents for virus isolations. Serum neutralization tests indicated definite relationship with monkey poliomyelitis virus, but much closer affinity to the SK murine strain and to Theiler's mouse encephalomyelitis virus. Perhaps the time is fast approaching when we shall regard poliomyelitis as a clinical entity caused by a number of related viruses, differing both in their antigenic structure and in their range of species pathogenicity, much as we now know to be the case with influenza.

FACTITIAL PROCTITIS

Radiotherapy of carcinoma of the cervix uteri has been so successful as to have become more or less standardized in principle, and it is accepted that both intracavitary radium application and external irradiation by x rays are necessary for adequate dosage. But since this dosage has been satisfactorily worked out intestinal injuries have been increasingly recognized. A mild acute proctitis is often produced, but it subsides soon after the completion of the irradiation, and the later irradiation reactions—to which the term "factitial proctitis" has been given by Randall and Buie⁶—are unrelated to it. The incidence of these late

¹ *J. exp. Med.*, 1941, 73, 771.

² *Amer. J. publ. Hlth.*, 1941, 31, 239.

³ *Science*, 1941, 84, 395.

⁴ *Amer. J. publ. Hlth.*, 1943, 33, 169.

⁵ *Amer. J. Obstet. Gynec.*, 1943, 45, 505.

intestinal injuries is between 3 and 5%, but Aldridge⁷ reports intestinal strictures in 16% of 142 cases. There are two main types of injury, aptly termed by Todd⁸ intrinsic and extrinsic: the former is limited to the rectum and may resemble an operable carcinoma of the rectum, while the latter presents a massive perirectal fibrosis which may be mistaken for a widespread pelvic recurrence or for an inoperable carcinoma of the rectum. In both types the rectal ulceration occurs on the anterior wall at the level of the cervix and has a radionecrotic appearance, so that it would be natural to regard it as due to an overdose of radiation. But in none of these three reports was there any obvious relation between dosage factors and late intestinal injuries, nor were they associated with the degree of malignant involvement of the parametria nor with the presence of pelvic inflammation. The suggestion made by Hurdon⁹ that the lesions are due to endarteritis, and related to the blood supply rather than to the dosage, has been supported by Todd's demonstration that the rectal ulceration occurs in the anastomotic area where an endarteritis would be expected to have maximum effect, and that the perirectal fibrosis—"frozen pelvis"—is almost confined to the posterior segment where the blood supply is poorest. On the other hand, Corscaden,¹⁰ in reporting 15 cases of intestinal injury, had had no further cases since increasing the over-all time of irradiation from 3 to 6 weeks. The ulcer confined to the rectum heals as a rule spontaneously over a period of months, generally without any stenosis and indeed without any residual lesion at all. When there is also perirectal fibrosis, however, colostomy is needed in about one-third of the cases for either stenosis or haemorrhage. Pain is also a prominent symptom, for which Todd advises presacral sympathectomy, because colostomy alone often failed to relieve it. The fatality rate of these late injuries is fortunately small, and one may conclude that the risk of factitial proctitis is a justifiable one to take in attempting to cure cancer.

The incidence of late radiation injuries in the urinary tract is difficult to assess, because similar changes are so often the result of the malignant process itself. Indeed, Ewing¹¹ stated that the natural termination of most cases of uterine cancer is through uraemia from occlusion of the ureters. Hayllar¹² points out that ureteric obstruction whether due to late radiation fibrosis or to malignant invasion of the peri-ureteral lymphatics with subsequent replacement fibrosis, may occur in patients without recurrence of cancer, and that ureteral drainage and monthly dilatation will permit their survival in comfort for long periods, thus adding a further small percentage to the statistical survival rates.

TOXIC HAZARD OF BERYLLIUM

Although beryllium, which belongs to the same chemical family as magnesium and calcium, was discovered in 1797, it was very little known before 1916, and has become of prime economic importance only since 1940, chiefly because of its copper alloy, which is extremely resistant to fatigue and corrosion. The principal ore is beryl, a beryllium aluminium silicate, which is widely distributed although rarely in large deposits. Extraction of beryllium from this ore is difficult, necessitating high temperatures and fusion methods, and it is during these extraction processes, especially the fusion of crushed beryl with sodium silicofluoride, that the industrial toxic hazard of beryllium arises. From time to time reports of severe poisoning of workers in beryllium foundries have appeared, but whether the

effects were due to the fumes or dust of beryllium or beryllium fluoride, or to other fluorides evolved during the fusion process, has never been definitely agreed.

Among the manifestations of beryllium poisoning have been skin irritation, hepatonephritis, beryllium rickets, and "berylliosis"—the term given to the type of lung damage caused by inhalation of the dust or fumes of beryllium compounds. This condition has recently been observed in America¹ in three workmen employed in extraction of beryllium oxide, and has been described as a "chemical pneumonia." Although no fluoride was used in this particular process, the symptoms and x-ray findings corresponded closely with a similar disease described by Gelman² as bronchio-alveolitis or peribronchio-alveolitis, and believed by him to be due to fluorine separated in the lungs from beryllium oxyfluoride. The characteristic symptoms and physical findings were dyspnoea, cough with occasional blood-tinged sputum, low-grade fever, shallow rapid respiration, mild to moderate cyanosis, and fine crepitant rales throughout the lower half of both lungs. A radiograph about three weeks after the onset of symptoms showed diffuse haziness of both lungs, prominence of peribronchial markings, soft irregular areas of infiltration, and discrete small nodules. All three patients recovered, the x-ray picture being then normal. Since an identical "chemical pneumonia" of undetermined aetiology was also observed in a rayon factory worker, it is suggested that beryllium was not necessarily the direct causal factor in the three cases described.

A still more recent investigation³ of the action of beryllium on experimental animals appears to confirm the view that it is not itself inherently toxic. Very little beryllium was stored in the tissues of animals which were given large amounts by the mouth, by inhalation, or by intraperitoneal injection, and there was no evidence of "beryllium rickets." Nevertheless, exposure of guinea-pigs and rats to the fumes from the electrolysis of molten fluorides containing beryllium fluoride or oxyfluoride showed that these fumes were decidedly toxic. No specific pneumonitis occurred, but it was believed that the hydrolysis products of the compound were so toxic that the animals died before pulmonary damage could develop. It appears probable, therefore, that the industrial hazard of beryllium arises from the toxicity of its fluoride or oxyfluoride or from the hydrolysis products of other salts rather than from beryllium itself, and that these effects must be taken into consideration in any measures for safeguarding the conditions of preparation of beryllium or its alloys.

The Harveian Oration will be delivered before the Royal College of Physicians of London by Dr. W. E. Hume on Monday, Oct. 18, at 2.30 p.m., at the College, Pall Mall East.

The British Council film, "Surgery in Chest Disease," which was the subject of an annotation in our issue of Sept. 25 (p. 297), will be given a second showing at the Curzon Cinema on Monday, Oct. 11, at 5 p.m. Some seats are still available, and those wishing to take advantage of them should apply to the Film Department, the British Council, 3, Hanover Street, London, W.1. The British Council has very kindly agreed, when prints are ready, to loan the film to B.M.A. Branches and Divisions. It is a 35-mm. sound film, and takes just under 40 minutes to run. We feel sure that many Branches and Divisions will seize the opportunity to see this film of exceptional merit and interest, which has been praised highly by the leading film critics of the country.

⁷ *Amer. J. Obstet. Gynec.*, 1942, 44, 833.

⁸ *Surg. Gynec. Obstet.*, 1938, 67, 617.

⁹ *Proc. Soc. Radiotherapists*, Oct., 1936.

¹⁰ *Amer. J. Roentgenol.*, 1938, 39, 871.

¹¹ *Neoplastic Diseases*, 1940, p. 619, Philadelphia.

¹² *Urol. cutan. Rev.*, 1942, 46, 617.

¹ *Cleveland Clinic Quart.*, 1943, 10, 10.

² *Occupation and Health Supplement*, International Labour Office, Geneva.

³ *National Institute of Health Bulletin*, 1943, No. 181, Washington.

NEUROTIC AND PSYCHIATRIC STATES AS
CAUSES OF INABILITY TO WORK
IN ENGLAND, 1940-1

BY

HOWARD E. COLLIER, M.D., Ch.B.

This study was undertaken in the hope that the statistical material available to me in my capacity as a medical referee to a large industrial insurance society might throw some light on the following points: (1) the actual incidence of neurotic and psychiatric illness in this country at the present time; (2) the relative importance of the "nervous factor" in causing delay in recovery from illness; (3) the probable amount of definitely psychiatric illness present in the community for which specialist psychiatric "treatment" should be provided in a reorganized medical profession.

The Material

With these general objects in view and after a preliminary discussion with Dr. Russell Fraser, who is engaged on the same general problem on behalf of the Medical Research Council, large samples of records made at the time of examination by three medical referees (working independently) for a large benevolent and approved society in the Midland area during the years 1940 and 1941 were analysed. I personally interviewed and recorded the notes of about one-third of the cases; the rest were seen and recorded by colleagues, without whose work the present study could not have been carried out. Series of 500 record cards were taken in alphabetical order from the files of both male and female patients for each of the two years under review—making 2,000 cases in all.

The Analysis

All the clinical notes were read by me and each case was allocated to one of the three clinical groups. (All doubtful cases were classed as physical.) In consultation with Dr. Russell Fraser the following categories were selected.

Group I.—Physical diseases uncomplicated by evident neurosis.

Group II.—(a) Physical diseases complicated by "neurotic" symptoms of such a kind or degree as to make it clear that the mental element in the case was significant as a cause of the disability or its undue prolongation. **(b)** Minor or secondary neurosis—i.e., cases in which psychiatric disorder was the main cause of the disability, though often a feature complicating other illness, and treatment was probably simple.

Group III.—Cases of frankly psychiatric origin: that is to say, major psychiatric disability—viz., the psychoses, and also cases probably requiring expert psychiatric attention not within the competence of the ordinary practitioner.

TABLE I.—Nervous and Psychiatric Illness (Rate per 1,000 Cases in Brackets)

Description of Material	"Population"	Group II: Neurotic or Psycho- somatic	Group III: "Major" Neurosis or Psychiatric	Combined Groups II and III
(1) Cases of "ordinary sickness" seen by medical referees	1,693	272 (160)	202 (119)	474 (280)
i) Analysis according to sex:				
(a) Males	809	112 (140)	87 (100)	199 (246)
(b) Females	884	160 (190)	115 (129)	275 (320)
(c) 1940 males only ..	410	63 (153)	47 (110)	110 (260)
(d) 1941	399	49 (120)	40 (100)	89 (220)
j) Analysis according to age (if recorded):				
(a) Males under 30 years ..	176	24 (136)	18 (102)	42 (239)
" over 30 years ..	624	77 (123)	63 (100)	140 (224)
(b) Females under 30 years ..	450	84 (185)	68 (142)	152 (317)
" over 30 years ..	404	76 (188)	47 (113)	123 (304)
(c) Males and females:				
Under 30 years ..	656	103 (165)	86 (131)	194 (295)
Over 30 years ..	1,028	153 (159)	110 (107)	263 (255)
k) Analysis according to marital state (females only):				
(a) All single women ..	438	89 (203)	72 (165)	161 (369)
(b) All married women ..	446	71 (160)	43 (96)	114 (256)
(c) Single women under 30 years ..	282	55 (195)	48 (170)	103 (366)
Single women over 30 years ..	156	34 (208)	24 (154)	58 (378)
Married women under 30 years ..	198	29 (147)	20 (101)	49 (246)
Married women over 30 years ..	248	42 (168)	23 (93)	65 (262)
(d) Age in 1940 and 1941:				
1940 All single women	235	51 (217)	31 (134)	82 (348)
1941	213	38 (173)	41 (193)	79 (370)
1940 All married women	207	39 (185)	24 (116)	63 (304)
1941	239	32 (133)	19 (80)	51 (214)

TABLE II.—Distribution of "Population" in the Various "Social Classes" (Males only)

	Social Class i: Managers	Social Class ii: Under- managers	Social Class iii: Skilled Workers	Social Class iv: Semi- skilled	Social Class v: Unskilled
(5) Occupation recorded in 915 cases	3 (3.4)	51 (56)	460 (505)	303 (338)	93 (103 per 1,000 examined)
(6) Distribution in standard population*: E. and W. Census, 1951	— (25)	— (142)	— (499)	— (181)	— (167 per 1,000 employed)
(7) Incidence of "nervous disease" according to "social class" (Total, 915)†	1 (—)	11 (—)	83 (183)	65 (200)	15 (160) Total 175 (181 per 1,000 examined)

* All occupied and retired civilian males.

† For this analysis accidents were included to enable a sufficient number of cases to be obtained for analysis. Occupation was not always recorded in the notes made by the referees.

The material was further analysed from a variety of points of view: into the *age groups* in respect of Groups I, II, and III for both male and female cases; in respect of *married or single state* with regard to the female cases only; into *occupation groups* in respect of the male cases only. (It is generally recognized that an occupation analysis of women workers does not yield reliable results.)

It was thence possible to allocate all of the male workers (whose occupation had been recorded) to one of the five social classes described by the Registrar-General in his Decennial Report of 1931, and to discover the "general structure" of the population at risk in respect of its economic and occupational conditions. In making this last analysis I used my knowledge of occupations and the names by which workers describe them.

Lastly, by the courtesy of the general secretary of the society some very useful information was obtained concerning the nature of the population at risk, its sex distribution, etc.

The results of these inquiries are summarized in the Tables.

Discussion

The interpretation of these results will depend largely upon the view taken of the degree of artificial selection to which the material is subjected before reaching the medical referee. Something must be said, therefore, concerning the methods and criteria by which the cases are chosen for "reference."

Cases for reference are summoned by experienced non-medical officers of the society: (a) because the period of disability is unduly long having regard to the diagnosis (e.g., a cold might be summoned after 3 weeks, but pneumonia only after 3 months); (b) because of recurrent trivial illness; (c) at the end of 12 months' disablement to ascertain whether the disablement is likely to be permanent; (d) cases of accident, suspected industrial disease, vague diagnosis, etc., to "ascertain liability"; (e) cases in which sick-visitors consider that alternative light employment might be undertaken. There is a definite tendency, therefore, for "neurotic" cases to be summoned, although some of them no doubt return to work rather than appear before the medical referee. No cases that are unable to travel appear before the medical referee.

It will be seen from Table II (item 5) that the membership of the society is chiefly drawn from the skilled and semi-skilled working groups. (The relative incidence of neurosis in the social classes deserves further study.)

The society consists of two sections: (a) the parent society, which is a voluntary benefit society (P), and an approved section, which is a national health approved society (A). A proportion of the members of both sections do not qualify for benefit. These have been excluded from the figures in calculating the population at risk. The two sections of the society (P. and A.) do not differ very greatly in size or sex distribution. The total numbers qualified for benefit (and therefore liable to be summoned to the referee) are 204,674 males and 72,459 females, making a total of over 277,000 members: but of these about 77,000 live too far from the office of the medical referee to be summoned. Hence the *basic population at risk* is about 200,000 persons. It is found that in regard to males, to females, and to the parent and the approved sections, a proportion of *one in three* of the members claim benefit every year. During the year 1940 the society received over 97,000 claims. (In some instances one member may make several claims in one year.) In respect of these 97,000 claims 5,522 persons were summoned to appear before the referee in 1940, and of these nearly 50% returned to work prior to the date of examination. The remainder were seen by the referee.

and constitute the records from which the material studied in this paper has been derived.

Interpretation of Results

The most striking fact about the figures in Table I is their general uniformity and consistency. There was an over-all incidence of 280 cases of all kinds of neurotic disorder in each 1,000 examined. We may conclude, therefore, (1) that about 280 per 1,000 of all cases of unduly prolonged disablement are due to or associated with manifest nervous or psychiatric disease, or that about 280 in every 1,000 disabled persons are likely to experience an *unduly prolonged disablement by reason of "nervous disorders."* (2) In the material surveyed there is a considerably higher incidence of nervous illness among the women than among the men (320:246). It will be noted that this excess is confined chiefly to single women (Table I, item 4) both below and above 30 years of age. (3) Item 7 (Table II) suggests that "social state" is not an important factor in the differential or actual incidence of nervous disorders—at least, in respect of Classes iii, iv, and v. (4) Finally, with all due reserve an attempt may be made to relate the figures to the membership of the society as a whole, and thence perhaps to the community as a whole, since it is improbable that the experience of the community is less favourable than that of a benevolent society of high standing.

Of the patients summoned for examination on account of unduly prolonged illness 50% returned to work before seeing the referees. There are two extreme and opposite assumptions that could be made: first, that in fact the referees saw *all of the cases* whose illnesses were unduly prolonged by "neurosis" and that there was no neurosis among those that returned to work; secondly, that the referees saw *only one-half* of those cases—i.e., only those who did not return to work. In my view it is probable that the truth lies somewhere between these two assumptions. Taking the first assumption, we can estimate minimal, and, taking the second assumption, estimate maximal, rates of the probable incidence of neurotic disorder as a factor in causing unduly prolonged illness in the population.

We know that 5,522 persons were summoned; our analysis shows that 28% of those actually seen were found to be "neurotic." Since the referees saw about 50% of those summoned, we may estimate that at least 14% of the persons summoned were "neurotic"—that is, 770 estimated cases. These cases were derived from a total insured population of about 200,000 persons, male and female. Hence we may estimate that neurosis as a significant factor causing prolonged disablement occurs in 3.8 per 1,000 of the population at risk—the members of the society. Since one member in three claims benefit each year, we may estimate that at least 1.2 per 1,000 of the insured population suffer from disabling neurosis each year. Our study showed also that out of 28 neurotics 12 would be classed by me as "psychiatric," as described above. Hence we estimate that at least 1.5 per 1,000 of the insured population require expert psychiatric help.

If we accept the maximum hypothesis, each one of these rates would be multiplied by two. Thus:

76	per 1,000 insured persons will be disabled by neurosis
24	" " disabled
30	" " will require "expert" psychiatric assistance

I find that during the last 3 years I have sent patients to psychiatric consultants at a rate of about 1 patient per 1,000 persons for whom I am responsible as a doctor.

ADVERTISING PROPRIETARY MEDICINES

The following rules governing the publication of advertisements for proprietary medicines were unanimously adopted at a recent meeting of the Newspaper Proprietors' Association:

1. No advertisement will be accepted by the newspapers represented in the N.P.A. which offers for sale to the public any medicine or treatment which is directly or by implication held out in terms calculated to lead to the belief that the medicine is effective in:

(a) The treatment of Bright's disease, cancer, tuberculosis or consumption, diabetes, epilepsy, fits, locomotor ataxy, cataract, glaucoma, disseminated sclerosis, osteo-arthritis, spinal, cerebral, and venereal diseases, lupus, or paralysis, or for preventing any of those ailments.

(b) For the cure of amenorrhoea, hernia, blindness, rheumatoid arthritis, or any structural or organic ailment of the auditory system.

(c) For procuring the miscarriage of women.

(d) For the treatment of habits associated with sexual indulgence or of any ailment associated with those habits.

2. No advertisement will be accepted from an advertiser who by printed matter, orally, or in his advertisement undertakes:

(a) To diagnose by correspondence diseased conditions or any particular diseased conditions in a human being, or to receive from any person a statement of his or any other person's symptoms of ill-health with a view to advising as to, or providing for, the treatment of such ill-health by correspondence; or

(b) To treat by correspondence any of the ailments specified in Section 1 above.

3. No advertisement will be inserted containing a testimonial other than one limited to the actual views of the writer, or any testimonial given by a doctor other than a recognized British medical practitioner unless it is manifest that the writer is not a British doctor of medicine.

4. No advertisement will be accepted containing illustrations which are distorted or exaggerated in such a manner as to convey false impressions.

5. No advertisement will be accepted which in any way may lead persons to believe that the product recommended emanates from any hospital or official source or is other than a proprietary medicine advertised by a particular manufacturer for the purpose specified, unless the advertising agent submitting the copy declares that the authority of such hospital or official source had been duly obtained.

The secretary of the N.P.A.'s Advertisement Committee informs us that the rules are now in operation in all the London morning, evening, and Sunday newspapers, and all advertisements will, in addition to conforming to these rules, be submitted to medical scrutiny and the product to chemical analysis if it is considered necessary. This is the first time that the national newspapers have unanimously laid down and insisted on a standard of control over statements and claims made in advertisements.

Correspondence

X Rays and the Colon

SIR.—I also was present at the meeting when Sir Arthur Hurst opened a discussion on the functional disorders of colon and uttered a warning—in my opinion a timely one—against placing too much reliance on the help which radiology can give in cases of so-called colon spasm or irritable colon. Surely, most physicians and many radiologists of wide experience will agree that in many of these cases, essentially spasm in their manifestations, the colon may appear normal, when examined by barium meal or enema.

I have had occasion recently to look through my case records of functional colon disorder and find that among the 1200 cases 78 were examined by barium meal and 35 by enema. In the opaque meals evidence of dysfunction, as shown in areas of spasm and of abnormal rates of passage, was found 51 times, and there were 27 normal results. In the 35 enemata 25 were normal and 10 showed some abnormality.

I have only a very limited acquaintance with the method of studying mucosal patterns introduced by Forsell and elaborated by Berg and others. They may give more information, but they are laborious and time-consuming and do not appear to have been generally adopted in this country or the United States as a routine procedure. The clinical picture of colon spasm was put on a sound basis by Howship, Ha White, and Hawkins without the aid of radiology, and, great and essential as its contributions have been and will be to the understanding of alimentary disease, in this particular group of psychosomatic disorders they have not as yet proved conspicuous.—I am, etc.,

Birmingham.

T. L. HARDY.

Psychiatry at the Cross-roads

SIR.—Psychiatry is at the cross-roads (Sept. 11, p. 331), and has been for some time, because one leg is trying to go one way and the other leg another. There is an almost complete divorce between those entrusted with leadership and those who have to do the bulk of treatment and research. In general medicine or surgery, when a specialist gives up his hospital beds, by which he continually adds to his skill and knowledge, he loses influence. In psychiatry the opposite is true. He a doctor must give up active treatment as soon as possible in the hope of attaining the only positions of responsibility—security, and influence—as a medical superintendent behind an office desk or as an eminent consultant generally without hospital beds of any sort. Psychiatry is organized to-day on the Royal Colleges would be if an essential step to a seat on the Council, or even a Fellowship, were to give up active clinical practice for consultative work and the administrative control of other doctors. This state of affairs is more appropriate to religion than to science. The position will not

ch improved by simply making the D.P.M. a little harder, insisting that our future consultants should spend at least 3 years learning to treat patients in mental hospitals before ending to detached psychiatric bishoprics. A more radical change is necessary.

The provision of psychiatric beds in general hospitals is vital to future progress. At the least it will provide an entree to the psychiatrist to remain a clinician with modern experience in treatment, and with opinions and influence derived from this experience. In any future planning these beds must remain as independent units and be kept strictly in the sort of hierarchy at present approved of by the Board of Control. Unfortunately, such an arrangement is not possible in mental hospitals; but the law still ordains that nobody but the medical superintendent can have any responsibility for a patient's treatment, and that clinicians can be no responsible except that derived directly from him, making these observations I do not wish to criticize any high psychiatric positions to-day. They are equally victims of the system, and I know personally how well they carry out their impossible tasks.

The unnatural organization of psychiatry is not only bad in practice but in principle. With an authoritarian and heresy-hunting is inevitable. Clinical progress is continually hamstrung. In some institutions psychotherapy is pressed; in others, insulin or convulsion therapy or prefrontal leucotomy. Through no fault of their clinicians some hospitals took ten years to introduce the malarial treatment of general paralysis. At present hundreds of schizophrenics drift into chronicity. Their health might have been maintained had not co-ordination between administrators and clinicians in treatment broken down. Even with the wartime shortage of staff a planned attack on the recoverable stages of this disease might have been made in regionally distributed treatment centres had therapists had any share in organization, had administrators better personal acquaintance with the problems of treatment. Scientific psychiatry emerges in a sorry tattered state from every new battle for advance, whose issues are decided less frequently by impartial judgment than by politics and authority. Our internecine wars make us the ring-stock of our medical colleagues, and are reminiscent of the age when theologians discussed how many angels could dance on the point of a pin, and the Pope's dictum was sufficient to decide whether or not the earth moved round the sun. I wish this might go if psychiatry could put first things first in the general medicine of to-day. The competent doctor should be given control of his beds and out-patient clinic, and influence in psychiatry become dependent on the skill he shows in treatment, teaching, and research.—I am, etc.,

WILLIAM SARGANT.

WILLIAM SARGANT.

Symptomless "Phthisis" and Artificial Pneumothorax

SIR.—Dr. A. Niven Robertson's letter (Sept. 18, p. 373) may be read and digested, save the public from countless errors and the profession from much discredit. He reminds me that artificial pneumothorax is "merely a local splint" which, if any, influence on the underlying general disease. The dictum that every patch of "phthisis" which can be sealed only by radiography should be treated by artificial pneumothorax is about as scientific as would be the dictum that every fracture, whatever its condition or duration, should be treated by a splint. A simple fracture of, say, the forearm be (a) quite recent and capable of going wrong, (b) partly healed and either progressing favourably or going wrong in any way, or (c) quite healed in good or bad position. Moreover, even a simple fracture may be due to some general disease the progress may be seriously affected thereby. A splint may be "indicated" in (a), may be either helpful or harmful in (b), but would be worse than useless in (c), and in no case would it attack the *causa causans*. A patch revealed by radiography in the absence of symptoms may be evidence of (in reverse order): (c) an infection which has subsided, (b) an infection which is subsiding naturally, or (a) a recent infection which, though active, has not yet evoked the usual constitutional symptoms. Careful watching and hygiene are necessary in any case, but until there is good reason to believe that the case belongs to class (a) a splint, in the form of A.P., may do

much more harm than good, and is definitely contraindicated. The analogy is no more perfect than most analogies, but I hope all who have missed Dr. Robertson's letter will look it up and study it.—I am, etc.,

Ambleside.

J. PRICE WILLIAMS.

Mass Radiography and After

SIR.—I was glad to see the note by Dr. A. Niven Robertson (Sept. 18, p. 373) warning against the indiscriminate employment of surgical measures in children with tuberculous chest lesions. There is an enormous disproportion between the numbers of those infected with tubercle and of those who suffer from it. In the course of 30 years' special tuberculosis practice I met with many cases of presumably tuberculous chest lesions which were quiescent and had given no trouble for years; and in some of these there was clear evidence of exposure to tuberculous infection in childhood.

When minimal tuberculous chest lesions are discovered by radiography we should first make sure that they are progressive or likely to be so and then investigate the conditions of life. The breakdown in health seldom happens without contributory factors, and surgical measures, though valuable, will not replace hygienic precautions and education.—I am, etc.,

Farnham

F. R. WALTERS, M.D.

Management of Pleural Empyema

SIR.—In your issue of Sept. 25 (p. 383) Mr. P. R. Allison has described the treatment of empyema. Without wishing to be controversial, may I question his recommendation of repeated aspiration for non-localized empyema and advocate air-tight suction drainage instead? To perform open drainage of the chest cavity in the presence of a pleural effusion which has not yet become circumscribed by adhesions would be a well-recognized surgical fault, but will Mr. Allison tell us what possible advantage repeated aspiration may have over continuous air-tight drainage by suction? The latter can be effected painlessly without moving the patient from his bed, and is often followed by rapid recovery without troublesome sequelae. An objection expressed by Mr. Allison against air-tight suction drainage is that "any system of closed drainage tends to focus attention on the apparatus rather than the empyema cavity." I would like to know on what observations this arresting remark is founded, and in what way air-tight suction drainage has been proved disappointing in his own hands.—I am, etc.,

Kew Gardens, Surrey.

HAROLD BLURROWS.

Treatment of Lupus Vulgaris

SIR.—In the *Journal* of Sept. 18 in an article on the treatment of lupus vulgaris it is stated that since the introduction of the Finsen and Finsen-Reyn lamps nearly 40 years ago nothing has been discovered to take their place. This is not the case. In July, 1928, at the annual meeting of the British Association of Dermatology and Syphilology Dr. Lomholt of the Finsen Institute described his modification of the Finsen lamp. This is much superior to the earlier models, and, indeed, in 1933 had entirely superseded the Finsen lamp even in the Finsen Institute at Copenhagen. The time of treatment is reduced by half, and each patient does not need the services of a nurse, as is the case with the earlier lamps. There are three Finsen-Lomholt lamps in the Skin Department of the Royal Infirmary, Edinburgh, the only voluntary hospital in the British Isles to be so equipped. One nurse is able to look after the three patients under treatment at the same time.

The Finsen-Lomholt lamp was briefly described in a lecture which I delivered to the Border Counties Branch of the B.M.A. in Nov., 1936, the lecture being published in the *Journal* of Jan. 23, 1937. That public health authorities are awakening to their responsibilities in the treatment and care of lupus patients is shown by the fact that in 1938 the Glasgow Public Health Department installed three Finsen-Lomholt lamps in their tuberculosis dispensary.

The idea of special centres for the treatment of lupus vulgaris is not new. As far back as the early 1920's the late Sir Norman Walker outlined a scheme for treatment centres to be situated in Edinburgh, Glasgow, Aberdeen, and Dundee. I do not know if his views were published. But I know that at that

time he was in frequent consultation with the Scottish Board of Health on the subject. In fact he frequently had members of the Board visiting the lupus clinic between 1919 and 1923, and he induced the Board to authorize public authorities to pay the fares of lupus patients coming to the clinic for treatment.

The idea of a special colony for lupus patients is not new either. In 1922 in a paper prepared for the annual meeting of the British Association of Dermatology I outlined a scheme for a lupus colony, not only for advanced cases but for cases of all ages and at all stages. Through lack of time the paper was not read, but in the scheme I outlined the colony was to be made self-supporting so far as possible.

These patients have a miserable existence. They are frequently economic liabilities, but with proper treatment can be made economic assets. It is more than time that the public—and professional—conscience was awakened to the miseries of their lot.—I am, etc.,

Workshop.

ROBERT AITKEN.

Health and Tonsillectomy

SIR,—In your article "Health and Tonsillectomy" in the *Journal* of Sept. 11 it is pointed out that the incidence of nasopharyngeal disease, otitis media, etc., in the tonsillectomized group was about the same as in the non-operated-on group. Surely this statement proves that the operation has been, to say the least of it, successful, for those who were operated on were children who were much more subject to nasopharyngeal disease than the average child, and therefore, if they are now as good as the average child, the operation must have done good.

I have been medical officer to two or three boarding schools for 30 years, and it is always a relief to me to find that children have had tonsils and adenoids removed, for in my experience they rarely get mastoids or otitis media. When I began to practise in England in 1906 when tonsils and adenoids were rarely removed I always had on my books 2 or 3 children with discharging ears; for the last 20 years I have had practically none. I think this proves that on the whole this operation has been of great benefit to the community.

Another point in favour of the operation is that I do not see nearly so many cases of catarrhal deafness in the middle-aged.—I am, etc.,

Limpfield, Surrey.

G. D. LAING.

Wartime Diet for Peptic Ulcer Patients

SIR,—Having recently been laid low for four months as a victim of peptic ulcer I have been enabled to view the problem of treatment both as a patient and as a doctor. As a patient I found difficulty under wartime restrictions in obtaining a sufficient quantity of the right types of food to provide a full and varied diet, and I wrote to the Ministry of Food suggesting that various changes should be made, such as the temporary allocation of more "points" coupons. I received a reply to the effect that as the Minister's advisers on invalid dietary had ordained for ulcer patients a priority of three eggs per week and a quart of milk a day no further provision was considered necessary.

Not content with this answer I have reopened the matter with the Ministry and wish to obtain sufficient evidence that a strong body of medical opinion is in favour of temporary food concessions being made for ulcer patients under proper safeguards which the Ministry would devise. My object in writing this letter is to ask all doctors who have had a peptic ulcer themselves during the war to write to me, Dr. J. B. W. Rowe, Kodak Ltd., Harrow, Middx., giving their opinion as to what changes should be made. Opinions from other doctors who have found difficulty in treating peptic ulcer patients owing to inadequate dietary would also be welcomed. I shall then be in a position to present some statistical evidence to the Ministry.

Changes which suggest themselves to me as being desirable are: (1) a substitution of cheese for butcher's meat; (2) a temporary increase of "points" coupons to provide extra easily digestible foods such as cereals, porridge, syrup, etc.; (3) a priority on portable types of food—such as biscuits—so that a patient can always have a few with him and eat them when necessary, since meals at 2 to 3 hours' intervals are so important;

(4) a priority for the supply of fish of a suitable type (where there is any) so that the patient's wife does not have to spend long hours in queues and can go home and have her husband's meal ready at the right time.

There is another and very important aspect to this question about which I have already written to the Ministry of Labour so far with no satisfactory result. A rough estimate of the number of men who are suffering or have suffered (with gravity to recurrence) from peptic ulcer in the United Kingdom in round figures is 500,000, and I am told by colleagues that there has been a distinct and notable increase in the incidence of peptic ulcer lately. The morbidity is high and lost time amounts to anything from one to six months, and the fact that brain workers are more liable to the condition than manual workers means that key men are the most likely people to be affected, with a consequent greater possibility of industrial disorganization occurring. All this means that every possible step should be taken to cure and to keep people liable to peptic ulceration working, and one of the best ways to do this is to provide sufficient easily digestible food for meals at regular and short intervals.—I am, etc.,

J. B. WRATHALL ROWE.

Recovery of Bladder Function after 21 Years

SIR,—A patient aged 45 was operated on in 1922 by a surgeon who shortly afterwards died. A suprapubic cystotomy was performed, apparently for impassable prostatic stricture. He carried on his work for 21 years with a succession of suprapubic tubes, which he changed for himself. There was no severe cystitis. About April, 1943, great difficulties arose. There was great straining, the tube would not go in properly and he kept constantly wet. It was also difficult to get action of the bowels. He consulted Dr. Verner of Newport, who sent him to me.

The prostate was very large, and operation was advised. On Aug. 11 the largest prostate I have ever seen—decidedly larger than a coconut—which filled the bladder and blocked the pelvis, was removed. Bleeding was furious, and it was necessary to sew up the prostatic bed completely, and give a large blood transfusion. Three days later a Foley catheter was introduced per urethram without any difficulty, and the thin rubber bulb distended with water between the sutures so as to reproduce a prostatic cavity. There was a secondary haemorrhage a fortnight later, which was controlled without much difficulty. This delayed convalescence, but he passed water naturally at a month, and was practically healed and quite dry when he went home. There was neither straining nor frequency.

It is remarkable that the bladder should recover its function without any hesitation or bungling after so many years. I may be that the enormous size of the prostate is connected with the fact that there was no bladder pressure to control it.—I am, etc.,

Bristol.

A. RENDLE SHORT.

Vomiting Sickness in Jamaica

SIR,—In your issue of Sept. 25 (p. 392) there is a letter from Dr. A. A. Wright which would suggest that this malady is a new one. He makes no reference to, in fact appears to be ignorant of, the exhaustive research into this condition by H. H. Scott recorded in the *Ann. trop. med. and Parasit.* Liverpool, 1916, 10, 1, under the title, "On the 'Vomiting Sickness' of Jamaica."—I am, etc.,

London, W.1.

HUGH S. STANNUS.

Arsenicals in Vincent's Infection

SIR,—The recent article "Misuse of Intravenous N.A.B. for Vincent's Infection" calls for some comment. In the first place the title of the article is ill chosen. Surely it is better that it be headed "The Use of N.A.B., etc.," and further elaboration to show whether that use is justified or not. Such dogmatism is apt to mislead the less experienced and those who, for want of time, fail to analyse the article carefully.

I do not think it is justifiable to label intravenous arsenical as useless in the treatment of Vincent's infection on the slender and somewhat unreliable and incomplete evidence produced. The "two recent illustrations" quoted are open to serious criticism. In the first case, and in many of the others quoted

he lesions in the mouth developed in the course of treatment with intravenous arsenic for another disease, and after a number of such injections had been given. It is a well-established fact that Vincent's organisms exist in the mouths of healthy people, and only become pathogenic when the opportunity presents itself. Is there not a distinct possibility that they may become drug-resistant and display their pathogenicity in spite of the presence of arsenic? In the second case there was deep jaundice, and it is well known that under such conditions the resistance to infection is considerably lowered.

There must be ample evidence available to show that intravenous or intramuscular arsenicals are of use in the treatment of Vincent's infection. Personally, although I have no actual records by me, I have seen a large number of cases of confirmed Vincent's infection clear up as if by magic after one or two injections. With regard to the expense, it costs approximately 3s. to treat each case, and if Dr. Eric Jewesbury has ever experienced the pain and discomfort attendant upon a large number of local treatments I am sure he will agree that the very remote risk of complications after arsenical injections is well worth taking. It is to be hoped that Dr. Jewesbury will produce some much more convincing figures and cases to show that arsenicals are of no value in otherwise normal cases of proved Vincent's infection, and that, having produced his evidence, he will head the article "The Value of Intravenous Injections of N.A.B. in Cases of Vincent's Infection."—I am, etc.,

Basingstoke.

JOHN J. DAVIS,
Major, late R.A.M.C. (T.A.).

SIR.—A great many dental surgeons will welcome Squad. Ldr. Eric Jewesbury's article (Sept. 18, p. 360) explaining the need for "careful local treatment" and the misuse of intravenous N.A.B. in this disease. It is not exceptional for a dental surgeon, after having set the patient on the right line for complete recovery, to have the patient's confidence in his constructive plan of local treatment—in some cases necessarily laborious—upset by the G.P.'s inadvisably offering the get-you-better-quickly promise of intravenous arsenic.

In the "sore-gum" type of subacute Vincent's disease, and in the very destructive but painless chronic type, total eradication of the infection may entail a great deal of dental reconstruction (as I described in the *Journal*, 1936, 1, 1104) before every nidus from which recurrent attacks can originate has been eliminated. It is, of course, natural for the patient to grasp at any much simpler and less expensive treatment, but the result of the suggestion that intravenous medication will successfully combat the infection invariably leads the patient to think that there is no reason to fuss with the finicky business of oral hygiene. He therefore relinquishes his efforts to co-operate, and as a consequence his condition deteriorates. It is disillusioning for him subsequently to discover that the intravenous arsenical had done no good, and Dr. Jewesbury's caution that it may indeed do harm is a timely corrective.—I am, etc.,

London, W.1.

C. BOWDLER HENRY.

SIR.—I am impelled to write in relation to possible misconceptions which may arise from Squad. Ldr. Eric Jewesbury's article, which is entitled "Misuse of Intravenous N.A.B. for Vincent's Infection." This article refers apparently to infection of the mouth only. Unfortunately the term "Vincent's angina" is used throughout. This term is better restricted to infection of the throat, especially since there can be little doubt (following the work of Dobbs, etc.) that the two infections are aetiologicaly distinct. "Vincent's infection of the mouth" not being primarily caused by Vincent's organisms, it is not surprising that N.A.B., locally or intravenously, is usually ineffective. Vincent's angina of the throat is entirely different. N.A.B. applied locally is a startlingly specific for this disease. (It is unnecessary to risk the slight dangers of intravenous use.)

I am appalled at the amount of ignorance which prevails on this subject in some quarters. I have recently seen two cases of quite severe chronic and recurrent Vincent's infection of the tonsils which had been treated in various ways for months without much response. In each case symptoms were relieved after the first application of N.A.B. paint, and healing occurred rapidly. In the last two months I have also treated some nine cases of more acute Vincent's infection in the same way with the same rapid response.

I am not pretending to deduce anything new, but merely wish to point out that local N.A.B. is a well-recognized and spectacularly specific drug for Vincent's angina (of the throat), but it is frequently not being used.

Incidentally the N.A.B. may be used dissolved in glycerin (or Mandl's paint), about 0.5 g. to the ounce. The debris should first be removed from the ulcers with a swab-stick, and the paint carefully applied into the base and around the edges of the ulcers.—I am, etc.,

Old Hunstanton.

W. P. U. JACKSON, M.R.C.P.

Arsenical Encephalopathy

SIR.—With regard to the article by Nelson, McGibbon, and Hughes (May 29, p. 661), I read with much interest and some surprise the details of four of their cases of the above complication. I should like to point out that in these days there must be few venereologists who begin the treatment of latent, late congenital, or tertiary syphilis with an arsenical preparation in addition to bismuth. It seems now to be a well-established principle that, in cases of tertiary syphilis, one is wise to start treatment with potassium iodide by mouth, daily, for two or three weeks, followed by a course of bismuth intramuscularly once or twice weekly until ten injections have been given, then small amounts of an arsenical preparation—e.g., neosarsphenamine 0.15 g.—are given intravenously once weekly and the dose gradually increased. The same would apply to a case of late congenital syphilis with a gumma. In latent syphilis one could omit the potassium iodide and commence with a course of bismuth.

Neglect of these precautions is liable, at least in tertiary syphilis, to give rise to serious consequences in the nature of a Jarisch-Herxheimer reaction, which may be fatal if a vital organ is involved. The authors quote four such cases: the first one probably a late latent syphilis (history of penile ulcer in 1910), in which the Wassermann reaction was found to be positive, though clinically the case was one of lymphogranuloma venereum. The second case was one of late congenital syphilis with a gumma (a woman aged 22 years who was 27 weeks pregnant). The third case was a 24-year-old multigravida (32 weeks pregnant) with latent syphilis. The fourth case was one of primary syphilis (a woman 20 weeks pregnant) with a B.P. 150/90 and slight albuminuria following a fit. In each case the treatment was begun with N.A.B. and bismuth. The first three cases died in coma, evidence of haemorrhagic encephalopathy being found at necropsy. The fourth case became comatose shortly after treatment commenced, but eventually made a complete recovery. This last case may well have been an eclampsia or a hypertensive encephalopathy in a pregnancy toxæmia. There was no pathological evidence to support the diagnosis of haemorrhagic encephalopathy, though the latter cannot, of course, be excluded.—I am, etc.,

C. B. ARSCOW,
Capt., R.A.M.C.

Spinal Anaesthesia for Labour

SIR.—It is possible that junior obstetric surgeons reading the article by Dr. Harold Burton on low spinal anaesthesia in labour with cardiac failure may feel tempted to give this method a trial.

I would most earnestly ask that before they do they should read the literature on the subject or even consult the standard textbooks. I feel that even the most superficial acquaintance with the literature on the subject will cause them to reconsider their decision to employ any form of spinal anaesthesia during labour. Furthermore, I am convinced that the giving of a spinal anaesthetic to over 100 normal cases "in order to develop the technique fully" is a procedure which will find little favour with the majority of obstetricians.—I am, etc.,

WILLIAM J. CLANCY,
Obstetrician, City General Hospital, Sheffield.

Register of Medical Auxiliaries

SIR.—The Council of the Board of Registration of Medical Auxiliaries, of which we, the undersigned, constitute the medical members, would very much appreciate the privilege of being allowed through your columns to draw the attention of the medical profession to the objects for which the Board was formed in 1936, and to ask for the full co-operation of the profession in the use of the Register.

Medical auxiliary work is taking an increasingly important part in the treatment of disease, yet at present it is open to anyone, qualified or not, to practise this type of work. The purpose of the Board is to provide a *Register* of qualified persons who are guaranteed to have undergone an adequate course of training, passed a recognized examination, and have undertaken to maintain a good ethical professional standard. By consulting the *Register* doctors or members of the public may assure themselves of the training and status of the person whom they employ for medical auxiliary work. The Board itself is a body composed of duly appointed medical practitioners and representatives of each recognized branch of medical auxiliary work. It has provided a standard *Register* of the following groups: chartered masseurs/leuses; radiographers; biophysical assistants; dispensing opticians; chiropodists; orthoptists and speech therapists; and can confidently recommend to the medical profession and the public those persons who are on its *Register*. Support has been given us by many hospitals, public bodies, and individual practitioners, but there is need for the whole medical profession to make use of the *Register* if it is to serve to the full the purpose for which it was instituted. Though at present, owing to the war, it is impossible to publish the *Register* in full each year, it is possible to supply any practitioner with the information he may require as to the qualifications of persons on the *Register*. Inquiries should be addressed to the secretary of the Board of Registration of Medical Auxiliaries.—We are, etc.,

V. ZACHARY COPE (President).	L. D. BAILEY.
C. B. HEALD (Vice-President).	E. J. BOOME.
L. VERNON CARGILL (Treasurer).	A. P. GIBBONS.
W. MCADAM ECCLES.	NORMAN C. LAKE.
CHARLES LEONARD GIMBLETT.	D. D. MALPAS.

B M A House, Tavistock Square,
London, W.C.1.

H 11 for Cancer

SIR,—In answer to Dr. G. W. Blomfield's letter (Sept. 25, p. 403) I should like to say that in my series of cases treated by H 11 all case records can be obtained at the hospitals where I have acted as pathologist. I am quite familiar with research procedure as I held a research grant from the B.M.A. for three years at the Middlesex Hospital. Furthermore, I held a research fellowship for one year in Liverpool. Of course a biopsy was taken from my case, and as an added precaution I reported my findings to the late director of the Medical Research Council.—I am, etc.,

Southport.

JOHN H. HANNAN.

Specialist Courses for Service M.O.s

SIR,—May I say a few words in support of Dr. L. W. Aldridge's excellent letter (July 17, p. 88).

My case must be typical of thousands of Army medical officers and so I make no apology for stating it. After qualifying I spent a year as a general house officer in a small hospital, where I got a "smattering" of all the branches of our art. This served to convince me that my future career lay in the realm of surgery, and I was just beginning to feel my feet when I was called up. Since then for the past 18 months I estimate that I have used a scalpel not more than a dozen times, and then for such minor operations as excision of toe-nails and sebaceous cysts. I well remember after a year in the Army how thrilled I was when some kindly civilian surgeon allowed me to perform a circumcision. I quite realize that in war such a state of affairs is inevitable; young physically fit medical men are not plentiful, and so we must be employed with the fighting Forces in the front line, where there is little opportunity of doing surgery or, for that matter, reading it. Refresher periods at C.C.S. or military hospitals might help a little, but the administrative difficulties of such a policy are very great.

What of the future after the war for us young would-be surgeons? Many of us have married during the war: are we to return to a hospital post at £150 per annum (no hospital will pay us any more with our lack of practical experience for two or three years)? Are we expected to keep a wife on such a salary, or must we take up general practice, for which we have no aptitude and little inclination? Some old stagers say that it is our own fault for getting married; would

they have all Army officers bachelors until after the war? As a last resort a lot of us will refuse to be pushed into general practice by economic necessity; our wives will make the sacrifice, they will forgo a home and children for a few years and continue, if possible, to work; I think that the nation and the profession owe to the men who are fortunate enough to return from active service a better deal than that.

Therefore in these days of talk of rehabilitation let there be some plan for the rehabilitation of the Army M.O. Can something be arranged whereby we can reacquire the knowledge we have lost during the war, so that we can command a reasonable salary in the work of our choice and continue with our clinical aspirations? Let us not be driven into general practice merely to keep body and soul alive. Surely such a state of affairs would produce not only unhappy but bad general practitioners—a most important point at this time, when all our efforts are being directed towards giving the general public a better medical service.—I am, etc.,

E. M. LEYLAND,
Capt., R.A.M.C.

B.N.A.F.

Medical Services for the Merchant Navy

SIR,—As one who has had some short experience of the conditions existing during the present rapid turn round of shipping, may I state my views on this subject. The following points against the present system become immediately apparent

1. The other Services—i.e., the Navy, Army, and R.A.F.—have a full-time medical service, but except on board passenger vessels the Merchant Navy has not.
2. The other Services have a hospital service; the Merchant Navy has not, and with few exceptions is dependent upon local authority and voluntary hospitals.
3. In the United States there are huge, well-equipped hospitals purely for seamen. The funds for these come from a levy made by the Seamen's Union. (This is a very wealthy union.)
4. In the special conditions prevailing in wartime, ships' companies have to be made up at the last moment, and for this and many other reasons unfit men undoubtedly do have to sail, and even those infected with gonorrhoea have been given a box of sulphapyridine tablets with instructions to the master or chief steward, no doctor being carried in the ship.
5. No one can expect the "Federation doctor" to be able to give a real examination. These doctors are nearly always busy general practitioners, and with the best will in the world they just cannot do it. The notice given them is usually short. I think that in some ports there is no such examination.
6. As a rule there is no record available to a doctor examining a merchant seaman.

I therefore suggest that these objections could be met by some such scheme as the following: A complete separate Merchant Navy Health Service should be established to deal with all questions of seamen's health, including initial fitness for the job on first going to sea; a medical examination before each voyage; a non-infectious illness and accident service in each port or anchorage (a service of this nature has been set up in the Clyde Anchorages Emergency Port); amphibian ambulance service in each port or anchorage; appropriate hospital facilities strategically situated (these could be either *ad hoc* hospitals or, more economically, beds and/or wards set aside in local or E.M.S. hospitals by arrangement with the hospital officer); proper facilities for the treatment of V.D. at all ports. There is also a sound case to be made out for a liaison officer from this force to advise the Board of Trade on the improvement of conditions on board ship.

This medical service would not only examine but also treat seamen. In small ports certain of these duties could be combined with the port medical officer's duties and/or carried out by part-time practitioners. A section should be devoted to research into nutrition, vocational training, and initial suitability for the work. It appears to me that if some such service as this were available (and it is surely not so much more than the other Services already have) then little objection could be raised by seamen to a medical record card, attached to the seaman's own card, which he must already carry. Such a scheme as the above could be financed either purely by the State or by the State along with the Shipping Federation, who so far appear to have shirked their responsibility in this matter.

The favourite bogey of "free choice of doctors" can hardly be produced against a State scheme for merchant seamen, as they have never had this except when on shore for some time.

One of the essential prerequisites of any State medical scheme already exists here, in that all seamen are now "on the pool," and are paid whether at sea or awaiting a vessel.

There is a great deal to be said for introducing some such scheme as this, at the present time.—I am, etc.,

Mansfield.

W. P. FORREST.

"The Classics"

SIR.—The question whether a knowledge of the classics is helpful to one taking medicine as a career is interesting. Experienced teachers claim that this knowledge leads to clarity of thought and expression, a power of understanding the views of others, and a broader outlook. Undeniably a boy knowing some Latin and Greek will understand, and remember, and spell scientific terms the better for it.

Does not the modern drift from the classics arise more from the way they are taught? as Prof. Major Greenwood suggests. If a boy is making these subjects his life work the system may be defended and the considerable time spent in learning to write in these languages justified. When I was a boy I spent much time in writing what were politely termed "Latin verses" and translating portions of the *Times* into Attic Greek. So that my style should be good, the authors chosen for my reading were selected for the purity of their language rather than the interest they contained.

Supposing a new outlook were taken and boys taught to read rather than write, and the authors chosen for their human interest and modern outlook, I am sure the boy would learn with much more pleasure. Most of us have been "bored stiff" in trying to understand how Caesar built his famous bridge, or Priam harnessed his complicated chariot, whereas we should have enjoyed Pliny giving an eye-witness account of the destruction of Pompeii, or the adventures of Lucian as an "airman." Later in life, when we realized that the medical practitioners in ancient Rome were either slaves or ex-slaves and traced the similarity between the Beveridge report and the idea of "panem et circenses," we should be forced to realize that the Romans (and Greeks) thought much as we do and faced similar kinds of problems.

At 63 I still think a man with even a humble knowledge of the classics "has a little something the others have not got" (to quote a pre-war trade slogan), and is the happier for this.—I am, etc.,

Badon, Bristol.

W. BALY PEACOCK.

Obituary

G. H. EDINGTON, M.D., D.Sc., F.R.C.S.

We regret to announce that Col. G. H. Edington died on Sept. 24 in the Western Infirmary, Glasgow, where he had been visiting surgeon for many years. He held many important posts, gave valuable service over-seas during the last war, and was a member of the General Medical Council for 12 years.

George Henry Edington, eldest son of G. B. Edington, iron-founder, of Glasgow, was born on Jan. 10, 1870, and after schooldays at Kelvin-side Academy studied medicine at the University of Glasgow and at King's College, London. He graduated M.B., C.M.Glas. with commendation in 1891, took the English Conjoint Diplomas in 1896 after proceeding to the M.D. (also with commendation), and became F.R.F.P.S. in 1897; he received the D.Sc. of Glasgow in 1913 and was elected F.R.C.S.Eng. in 1931 without examination. After holding a number of minor clinical and academic posts in Glasgow he was appointed in 1908 to the chair of surgery at the Anderson College Medical School. Five years later he followed the late Sir George T. Beatson as visiting surgeon to the Western Infirmary, and soon afterwards was appointed lecturer in clinical surgery at the University; he was also extra honorary surgeon to the Royal Hospital for Sick Children, and consultant to a number of other institutions. From 1922 to 1927 he was honorary physician in Scotland to King George V. He was a Past-President of the Royal Faculty of Physicians and Surgeons of Glasgow, and represented that body from 1928 to 1940 on the G.M.C. He served for some years as editor of the *Glasgow Medical Journal*.

Col. Edington had a lifelong interest in the Volunteer and Territorial Force movement. He embarked for duty over-seas during the last war as commanding officer of the Lowland Field Ambulance with the 52nd Division, and saw service at Gallipoli and in Egypt; later he was in command of the 78th General Hospital at Alexandria, A.D.M.S. of the Lowland Division, and for a time senior medical officer at a base camp in Palestine. In civil life he took an active interest in the work of the Red Cross Society and became chairman of the Scottish Executive Committee in 1930; the Red Cross movement in Scotland owed much to his enthusiasm. He became a member of the Glasgow University Court in 1939, and in the following year was elected president of the Royal Philosophical Society of Glasgow. He joined the B.M.A. in 1893 and held office as vice-president of the Section of Surgery at the Annual Meeting in Dublin in 1933; he was also a Fellow of the Association of Surgeons of Great Britain and Ireland. During the present war he served on the Scottish Civil Nursing Reserve Advisory Committee and on the Council of the Scottish National Blood Transfusion Association. Some years ago he was appointed a deputy-lieutenant and J.P. for the County and City of Glasgow.

A fellow-member of the Moynihan Club writes:

George Edington had the gifts of geniality and a keen sense of humour, so that he was always a delightful host and a charming travelling companion. I well remember visits with him to surgical clinics in Bordeaux, Prague, Basle, and Zurich. He was full of quaint observations and humorous remarks of what he saw, and in this way always added to the enjoyment of our visits abroad. One would constantly catch a merry twinkle peering through his glasses and a whimsical expression as he chipped one of the party or burst forth in exclamation at some unusual occurrence. In one clinic the French surgeon in charge was performing a long list of operations, chiefly abdominal, and laparotomy disclosed in one case a uterus containing large fibroids. The operator proceeded to remove it, and to our astonishment used a Lawson Tait myoma screw, an instrument which few of us had ever seen at all and still fewer had seen in use. As he twisted the corkscrew-like end into one of the fibroids we heard Edington's whispered remark, "He puts it in like a Scotsman!" Dear George Edington, as he was to his older friends; equally beloved by his younger ones, charming to all. He will be sadly missed from among us. Of his operative work I can say nothing as he was not doing much operating by the time I met him, and his contributions to surgery are too well known to comment upon, but with thoughts of the kind way in which he entertained many of us at his club when we were in Glasgow, of his witty reminiscences of his experiences in the out-patient department of his hospital, and his invariable kindness and helpfulness, I would pay a brief tribute to him in these few recollections.

ADAM FULTON, M.B., B.Ch.

The news of the death on Sept. 28 of Adam Fulton, at the age of 74, brings back pleasant memories of a man once prominent and greatly liked in B.M.A. circles. After a successful student career in Belfast he qualified as M.B., B.Ch., B.A.O., and settled near Nottingham, where he built up a large colliery and industrial practice. He joined the Association in 1904, and in 1910 came to the Annual Meeting in London as Representative of Nottingham. He continued as a Representative until 1914, was a member of the Council from 1913 to 1920, and a very active member of many committees. In 1920 he accepted an invitation to become a Divisional Medical Officer of the Ministry of Health, and was thus lost to active Association work though always keeping up his membership and his interest in its work.

Fulton was a general practitioner of a very fine type, who secured for himself the confidence and affection not only of his patients but of his colleagues, and both made heavy demands on his energies which were cheerfully accepted. He was very prominent in the struggle over the National Health Insurance Bill, and took a characteristically sane part in the discussions. He was a man of strong moral courage and never concealed his opinion—not too popular at the time—that if the main demands of the profession were met, as they eventually were, the new health service would be a boon to the public and to the profession. He was vice-chairman for some years of the Notts Insurance Committee, and in other ways, both locally and centrally, made his influence so felt that it was no surprise when he was invited to go to the Ministry. I know that his

advice was greatly valued by Smith Whitaker, then the chief medical adviser to the Ministry on the Insurance side, and by Sir Robert Morant, its secretary. Fulton's official duties, which were mainly concerned with Yorkshire, were carried out with his usual tact and sound judgment until the time of his retirement. But to me the quality of the man was best shown during the last war when on his Local Medical War Committee and in co-operation with headquarters he organized the doctors in his district in a way which was not surpassed in any other area. The Notts area was exceptionally heavily depleted of doctors, but Fulton and his colleagues met the situation with great ingenuity and courage, and originated many ideas for the more economical use of doctors, which the Central Medical War Committee was preparing to adapt for use throughout the country if the incessant drain of practitioners into the Army had gone on. The Armistice fortunately intervened.

Since his retirement he had lived in Harrogate, where he continued in a quiet way to make himself useful to his profession and his neighbours. The older members of the profession who knew Fulton would, I am sure, agree with me that it was a privilege to know and work with a man who had such a great fund of common sense and good humour. He was always listened to with great respect in any committee in which he took part. Fulton had no family, but no notice of his career which is more than formal would be complete if it did not mention that he often said that but for his wife's interest in his medico-political work he could never have thrown himself whole-heartedly into work for his professional brethren.

A. C.

A. I. SIMEY, M.D.

The following appreciation of Dr. Simey, supplementing the memoir published on Sept. 11, has been sent by Dr. J. N. Wheeler of Rugby.

A. I. Simey was an instance of all too rare combinations—a first-class classic devoting himself to science and medicine, and again a man with the qualifications and attributes of a first-class consulting physician, imbued with the unselfish motive of love of his old school, of which he had been senior classic and head boy in his time, and drawn by an unalloyed interest in youth, devoting his life to the health of that school as its medical officer. A classical education at a public school and university is a fine preparation for our profession, and there are very many of us who feel that it is a retrograde system which rushes a boy into the precocious specialization of First M.B. work while still in the upper forms of school. The former gives a man the basis of a mature mind's wider outlook in the choice of a profession, and we should remember that it was only the expected shortage of doctors to fill the demands of Government services which has introduced the element of far too early specialization.

Simey was full of selfless philanthropy in the best sense of the word. Never swayed by selfish ambition, he saw no higher aim than to devote his gifts to the service of the young and of his Alma Mater. He was full of acts of sympathy and kindness to little children, and of friendliness and hospitality to Rugbians past and present, and in the latter his wife took the share of a true and very gracious hostess. When he came to Rugby and was appointed hon. physician to the Hospital of St. Cross, this voluntary hospital was not yet more than a large cottage hospital of 40 to 60 beds. He left it a thriving and growing general hospital of the smaller class with more than double that accommodation. In this metamorphosis he played a large and untrump part as a member of the Board of Management and of its House and Finance Committee, always taking a very friendly interest in the nursing staff and their health and social activities. He was instrumental with Bernard Relfon and others in bringing to birth the Rugby and District Medical Society—a happy social and scientific medical association entirely free from political taint. His wide sympathies made him a most patient and wise counsellor and friend to his colleagues in difficulties arising in practice or in hospital work, and his retirement, forcing him as it did to leave the town and start work as a consultant in the South-Western Counties where he already had connexions, meant a really great loss to the rest of the profession in and around Rugby. As a physician he was a most exact clinical observer and accurate diagnostician, as well as an artist in note-taking. Records meant very much to him in the interests of the after-care of his patients, and when he retired he passed on their dossiers most helpfully to their subsequent medical advisers. He would also feed out whole case sheets to his R.M.O.s by bedside dictation at the hospital. His cultured scholar's mind was helped by a wide range of reading and an exceptional memory for the old classics, which were to him a never-failing source of colour and humour that ran through his thought and talk, his letters to his friends, and even these clinical notes.

He was an expert botanist and a born naturalist; the birds and the wild flowers were his friends and his hobby. He knew the haunts of rare wild flowers and ferns in many scattered parts of England. As a friend he was as strong as the Northern fells among which he grew and whose height and breadth he loved.

WILLIAM PASTEUR, M.D.

Mr. Victor Bonney writes: In the obituary tributes to the late Dr. William Pasteur his chief claim on posterity—namely, that he discovered, described, and put on the map of medicine for all time the condition known as massive collapse of the lung—is not made clear. I am sure that all those who served with or under him would wish that this, his outstanding achievement should be permanently associated with his name.

Dr. G. P. Smerwood writes: In the passing of Dr. William Pasteur the profession has lost one of the fast-dwindling members of the top hat and frock coat era who were the pioneers of the profession as it is to-day. Those of us who had the advantage of learning under his tuition must have a sad sense that with him has passed a real friend. To say he had dignity sounds too cold. There was a warmth and kindness blended with that dignity, a sort of paternal interest that he always seemed to take in his students, that must have left with all of them a life-long affection for "Bill" Pasteur. To this careful teaching and kindly interest many must owe a deep sense of gratitude. There was that in his whole manner, quiet, dignified, and kindly, that only one word, used in its true and unhackneyed sense, can adequately describe, and those students must feel that here has passed a true gentleman and a true friend.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The list printed last week of those upon whom titles of the degree of M.B., B.Chir. were conferred during July and August was incomplete. The names should read J. Hardy, V. U. Lutwyche, M. Sidgwick, and Mrs A. B. Willcock.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Arnott and Erasmus Wilson demonstrations and Museum lecture-demonstrations will be given at the College (Lincoln's Inn Fields, W.C.), Monday to Friday, Oct. 18 to Nov. 5. All the demonstrations begin at 4 p.m. and are open to advanced students and medical practitioners.

The Services

Temp. Surg. Lieut. P. R. C. Evans, R.N.V.R., has been awarded the George Medal for gallantry in services to the wounded after his ship had been damaged by an explosion. Enduring great pain, and with both his ankles broken, Surg. Lieut. Evans continued to tend the wounded for many hours.

Temp. Surg. Lieut. R. H. Jones, R.N.V.R., has been awarded the D.S.C. for courage and resolution in enemy coastal waters.

Surg. Cmdr. J. V. Williams, R.N., has been appointed a Commander of the Order of Orange Nassau for services to the Royal Netherlands Navy.

Capt. W. K. MacDonald, R.C.A.M.C., has been awarded the M.C. in recognition of gallant and distinguished services in Sicily. Surg. Cmdr. W. T. R. Chapman and Surg. Lieut.-Cmdr. S. B. Levy, R.N.V.R., have been awarded the R.N.V.R. Officers' Decoration.

The Order of Polonia Restituta (Officer) has been conferred on Acting Wing Cmdr. H. P. R. Smith, R.A.F., by the President of the Republic of Poland in recognition of valuable services rendered in connexion with the war.

Group Capt. W. J. G. Walker, R.A.F., Wing Cmdr. R. M. Outin, R.A.F.O., and Squad. Ldrs. M. O. Richardson, R.A.F., P. A. Gimson, and J. P. Houlihan, R.A.F.V.R., have been mentioned in dispatches.

CASUALTIES IN THE MEDICAL SERVICES

Fl. Lieut. GORDON WORSLEY BELLIS, who lost his life on Sept. 11 in a flying accident, was born in March, 1914, studied medicine at Charing Cross Hospital, and qualified M.B. B.S. in 1939. After a house post at Ashridge he was appointed to a commission in the R.A.F. on July 25, 1941. At the time of his death he was flying with a squadron operating over-seas.

Previously reported missing, believed prisoner, now recorded killed action, June, 1942.—Major H. M. R. Knight, R.A.M.C.

Prisoners of War.—Fl. Lieuts. D. A. Duthie, R.A.F., F. A. Forbes, B. I. Willey, F. R. Philips, A. F. Rutherford, R. R. McSwiney, C. Liddell, B. A. Stoll, H. J. Knox, R. G. Blackledge, J. Simpson, J. Connolly, B. L. N. Morgan, J. Lillie, F. W. Parke, M. H. Inmonth, R.A.F.V.R.

Correction.—Capts. (Temp. Majors) A. R. Clarke and W. C. Medhill and Capt. C. J. Cobbe, R.A.M.C., have been appointed J.B.E. (Military Division) in recognition of gallant and distinguished services in North Africa, and not O.B.E. as stated on Oct. 2, p. 439.

Medical Notes in Parliament

Discussion before the White Paper

Sir E. GRAHAM-LITTLE on Sept. 21 asked the Minister of Health whether he would explain in the forthcoming White Paper that the scope of the discussions he had been conducting with the Representative Committee was limited throughout by the stipulation that negotiations must be based on the acceptance of the decision taken by the Cabinet that a unified health service covering 100% of the population would be instituted, and that its local administration would be in the hands of local authorities under the ultimate control of a Minister who would be responsible to Parliament. Mr. ERNEST BROWN said that while he could not accept all the implications of the question, he agreed that the proposed White Paper reviewing this subject should make clear what preliminary steps (including discussions with the medical profession and others), had already been taken, and in what circumstances.

On Sept. 23 Mr. E. BROWN told Mr. Robert Morgan that a number of other organizations had communicated with him on the subject of a National Health Service besides representatives of the medical profession, local authorities, and voluntary hospitals. He had made it clear, however, that when the White Paper was published he would be ready to receive from organizations and persons interested any representations which they wished to make in the light of their study of it. It would therefore be misleading to publish at the present time a list of those organizations who had communicated with him in advance, other than those whom he especially invited to enter into preliminary discussions.

Nutrition in Newfoundland

On Sept. 21 Mr. ATLEE told Mr. Parker that he had recently approved proposals by the Commission of Government for launching a special nutrition campaign under the auspices of the Nutrition Council in Newfoundland. An expert dietitian was being engaged for the purpose, and certain other measures recommended by the council—e.g., for the importation of chemically reinforced flour—were also being introduced. It was hoped by these means to bring about a general improvement in dietary habits and to check at the outset the spreading of deficiency diseases, which, notwithstanding improved economic conditions, had lately tended to reappear.

Inoculation against Typhus

On Sept. 21 Sir JAMES GRIGG, replying to Mr. Leach, said that all inoculations in the Army were voluntary. Every soldier now going to North Africa was, however, encouraged to receive this form of protection against typhus, and the majority of the troops in this theatre of operations had been inoculated. This type of inoculation had only been used for a short time, and statistics were not yet available; but experience indicated that it was valuable both in preventing the disease and in lessening its seriousness if it was contracted. Mr. LEACH asked to what experience Sir James Grigg was referring when he said it was justified. Sir JAMES GRIGG: Experience in the pathological laboratories and in the few cases where typhus had appeared.

Medical Care of Civil Defence Casualties

Mr. ERNEST BROWN informed Sir Ernest Graham-Little on Sept. 21 that casualties occurring in Civil Defence units were treated in the same way as casualties in the rest of the civilian population, at first-aid posts and hospitals included in the Emergency Medical Services, which were staffed by experienced surgeons equipped with the latest methods for the treatment of wounds bacterially infected or contaminated by mustard gas or similar gases. In making these arrangements his officers had consulted the Ministry's consultant advisers, the Medical Research Council, and the experts attached to the Ministry of Supply, and the numerous instructions issued to medical staffs

of first-aid posts and hospitals were based on their advice. The Bunyan-Stannard envelope method of treatment was available for the use of those medical officers who wished to employ it.

Registration of Older Women

Opening a debate on Sept. 23 on man-power, Mr. ERNEST BEVIN said he had registered every man between 18 and 51 and all women between 18 and 47—10,000,000 men and 10,000,000 women. Of 33,000,000 people between 14 and 64, 22,750,000 were in the Services, Civil Defence, or paid employment. In the country there were nearly 16,000,000 males between 14 and 64, over 15,000,000 of whom were in the service of the country or in paid employment. Of 17,000,000 women between the same ages, 7,750,000 were similarly engaged. Over 1,000,000 other women were doing voluntary work, including nursing. Of single women between 18 and 40, 91% were working. That left only 9% for sickness and various ailments. More than 1,000,000 men and women over 65 were in paid employment. He was unimpressed by the medical arguments against registration of women between the ages of 45 and 50. When he had registered nurses and midwives up to 60 no one made a protest. He recognized that he would have to exercise great care with these women. None of them would be required to live away from home. There would be sympathetic treatment as regards their health and recognition of the difficulties of women in this age group. Sir HENRY MORRIS-JONES said that in women of these age categories inevitable disturbances occurred. The Government should not add anything to their difficulties which could not be proved to be necessary.

When the debate was resumed on Sept. 24, Mr. McCORQUODALE said that pleas for women between 47 and 50 in respect of physical fitness would be treated sympathetically. Mr. HOLDSWORTH asked if the appeal board would be able to go against a doctor's certificate. Mr. McCORQUODALE replied that if the doctor's certificate was not clear or if other circumstances presented doubt it might be arranged for the woman to have independent examination, but that was not to be the normal practice. In the main in these age groups a medical certificate would be accepted without hesitation. All the women in these groups would be regarded as immobile; those up to 46 were regarded as mobile.

Dr. RUSSELL THOMAS outlined the symptoms of the physiological and anatomical changes occurring in a woman between 45 and 51. The health fluctuated from week to week, and the question was not one of getting a medical certificate for two or three weeks. Proneness to accident and tendency to suicide were greater at that time of life than at any other. If a woman of that age said she was not up to work she should have the benefit of the doubt.

Shortage of Staff in Hospitals

Mr. MESSER said that, notwithstanding applications to bring hospitals under the Essential Work Order, nothing had been done, and a grave situation was approaching. The Ministry of Health had brought out a scheme to attract people to have treatment for tuberculosis, but wards were closed because there was no staff. At Harefield Sanatorium the domestic staff were in the ratio of two for every 58 patients—70 below establishment. Hillingdon General Hospital was 40 under establishment in the domestic department. He hoped the Minister would not wait for the Hetherington Committee's report before acting. The Middlesex Hospital had required a typist familiar with medical terms. The Minister had confirmed a refusal by the National Service officer to allow such a typist from Essex Insurance Committee to take the job. Yet the local employment exchange provided another typist who knew nothing of medical terms. Special hospital man-power boards might overcome such difficulties. At Clare Hall Sanatorium the pharmacist received his calling-up papers. Arrangements were made for another to take the job, but the Central War Pharmacy Committee said that if the man did so his reservation would be cancelled.

Replying to the debate, Mr. BEVIN said that he hoped to receive the Hetherington report in a few days. When he got it he would try to get the domestic side of the hospital service put right out of the registrations he had made and was now making. He knew that present difficulties reduced the efficiency of the trained nurses.

Notification of Venereal Disease.—Mr. ERNEST BROWN, on Sept. 23, told Lord Fermoy that he was not satisfied that the result of making venereal diseases notifiable would be to help in the control of the disease. He was keeping the matter under consideration, but there had not yet been time to judge the effectiveness of the measures already taken.

T.T. and Accredited Milk.—The proportions of the total sales of milk in England and Wales which are of tuberculin-tested and accredited standards are 6% and 35% respectively.

No. 37

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept. 18.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	44	2	19	4	—	72	4	19	3	3
Deaths	—	—	—	—	—	—	—	—	—	—
Diphtheria	723	33	176	64	21	878	35	206	65	22
Deaths	9	—	3	2	—	16	1	2	4	—
Dysentery	268	33	88	—	—	184	16	58	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	2	—	—	—	—	1	—	—	—	—
Deaths	—	2	—	—	—	—	—	—	—	—
Erysipelas	—	—	55	9	—	—	—	49	12	—
Deaths	—	1	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	—	—	—	—	—	—	—	—	—	—
Deaths	69	13	18	30	11	69	10	17	27	9
Measles	491	45	36	10	2	2,998	259	127	13	17
Deaths	—	39	—	—	—	4	—	3	—	—
Ophthalmia neonatorum	81	5	19	—	—	93	3	29	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	8	—	1	—	—	8	—	1	—	—
Deaths	1	—	—	—	—	—	—	—	—	—
Pneumonia, influenza*	365	15	5	—	—	401	18	4	—	2
Deaths (from influenza)	9	—	2	1	—	10	2	1	—	1
Pneumonia, primary	—	—	167	14	—	—	—	127	9	—
Deaths	—	21	—	2	10	—	—	8	—	7
Polio-encephalitis, acute	2	—	—	—	—	1	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Polio-myelitis, acute	16	—	—	1	1	29	1	1	31	1
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	—	19	—	—	—	—	19	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	198	10	17	1	1	136	7	9	—	6
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	2,639	231	339	36	65	1,882	115	351	70	34
Deaths	—	—	—	—	—	—	—	—	—	—
Small-pox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	7	—	3	5	1	13	2	3	9	6
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	1,531	117	221	68	17	1,150	105	55	49	29
Deaths	12	1	1	1	—	9	—	—	2	—
Deaths (0-1 year)	314	48	70	52	27	332	36	56	48	23
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	3,655	590	536	198	113	3,422	461	503	188	111
Annual death rate (per 1,000 persons living)	—	—	12.1	13.0	‡	—	—	11.3	12.6	‡
Live births	5,902	758	858	417	257	5,861	675	833	443	253
Annual rate per 1,000 persons living	—	—	17.5	27.4	‡	—	—	17.2	29.6	‡
Stillbirths	197	28	41	—	—	206	21	28	—	—
Rate per 1,000 total births (including stillborn)	—	—	46	—	—	—	—	33	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales a further rise occurred in the incidence of scarlet fever, 207, and diphtheria, 23. The notifications of these diseases have increased by 74% and 47%, respectively since the middle of August. Dysentery and acute pneumonia rose by 67 and 57 cases, and there were 220 and 25 fewer notifications of whooping-cough and measles respectively.

Half the increase in scarlet fever was recorded in two counties—Middlesex 61 and Lancashire 43. The increases in the incidence of diphtheria and acute pneumonia resulted from a general rise. Whooping-cough was slightly more prevalent in the southern counties; elsewhere notifications were down, largest decreases being in Warwickshire 61, and in Lancashire 48; the only large increase was in Leicestershire, with 44 more cases than in the previous week. The trend of measles is almost identical with that of the preceding week, the only variation of note being a decrease in Lincolnshire of 44 cases.

There were 67 more cases of dysentery—a large increase for the third consecutive week the cases have exceeded 200. The biggest of the new outbreaks were in Cumberland, Wigton R.D. 48, and in Devonshire, Exeter C.B. 16. A higher incidence was recorded from several areas, the largest returns in the week being in Kent 38, Rochester M.B. 26; in Middlesex 26, Rushmore Northwood U.D. 23; in Warwickshire 17, Birmingham C.B. 14; and thirteen boroughs contributed the 33 cases recorded in London. A total of 22 cases occurred in Hertfordshire, Buckinghamshire, and Bedfordshire, compared with 73 in the preceding week.

In Scotland the incidence of measles was down by 51, whooping-cough by 34, and diphtheria by 4 cases, but there were 36 more cases of scarlet fever. Dysentery fell by 24 cases and the largest returns were for Dunbarton County 21 and the cities of Glasgow 20 and Edinburgh 14.

In Eire an outbreak of whooping-cough in Co. Galway, Oughterand R.D. 33 cases, was responsible for the increase in this disease.

The Week Ending September 25

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,772, whooping-cough 1,480, diphtheria 757, measles 466, acute pneumonia 356, cerebrospinal fever 49, dysentery 270, paratyphoid 14, typhoid

Medical News

The Harveian Oration before the Royal College of Physicians in London will be delivered by Dr. W. E. Hume at the College on Monday, Oct. 18, at 2.30 p.m.

On the eve of St. Luke's Day, Sunday, Oct. 17, Sir Norman Birkett ("Onlooker"), who has recently paid a flying visit to Africa, will be appealing for medical missions in Africa as the Week's Good Cause at 8.40 p.m. Contributions should be sent to Sir Norman Birkett, at 2, Eaton Gate, S.W.1, marked "B.B.C. Appeal." The preceding religious service, to begin at 8 p.m., will be conducted by Dr. Clement Chesterman, M.R.C.P., who will speak on "Impressions and Experiences of a Medical Missionary in Congo." Dr. Chesterman is the hon. secretary of the British Advisory Board on Medical Missions, and a member of the Colonial Advisory Medical Committee.

A congress on tuberculosis, described as "international," was held at Budapest at the beginning of May under the presidency of Prof. Tomcsik. The chief subject for discussion was tuberculosis in wartime.

The *Klinische Wochenschrift* announces that a central bureau for "childless marriage" has been opened in Vienna. Its function is to assist in every way eugenically sound and childless couples to overcome sterility. If necessary, this assistance may include removal of costs. After the war an institute for investigating human sterility is to be developed from this bureau.

A donation of £5,000 has been given by Imperial Chemical Industries, Ltd., in response to the Oxford University appeal for £250,000 with which to found a department of ophthalmic research.

A new sound film called "Defeat Tuberculosis" has been made at the request of the Ministry of Health by the Ministry of Information. The film, which is intended for exhibition to the public, stresses the need for seeking treatment early, and shows modern methods of diagnosis and treatment of tuberculosis. It is now available for showing to "non-theatrical" audiences. It takes 10 minutes to run, but it cannot be shown on "silent".

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be sent to the Secretary.

TELEPHONE No.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES.—EDITOR, *Antiochus Westcent*, London. SECRETARY, *Medaera Westcent*, London.

B.M.A. SCOTTISH OFFICE: 7, Drumshugh Gardens, Edinburgh.

ANY QUESTIONS?

Postural Dizziness

Q.—My wife is 66 years of age. She has always been very active, and in fact does a large part of her housework now. When he is up and about she seems quite well, but she gets attacks of dizziness on getting up in the morning, and sometimes on turning over in bed. Once she is up the dizziness passes off in a few minutes. Specialists say that heart, eyes, and ears are all normal. (about 30 years ago she had a duodenal ulcer, and still strictly 'lets herself'). She has suffered from no other illness except that she has some fibrotic nodules in the back of the neck.

A.—Dizziness was defined by Soma Weiss (J. Amer. med. Ass., 1942, 118, 529) as "an abnormal sensation of unsteadiness characterized by a feeling of movement within the head without the experience of the external world or the patient himself being in motion." In this way dizziness differs from vertigo, in which the patient has the sensation that the outer world is revolving about him (objective vertigo) or that he himself is moving in space (subjective vertigo). True vertigo is always the result of a disturbance of the nervous mechanism involved in the maintenance of normal body balance. Dizziness has a much wider connotation and is frequently a *forme fruste* of syncope. The question suggests that the symptoms in this case are properly called dizziness and that they are related to change in posture. Tests should be carried out to determine whether there is a fall in blood pressure and an increase in pulse rate on rising from recumbency. Nocturnal polyuria and aggravation of symptoms in hot weather would also suggest the possibility of orthostatic hypotension. The symptoms of this condition may be relieved by elevating the head of the bed about eighteen inches. This is accomplished by placing the posts of the head of the bed on ordinary kitchen chairs. Patients sleep comfortably in this position, though some may need a hard pillow under the mattress at the level of the thighs to prevent slipping. Pooling of blood in varicose veins, carotid sinus syncope (ruled out by pressure on the carotid sinus), and spontaneous hypoglycaemia are further possibilities. There are many other conceivable diagnoses, however, and reference should be made to Soma Weiss's review.

Nipples and Breast-feeding

Q.—The genuine desire of a mother, her nurse, and her doctor to establish breast-feeding is frequently foiled by painful, cracked, or bleeding nipples. What treatment do you advise (a) in the ante-natal period, and (b) after the birth of the child?

A.—There is no need during the ante-natal period for any special treatment to the nipples if they are normal, except daily washing with soap and water and drying with a rough towel. When the nipples are flat or depressed they should be massaged daily during the last two months of pregnancy with vaseline, lanoline, or witch-hazel cream. Treatment during lactation is essentially prophylactic. The nipples need to be washed night and morning with soap and water. It is important that the mother should wash her hands before putting the baby to the breast. After feeding a sterile piece of gauze tissue should be placed over the nipples and supported by a well-fitting brassiere. Once a crack develops, feeding from the affected side should be stopped temporarily and one of the sulphonamide ointments applied.

Sternal Puncture in Typhoid

Q.—What is the value of, and what are the indications for, sternal puncture in a case of suspected typhoid fever?

A.—It has lately been shown that in enteric fever the typhoid bacillus can be isolated from sternal marrow not only in the acute stage but also for some time after it has disappeared from the peripheral blood, and that the paratyphoid bacillus may be isolated from the bone marrow of recovered cases in association with

formation in the soft tissues.² Sternal puncture is not a procedure to be lightly undertaken, and would be indicated in a case of suspected typhoid only when other methods—blood culture, examination of faeces, and Vidal reaction—had failed to establish a diagnosis. It is not sufficiently known that with modern selective culture media the infecting organism can be isolated from the faeces in most cases of paratyphoid in the first week of infection, and this probably holds good for typhoid too. In typhoid, particularly, the organism may be recovered from blood clot even in the second and third weeks of infection, so that the separated clot from blood sent for Vidal reaction should always be cultured. Sternal puncture may in certain special circumstances be justified for the detection of chronic typhoid carriers.

REFERENCES

¹ *Lancet*, 1940, 2, 169.

² Macdonald, A., *ibid.*, 1941, 1, 174.

Transfusion into Bone Marrow

Q.—On Jan. 10, 1942 (p. 48), you published an annotation on the administration of fluids into the bone marrow of infants. No further reference to this question has been made. I should therefore be grateful if you could elucidate the following points: (1) Why is this method not used for more often? What is its value? (2) Could you give a detailed description of the technique? (3) Can it be used to transfuse blood into the marrow (a) of infants, and (b) of adults?

A.—The administration of fluids into the bone marrow is not used extensively at the moment for the following reasons: (1) It is not generally appreciated that fluid can be given by this route. (2) Though once learnt the technique of administration is easy, many people hesitate to begin. Its value is considerable for the following reasons: (a) It may be extremely difficult in an infant to find the veins, which are small. It is not, however, so difficult to locate either the sternum or the tibia. (b) In a patient, for instance, who is severely burnt, it is impossible to find a vein because of the local trauma. Blood, however, can be administered into the marrow cavity through a burnt area. There is no doubt that in many cases this route of administration is life-saving.

A variety of rather elaborate techniques have been described, but the principle is the same. In the case of both children and adults some sort of sedative should be given. A local anaesthetic is then applied over the site of puncture—the tibia probably in a baby, the sternum in an adult—and a needle is passed into the sternal cavity. When in place, this is filled with either normal saline or citrate solution by means of a syringe, and is then fitted to the administering unit for blood, plasma, or saline, as the case may be. In the case of an adult Salah's sternal puncture needle is convenient; in the case of a baby a strong needle of the type used for administering blood intravenously in adults is suitable.

Blood can be readily given into the marrow cavity of infants and adults, and is in fact often administered by this route by those experienced in the technique.

Fusosporillosis

Q.—Epidemic ulcerative stomatitis recurs in an institution for healthy homeless children wherever previous cases are readmitted from isolation hospitals. Readmissions may relapse into ulceration; most show merely gingivitis, sometimes very limited. Organisms resembling Vincent's are found in healthy mouths. Should isolation hospitals therefore retain hostels of stomatitis until gums become clinically normal, which often takes months? And what can be tried for the hostel population besides ascorbic acid, nicotinic acid, individual towels and dishes, and dental and oral hygiene?

A.—Ulcerative stomatitis is an infective condition of diverse aetiology. The primary infection with the virus of herpes labialis occurs in children as an ulcerative (aphthous) stomatitis, and is undoubtedly infectious. It is probably spread directly by droplet as well as by mediate means, and would be very difficult to control in a residential children's home. Ulcerative stomatitis in Vincent's organisms are present in large numbers (some injured and live report on a properly taken smear is essential). Some would be of as infectious, but requires certain predisposing conditions. Poor dental hygiene is probably the most important. Unless he sends a report on the edentulous individuals the risk of missing occasional diet to maintain healthy gums resulting misfortunes; and if he is valuable prophylaxis. In the interest of the Services he occur in winter and the possibility of an occasional mistake is resistance is lowered. In practice, catastrophes are rare, and they occur after the fullest examination in this as in other cases.

A high case

There is little doubt that this type of dyspepsia has increased rapidly in civilian life in recent years, and is not inconsistent with routine employment with occasional absences. The question of its relation to the increase of peptic ulcer has scarcely

that the child will carry infection back to the home. Rather, the conditions for the spread of stomatitis are probably already present among the hostel population.

Low Body Temperature

Q.—To what degree is a low temperature compatible with life or fitness? I had a special thermometer made for a post-influenzal patient, aged 40. She was often doing the housework with a temperature of 91° F. although she said she felt the cold! Once, when she was down to 90.2° F. (I took it myself), she was cyanosed, but only slightly.

A.—Although it is well known that subnormal temperatures occur during convalescence after many febrile illnesses, and in cases of myxoedema and congestive heart failure, most of our knowledge of the effects of cold on the human body comes from the recent refrigeration studies in cases of carcinoma and schizophrenia. Clinical studies in these cases have shown that normal cellular tissue is capable of withstanding 40° F. for prolonged periods of time without evidence of degenerative changes. The only complication encountered in these subjects after such treatment was an atypical form of circulatory failure, which usually occurred during or immediately after the period when the temperature was restored to normal. Even so, it was extremely rare. Physiological studies show that when the body temperature is reduced there is a fall in the basal metabolic rate. The heart rate tends to become slowed and the volume output is reduced, so that the blood pressure falls. These changes are reflected in the electrocardiogram, which shows abnormalities of the T waves and a prolongation of electrical systole. There is little or no alteration in the blood chemistry or rate of respiration, and no recognizable impairment of renal function.

Psoriasis of Face and Scalp

Q.—Is there any effective treatment for psoriasis of the face and scalp in a young woman? All the ordinary lines of treatment have proved of little use. The best results have been obtained by exposure to a carbon arc lamp in increasing dosage over a period of years, but even that is now losing its effect.

A.—The effects of the carbon lamp could be increased by applying an ointment such as the following:

Hydrarg. ammon. gr. x
Liq. picis carb. 3j
Ung. paraffini (B.P.C.) ad 3j

daily to the patches on the face in the intervals between the light treatments, the ointment, of course, being completely removed before each light treatment. A stronger tar ointment such as picis carb. praep. (B.P.C.) 2% in vaseline might be used instead if the first ointment did not prove strong enough. As an alternative to the light treatment, but not combined with it, a 100 r dose of x rays might be given to the affected parts of the face, perhaps twice with a fortnight's interval between doses. This might be combined with the use of the hydrarg. ammon. ointment.

Psoriasis of the scalp requires a stronger ointment such as:

Acid. salicyl. 4%
Hydrarg. ammon. 2%
Oil of cade 12%
Halden's emulsifying base to 100%

This should be rubbed into the scalp night and morning and the head shampooed about twice a week. One or two small doses of x rays such as suggested for the face may also be used on the scalp, but the x rays must not be persisted in or the hair will fall out.

Preserving Milk

None who had lived in Africa that many of formalin (liquor formaldehyde) to We have tried this with and turns quickly with the addition of formalin in any chemi- by has it

Deaths (0-1000 live)	Deaths (excluding stillbirths)	Annual death rate (per 1,000 persons living)	Live births	Annual rate per 1,000 persons living	Stillbirths	Rate per 1,000 total births (including stillborn)
5,902	758	85	197	28	41	46
17.5	27.4					

* Includes primary form for England and Wales, London (administrative counties), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

the gastric mucosa must result. It should not be forgotten that important use of formalin is as a histological fixative: tissue exposed to it are killed and hardened. The degree of such change produced by a small addition to milk would no doubt be slight, but the possible deleterious effects of long-continued consumption of such milk can well be imagined, and fully justify the prohibition of its use.

The Injured Diabetic

Q.—In an official A.R.P. handbook, with reference to the disposal of diabetic patients from an "incident" we are advised: "the patient is uninjured and still conscious, he should be given sugared drink and sent to hospital as soon as possible. If patient is unconscious, he should on no account be given a sugared drink but must be transferred to hospital at once." What is to be done in the very likely case of the diabetic patient who is injured and still conscious?

A.—If the diabetic is uninjured and conscious, do nothing and send him home, as he is very unlikely to develop hypoglycaemia. If the diabetic is unconscious I agree that he should not be given a sugary drink, as it might get into the lungs. If facilities are available, 20 c.cm. of a 25% solution of glucose should be given into a vein to make certain that the coma is not due to hypoglycaemia; the patient should then be sent to hospital. If the diabetic is injured, deal with him like any other injured patient, as he is very unlikely to be suffering from hypoglycaemia.

War against Fleas

Q.—As in each September, fleas are now more active and numerous, but this year seems an exceptionally bad one. Many preparations formerly used for the control of dog and human fleas appear to be off the market. Pyrethrum is said to be the active ingredient in the vegetable types of powder. What is the important constituent of the mineral types, as used for animals? Are the agents, or an effective substitute, obtainable now?

A.—The best remedy for cat and dog fleas is a fine derris powder rubbed into the fur. But this, like pyrethrum, is unobtainable at present for this use. A mineral insecticide sometimes used, powdered naphthalene, which may, however, make the animal sit for a time. An alternative to powder dressings is a hot bath with a good carbolic soap used freely. The last treatment, with change of clothing, is effective for people infested with human fleas. With all types of flea attention should be paid to the breeding site, which is usually close to the sleeping place of the host. Thorough sweeping and scrubbing will clear away the larvae, and flake naphthalene can be scattered in difficult places. Human fleas, curious enough, often breed in pig-sties, and cottages are sometimes infested in this way. The treatment then is to clear the sties and spray their floors with tar oil emulsion.

LETTERS, NOTES, ETC.

Inflammability of Trichlorethylene

Dr. C. LANGTON HEWER writes: In a paper read in May before the Anaesthetic Section of the Royal Society of Medicine I stated that "trichlorethylene vapour will not burn or explode if mixed in any proportion with air, oxygen, or nitrous oxide." It appeared from research work recently carried out by the Bureau of Mines, Pittsburgh, U.S.A., that this statement is only true if the temperature does not exceed 25.5° C. (78° F.). At higher temperatures, the drug is mixed with air enriched with oxygen or with pure oxygen, inflammable mixtures can under certain conditions be obtained. So far as I know there are no data relative to the inflammability of nitrous oxide-oxygen-trichlorethylene mixtures at high temperatures, but the matter is being thoroughly investigated by I.C.I. Ltd. Pending the publication of this report, it would seem wise to use trileane and air mixtures only, if there is any risk of a source of ignition coming into contact with the anaesthetic gases.

Prevention of Midge Bites

Dr. H. M. DENHOLM-YOUNG (Farningham, Kent) writes: Give an average-sized adult one dose of ephedrine hydrochloride gr. and there will be no midge bites (or at least no sensation of bite and no lumps) for about 2 weeks. Be sure that the blood pressure is not high, because this causes one night of misery even in a normal adult—a feeling of intense excitement.

Correction

The second sentence of the news item on the employment of nurses (Oct. 2, p. 440) should read: "Employers will not be able to employ a nurse except through an appointments office unless she has an exemption certificate." It may be added that the issue of these certificates to employers (hospital and local authority) is the subject of a Bill of the Ministry of Labour which is now in the House of Commons and will be finally made.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 16 1943

PEPTIC ULCER AND DYSPESIA IN THE ARMY

BY

SIR HENRY TIDY, K.B.E., D.M., F.R.C.P.

Hon. Major-General, A.M.S.

This communication is principally concerned with peptic ulcer, but some reference will be made to other forms of dyspepsia met with in the Army. For reasons of security statistics cannot always be given in a strictly comparable form. The types of dyspepsia occurring in the Service may be classified as follows (Tidy, 1941): (1) Peptic ulcer. (2) Gastritis and functional dyspepsia. (3) Transient dyspepsia. (4) Miscellaneous group, including such conditions as dyspepsia due to or associated with pathological changes in the gall-bladder and appendix, duodenal diverticula, and carcinoma of the stomach: the number in the Army has been very small.

Transient Dyspepsia

This type tends to develop in new recruits before they are hardened to Army routine: possibly it is less common now than earlier in the war. These men are in the main successfully dealt with in the units. It is most important that they should not be sent to hospitals or to specialists—procedures which are apt to convert a transient into a chronic dyspeptic, and finally into a useless soldier.

Gastritis and Functional Dyspepsia

No satisfactory or accepted nomenclature has been evolved for this group. "Gastritis" is now being used with a technical meaning by gastroscopists, and will probably need to be reserved for this. "Functional" tends to suggest psychoneurosis. This should not be the sole meaning of "functional dyspepsia," which refers to a disturbance of the functions in the absence of recognizable anatomical changes or demonstrable disease in the stomach and duodenum and elsewhere in the body.

Graham and Kerr in 1941 found a history of symptoms dating from civilian life in 80%, with an average duration of 7 years, most of the cases being collected in 1940. I am indebted to several officers for statistics of admissions in 1942, the averages being: age 32½, service 2½ years, duration of symptoms 5½ years, onset in civilian life 75%.

Careful studies have been made of this group in several hospitals without any definite result. Gastroscopy reveals a small proportion of organic gastritis. I do not feel satisfied at present that clinical syndromes can be connected with different types of gastritis so diagnosed, in spite of statements to this effect. It would appear that gastroscopy has not yet sufficiently established the limits of variation of a normal gastric mucous membrane or the interpretation and clinical significance of variations judged to be abnormal.

Radiological studies of the mucous membrane leave an unsatisfactory position. This applies especially to the diagnosis of "duodenitis," a term which is used with widely different meanings and interpretations by various observers. Arguments based on changes in the gastric mucous membrane are not valid for the duodenum, as is illustrated by the absence of neoplastic changes in the latter. That some form of chronic duodenitis may exist can scarcely be doubted, but evidence of its nature and interpretation and clinical signi-

ficance is absent. Duodenitis at present is a radiographical conception without clinical, surgical, or pathological support, and without agreement among radiologists. Dogmatic diagnoses and conclusions are unjustified on present evidence and should not be unreservedly accepted. The diagnosis duodenitis would appear to be used by some radiologists in conditions in which they are uncertain whether or not ulceration has occurred.

Of these cases of "functional dyspepsia" some are organic in the sense of disturbance of function, some are essentially psychoneurotic, and some others are made so.

Symptoms in this group are far more resistant to treatment than are those of ulcers, and cases need much longer in hospital for "cure" or alleviation; the longer the period in hospital the shorter is the interval to the next recurrence. There should be no attempt to retain a man in hospital in order to effect a "cure" which wide experience has shown is quickly followed by relapse on returning to duty. As soon as investigations have proved the absence of organic changes, which should be within 10 days, these men should be returned to their units. Nor should they be placed on "light duty" or "light diet." The unit is the proper authority to decide by observation if a man can be usefully retained in his unit or in his category.

Under Service conditions, and probably also in civilian life, prolonged investigations and minute inquiries tend to produce or increase a psychoneurotic factor, and a man rapidly progresses to the state of being useless as a soldier. A hospital consequently should reduce its investigations to a minimum and not aim at a standard full investigation. Gastroscopy should be restricted to those circumstances in which it has already proved its value in civilian life—e.g., for the decision as to the presence of a neoplasm or the presence of an ulcer radiologically doubtful. In the Services it should not be used for the identification and classification of gastritis. Nevertheless once a man is sent to hospital some investigation, clinical or otherwise, is inevitable. It is therefore advisable that this type should not be sent for either in-patient or out-patient investigation, or for report by a medical specialist, without definite reasons. The least of these procedures will magnify the disorder and their repetition render it incurable.

The M.O. of the unit thus has a special responsibility in keeping these men on duty, to which many become inured and are thus saved for the Service. His examination should be of the same degree and not more minute than for comparative complaints in other systems of the body. Unless he sends a large number to hospital he runs the risk of missing occasionally an active ulcer, with resulting misfortunes; and if he is to take the responsibility in the interest of the Services he should know that the possibility of an occasional mistake is fully understood. In practice, catastrophes are rare, and they may also occur after the fullest examination in this as in other conditions.

There is little doubt that this type of dyspepsia has increased rapidly in civilian life in recent years, and is not inconsistent with routine employment with occasional absences. The question of its relation to the increase of peptic ulcer has scarcely

been considered. Like peptic ulcer, it was not prevalent in the last war among British troops.

Relative Incidence of Peptic Ulcer and Non-Ulcer Dyspepsia among Army Personnel

The distribution of dyspepsia between the chief groups among Army personnel may vary considerably in different hospitals, partly depending on the type of unit in the neighbourhood and the opinions and experience of medical officers. The following figures are official returns of diagnoses of Army personnel on discharge from all hospitals in Britain for a certain period in the latter half of 1941. For comparison the discharges from the Army for the same period are also included. These figures give 58% of admissions as ulcers. Newman and Payne found nearly 90% of ulcers early in 1940, but the material had largely been sifted of non-ulcer dyspepsia in France. Of 2,500 hospital cases which I analysed (Tidy, 1941), ulcers formed 52%.

	Total Cases	Gastric Ulcer	Duodenal Ulcer	Non-Ulcer Dyspepsia
		Cases	Cases	Cases
Discharged from hospital ..	2,851	453 (16%)	1,194 (42%)	1,204 (42%)
Discharged from the Army ..	2,149	460	1,620	69

Discharges from the Army for non-ulcer dyspepsia are negligible compared with the number in hospital, and this supports the opinion that such men can make useful soldiers in spite of their handicap. No physician would suggest as an explanation of the small number of discharges from the Army for non-ulcer dyspepsia that the hospital treatment effected a complete cure. It has, however, occurred that such men, though useless and a handicap to a unit, are retained in the

poor cooking in the Army. Newman and Payne (1940), working under a grant from the Royal College of Physicians, established two facts: first, that the cases so diagnosed were in general definitely ulcers; and, secondly, that nearly 90% of the cases, both ulcer and non-ulcer, had a long history of similar symptoms in civilian life. They were of the opinion that Army cooking, and especially the greasiness of the food was a factor in causing the early breakdown and recurrence of symptoms in the Army. A large proportion of the Army at that period consisted of reservists, many of whom had been several years in civilian life, and it was anticipated that as these were weeded out the incidence of dyspepsia would fall especially if Army cooking improved. Events have disproved these anticipations. Army cooking had many difficulties to face in early days, but it has long since been of a satisfactory standard, and the number of reservists has fallen to a small fraction of the present Army. Nevertheless, the flow of both ulcer and non-ulcer dyspepsia continued.

In the last war neither peptic ulcer nor dyspepsia of other types formed a problem of any magnitude, and indeed the rarity of peptic ulcer was definitely noted and duodenal ulcer is not even mentioned in the *Medical History of the War*. So far as Army diet and cooking are concerned, there is no reason to suppose that they were better than in the present war. The relative incidence in the two wars can be judged by the following figures. In the last war up to the end of 1915 (*Medical History of the War*, 1931) the discharges from the Army for "inflammation and ulceration of the stomach" were 709. In the present war the number discharged for peptic ulcer to Dec., 1941, was 23,574.

In order to obtain a picture of the present position of peptic ulcer in the Army 800 Army medical cards (A.F.I. 1220) have been analysed; they were taken at random from the first four

TABLE I.—Analysis of 800 Army Medical Cards of Peptic Ulcer (Random Selection from Military Hospitals in Britain; Early 1942)

Onset of Symptoms	Total				Under 40 Years				Average Age		Duration of Symptoms	
	Cases	Simple	Haemorrhage	Perforation	Cases	Simple	Haemorrhage	Perforation	Yrs.	Mths.	Yrs.	Mths.
Gastric ulcer:												
Civilian ..	105	98	3	4	92	85	3	4	32	7	7	4
Service ..	39	24	4	11	33	20	4	9	31	5	—	7
Total ..	144	122	7	15	125	105	7	13	32	0	5	6
Duodenal ulcer:												
Civilian ..	543	519	14	10	472	451	14	7	32	2	6	6
Service ..	113	96	5	12	100	85	5	10	30	6	1	—
Total ..	656	615	19	22	572	536	19	17	31	11	5	7
Total peptic ulcer:												
Civilian ..	648	617	17	14	564	536	17	11				
Service ..	152	120	9	23	133	105	9	19				
Total ..	800	737	26	37	697	641	26	30				

Service owing to the disinclination of medical boards to discharge men under this diagnosis, and that discharge ultimately is effected after reference to a psychiatrist has resulted in a diagnosis of psychoneurosis.

Some subjects of non-ulcer dyspepsia are unfit for medical service on account of their disability: the decision should be best made by those who have had the advantage of prolonged observation. Medical boards have to meet the difficulty in a practical manner without too many rules to help or hamper them, for it is certain that a loose acceptance of the diagnosis of non-ulcer dyspepsia as an invaliding disability is inadvisable.

Peptic Ulcer in the Army

The large number of admissions to hospital of men diagnosed as suffering from peptic ulcer and from non-organic dyspepsia attracted attention as early as Oct., 1939, and took the medical profession by surprise. The different circumstances which led to admission to hospital in Service and civilian life were not at first understood: but, even allowing for this, the medical profession had not recognized the extent to which dyspepsia had increased among males during the last 20 years, and believed that the influx was purely a Service development.

Two suggestions early and repeatedly made were, first, that the cases diagnosed as peptic ulcer were not in fact ulcers; and, secondly, that the prevalence of dyspepsia was due to

months of 1942 (Table I). These come from all parts of Britain, but not from over-seas.

Onset in Civilian Life and in the Army.—In 81% symptoms began in civilian life. In 19% symptoms began in the Army after the outbreak of war, the average length of war service in this group being two years, the age 30 years 9 months, and the duration of symptoms 9 months. These records for the Army and the records for St. Thomas's Hospital 1933-6 have both been analysed for men under 40 years of age to ascertain in what proportion the duration of symptoms was less than 3 years, corresponding roughly to the maximum of war service. For the Army the proportion was 26% and for St. Thomas's 35% (Army, 148 out of 553; S.T.H., 49 out of 140). These records are not contemporary, but, so far as the figures are of value, they are against any undue development of peptic ulcer during war service. Unfortunately there are no data on which one may decide if the Army incidence is higher or lower than would develop in civilian life as distinct from hospital admissions in the same age group and in the same length of time. For gastric ulcer the onset in civilian life is 73%, the previous duration of symptoms 5 years 6 months, and the average age on admission 32 years. For duodenal ulcer the onset in civilian life is 82%, the previous duration of symptoms 5 years 7 months, and the average age on admission 31 years 11 months.

Site of Gastric Ulcer.—Of 118 cases (omitting admissions for perforation and haemorrhage) the ulcer was on the lesser curvature in 90 with a 'previous' duration of symptoms of 6 years 1 month and age on admission of 32½ years, and at the pylorus in 28 with a previous duration of 5½ years and age of 29½. It is possible that pyloric ulcers early tend to produce symptoms.

The main supply of peptic ulcer in the Army is still the recurrence of symptoms which started in civilian life. The position is similar for non-ulcer dyspepsia.

Relative Incidence of Gastric and Duodenal Ulcer

The following data bear on their relative incidence in the Army:

	G.U.	D.U.	Ratio D.U. to G.U.
1. Discharges from the Army for peptic ulcer for a considerable period in later months in 1941	1,088	4,000	3.6 : 1
2. Discharges of men from hospitals over a period in 1941	453	1,194	2.6 : 1
3. Discharges from the Army during the same period as No. 2	460	1,620	3.5 : 1
4. Discharges of men from hospitals over a partly different period	1,176	2,431	2.1 : 1
5. Analysis of 800 A.F.I. 1220 diagnoses on discharge from hospitals (early 1942)	144	656	4.6 : 1
6. Analysis of 2,500 discharges for all forms of dyspepsia from a few selected hospitals (1940) (Tidy, 1941)	230	812	3.5 : 1

Nos. 1, 2, 3, and 4 are from official returns of the Army Medical Statistical Department. No. 5 is from my analysis of 800 medical cards taken at random and supplied by the Statistical Department. No. 6 is from returns of a number of hospitals which I collected for the discussion at the Royal Society of Medicine. There is a definite discrepancy in the ratios of these data. Of the 800 cases analysed for No. 5, the ratio of gastric to duodenal ulcer was 1 to 5.2 with onset in civilian life and 1 to 2.9 with onset in the Army (Table I)—that is, with the shorter duration of symptoms—and the ratio thus will vary with the relative proportion of the two groups. The proportion of duodenal ulcer was higher between 20 and 30 than between 30 and 40 years, the ratios for a series being: between 20 and 30 years 1 to 5.7, between 30 and 40 years 1 to 4.6, and over 40 years 1 to 4.3. The proportion of duodenal ulcer was also higher when the previous duration was over 3 years than when it was under 3 years, the respective ratios being 1 to 5.4 and 1 to 4. During the same period as No. 2 the discharges from the Army were gastric ulcer 460 and duodenal ulcer 1,620, a ratio of 1 to 3.5, and the numbers previous to and following this period are similar.

It is possible that the discrepancy between Nos. 2 and 3 is partly due to diagnoses made by radiography on men seen as out-patients at hospitals. This would suggest that the diagnosis of duodenal ulcer is readily made on out-patients but not the diagnosis of gastric ulcer, which is certainly more difficult. It is not easy to supply a satisfactory explanation.

The figures given for discharges from the Army (No. 1) are probably the best guide to the general relative incidence, as the numbers are large, include the whole Army at home, and are the most carefully authenticated. Discharges of officers alone give the same ratio—viz., 3.7 to 1. The Army is partly a selected personnel in relation to peptic ulcer, since many cases are rejected by the medical boards.

Liability to Relapses and Recurrences from Peptic Ulcer in the Army

When the question of peptic ulcer in the Army originally came under consideration the opinions were often expressed, first, that ulcers formed rapidly in the Army, and, secondly, that relapses and recurrences were more frequent than in civilian life. It has already been shown that the evidence is against the first statement. With regard to relapses and recurrences, it must be borne in mind that a man in the Army with peptic ulcer who develops even mild symptoms will almost inevitably reach hospital. Admissions to hospital in the Army which count as recurrences are paralleled in civilian life by periods off duty for sickness in a large industrial concern rather than by admissions to hospital. The study of peptic

ulcer among employees of the Post Office by Bashford and Scott (1935) showed the frequency of such absences even at a period when peptic ulcer was less common than nowadays.

It is probable that a man with peptic ulcer in the Services is most affected not by irregularity of the times of the principal meals, or even, within limits, by the diet, but by difficulty in obtaining food at short intervals and directly he feels that he requires it. I believe that an additional factor is that physical fitness and healthy exercise engender a large appetite. One hears from a man who knew that he had had an ulcer, and was anxious to carry on in spite of some recurrence of symptoms, that he would eat an amount at dinner which he would not think of taking in civilian life, and cover it with a liberal supply of sauce. This explains the frequency of vomiting, often at the end or, distressingly, even before the end of dinner.

Relapses in the Army will probably occur more readily than in many civilian occupations, but the incidence in the Army as compared with civilian life cannot be measured by admissions to hospital or the number of discharges from the Service. A modern investigation on the lines of Bashford and Scott's (1935) study of Post Office employees would possibly afford the best guide to the relative frequency of recurrence in the Army and civilian life.

Disposal of Cases of Peptic Ulcer

The policy of the Army is to invalid from the Service all men with the accepted diagnosis of peptic ulcer, with exceptions in the case of key men. In the early period of the war certain hospitals returned cases to ordinary duty after treatment, and this consistently proved unsuccessful. The number of cases is so large that many suggestions have been made for retaining men in the Service in some suitable role, varying from special "ulcer battalions" to "light duty"—a form of duty which, when prolonged, results usually in a negligible output. It is the experience of industry that subjects of peptic ulcer are frequently absent for sickness even when the inducement is to remain at work and the occupation allows some latitude in routine.

The Army would need to arrange not only special diet for an ulcer unit but also a special routine for times of meals—more difficult, and in my opinion equally important—and the unit would need to be undisturbed by a high rate of sickness. For if a man with an accepted ulcer reported sick with a statement of recurrence of symptoms the M.O. could rarely avoid sending him off duty. No existing unit or category in the Army meets these requirements on a large scale, and it may be doubted if any formation would pay a dividend, but conditions may be different in other Services.

Accurate diagnosis is important, for a diagnosis of peptic ulcer, once accepted, is permanent. The diagnosis nowadays rests too largely on the opinion of radiologists, not all of whom have had enough experience of the alimentary canal; and, further, a doubtful radiological opinion is not infrequently accepted as conclusive by a physician who is himself doubtful on clinical grounds. I believe that at times cases which are at least doubtful both radiologically and clinically are being given the definite diagnosis of peptic ulcer.

The position must not be regarded too strictly from the point of view of a gastric specialist. The essential duty of a medical board is to decide if a man will make a "useful soldier" in any category, and the Board must in general be guided by the reports before it. It can decide more easily when the diagnosis is within the covers of the officially accepted *Nomenclature of Diseases* of the Royal College of Physicians, which was designed for a different purpose, but it hesitates to discharge a man for "chronic dyspepsia, no organic changes" or "query peptic ulcer." The medical officer who is satisfied that such a man is useless as a soldier inclines towards a definite diagnosis of "peptic ulcer" or, with the necessary assistance of a psychiatrist, "psychoneurosis." I do not believe that the Army is thus losing many useful men because of gastric disabilities, though a certain number are spoilt by excessive investigation, attention, and treatment in hospitals. The position with regard to statistics is more intricate, and the figures for duodenal ulcer and for gastric neurosis should be accepted with some caution.

Incidence of Complications

The rarity of complications of peptic ulcer in the Army has aroused comment. It is a question if this is not more apparent than real. There are several factors which can make for an apparent rarity. First, the large number of admissions of ulcer cases for slight disturbances reduces the proportion of complications and gives an appearance of rarity. Such admissions occur especially among old-standing cases, and the returns from St. Thomas's Hospital show that complications are less frequent when the previous history is over three years than in recent cases. Secondly, 86% of Army admissions are under 40 years of age, an age group in which deaths from complications are rare.

Figures of complications for St. Thomas's Hospital and the Army are placed together in Table II. Perforations compared

TABLE II.—Frequency of Complications (Under 40 Years)

Onset of Symptoms	Total Cases	Perforations		Haemorrhages		Deaths
		Cases	%	Cases	%	
Army: From 800 Army Medical Cards of Peptic Ulcer						
Before joining	564	11	2	17	3	1 (haemorrhage)
After joining	133	19	14	9	7	2 (perforation)
Total ..	697	30	4	26	4	3
St. Thomas's Hospital: 1933-6. Males						
Over 3 years	104	18	17	7	7	2 (perforation)
Under 3 years	104	29	28	12	12	2 ..
Total ..	208	47	23	19	9	4

with cases admitted are 23% for St. Thomas's and 4% for the Army. The difference may depend partly on the standard for admission of cases, which will affect the percentages, and partly on selection by the recruiting boards, since the difference in incidence is most pronounced in cases with a short history. In comparison with perforations, haemorrhages are higher in the Army than for St. Thomas's Hospital, but in the latter an admission is recorded as haemorrhage only when this is of considerable severity, and the same standard is not necessarily employed in Army diagnosis. It is clear that these two sets of figures are not comparable.

It is not impossible that the Army figures give the more correct picture of the incidence of perforation among peptic ulcer in this age-and-sex group of the population than the records of admissions to St. Thomas's, even though a number of cases of established ulcer have previously been eliminated by the medical examining boards.

Perforation of an ulcer, as is well known, may take place without previous symptoms, but in reading through the notes of cases at St. Thomas's Hospital one is struck by the number of instances in which there is a history of severe gastric symptoms for a few days or a week or so preceding the catastrophe and shock of perforation, either as a new development or with a previous history of ulcer or dyspepsia. In the Army, men would be in hospital before the intervening period elapsed, and perforation may thus be saved in a certain number of cases.

Deaths from Perforation.—The analyses of perforations at St. Thomas's Hospital have shown that the case mortality for perforations varies greatly with the age, especially for gastric ulcer. For gastric ulcer the case mortality over and under 40 years is respectively 35% and 5%, and for duodenal ulcer 19% and 14%. In the series of 800 Army medical cards there were 13 perforations with no deaths ascribed to gastric ulcer among 125 admissions under 40 years, and 17 perforations with two deaths ascribed to duodenal ulcer among 572 admissions.

Haemorrhage.—From the 800 Army medical cards, 26 men appear to have been admitted specifically for haemorrhage, with one death. All were under 40 years. Without wishing to stress the fact, it may be mentioned that the death occurred in the only instance in which operation was undertaken for the direct purpose of checking haemorrhage. The bleeding-point was found and successfully ligatured, and the operation satisfactorily concluded, but the patient died from pulmonary thrombosis.

It is probable that the incidence of perforation and haemorrhage in peptic ulcer in the Army is about the same as similar group of a civilian population, perhaps with some deduction owing to earlier admission to hospital. It is possible to make a rough comparison of deaths from perforation in the Army and in the civil population from the following data.

1. Registrar-General's Returns of Deaths. In 1938 the death per million living from peptic ulcer of males between ages 20 and years was 22.

2. St. Thomas's Hospital statistics ascribe 50% of deaths in pit in this group to perforation.

3. For the Army, data exist for the ration strength, the proportion under 40 years of age, the number of discharges from hospital for peptic ulcer in a year, and the deaths from perforation in a random sample.

The data from the Army cannot be given, and the number of deaths from perforation is too small to be reliable, the figures available suggest that deaths from perforation in the Forces are about 75% of the expected number. This figure cannot be considered as more than an approximation, but what it is worth it suggests that rarity of perforation is not apparent than real.

Other Complications, etc.—Among 144 cases of gastric ulcer there were 2 cases of previous perforation and 2 in which gastrectomy had been performed. Among 656 cases of duodenal ulcers there were 30 cases of previous perforation and 13 in which gastro-enterostomy had been performed. 7 cases were admitted with pyloric obstruction and 4 with duodenal diverticula.

Dyspepsia among A.T.S. Personnel

The number of cases of dyspepsia, organic and non-organic among A.T.S. personnel has been so small that no elaborate analysis would be of value. The comparative incidence of dyspepsia among males and females in the Army can be calculated as follows: the equivalent annual ratio per thousand calculated from the number of hospital admissions and ration strength separately for the male personnel and A.T.S. personnel. The comparison of these two values, which cannot be recorded, gives a ratio of males to females of 4 to 1. The ratio of males to females under 40 years in admissions to St. Thomas's Hospital for the period 1933-6 was 5 to 1, the distribution of the population of London between the sexes being approximately equal. As the ratio of the sexes in this period was the same for gastric ulcer and duodenal ulcer the ratio in other areas are less likely to vary greatly from this figure.

The close agreement between the ratios for St. Thomas's and for the Army indicates that the incidence in the two series is the same in the Army as in civilian life. For non-organic dyspepsia the ratio of male to female in the Army on the same basis is 2.2 to 1.

Summary and Conclusions

The incidence of dyspepsia of all types in the war of 1914-18 was low.

The prevalence of dyspepsia, organic and non-organic, in the Army in the present war is a reflex of its incidence in the civilian population, which has greatly increased in the last 20 years.

There is no evidence of undue development of fresh cases of peptic ulcer in the Army.

Of admissions to hospital for peptic ulcer in 1942, the onset occurred in civilian life in 81%—73% for gastric ulcer and 82% for duodenal ulcer. Of admissions for non-peptic ulcer, the onset occurred in civilian life in 75%.

The number admitted to hospital for minor symptoms in the Army gives an exaggerated picture of the prevalence compared with civilians.

Symptoms due to pre-existing peptic ulcer tend to recur in the Army owing to unavoidable routine, and will do so under the best conditions of diet and cooking.

Of admissions to hospital for dyspepsia, peptic ulcer formed 58% and non-ulcer dyspepsia 42%.

The ratio gastric ulcer to duodenal ulcer varies in different series but is probably about 1 to 3.6. The proportion of duodenal ulcer is higher in the age group 20-30 than in 30-40 years (which agrees with the results at St. Thomas's Hospital), and higher with a previous duration over 3 than under 3 years.

The average age of 656 cases of duodenal ulcer was 31 years, 11 months, and previous duration of symptoms 5 years 7 months. Of 144 cases of gastric ulcer the age was 32 years and duration

years. Of 118 cases of gastric ulcer, 90 were on the lesser curvature, the age being 32½ years and duration 6 years 1 month; and at the pylorus, the age being 29½ and duration 5½ years.

Men suffering from peptic ulcer are not suitable for Army life under present conditions.

Men suffering from non-organic dyspepsia can in many cases do useful soldiers provided they are not detained too long in hospital. Cure of symptoms should not be attempted. An excess of medical attention and investigation results in exaggeration of symptoms and repeated admission to hospital.

Complications are rare in the Army compared with the incidence among admissions of the same age-and-sex groups in civilian hospitals, but the rarity is more apparent than real. It is probable that the incidence in the Army is a truer reflex of the incidence in the population than is afforded by civilian hospital admissions.

The low mortality from perforation and haemorrhage is similar to that in civilian males under 40 years of age.

The comparative incidence of dyspepsia between the two sexes in the Army is similar to that among civilians.

I am indebted to Lieut.-Gen. Sir A. Hood, K.C.B., Director-General of Army Medical Services, for permission to make use of Army statistics, and to Major C. Cassidy, R.A.M.C., and Sergeant Stalbow, R.A.M.C., of the Army Medical Statistical Department, for much assistance with the records.

REFERENCES

- Bashford, H. H., and Scott, W. L. (1935). *Lancet*, 2, 710.
Graham, J. G., and Kerr, J. D. O. (1941). *British Medical Journal*, 1, 473.
Medical History of the War (1931). *Statistical Table 12*, London.
Newman, C., and Payne, R. T. (1940). *British Medical Journal*, 2, 19.
Tidy, H. L. (1941). *Proc. Roy. Soc. Med.*, 34, 411.

LEVELS OF VITAMIN A AND C NUTRITION IN GLOSSOP SCHOOL-CHILDREN AND EFFECT OF DEFICIENCIES ON THEIR PHYSICAL CONDITION

(PRELIMINARY COMMUNICATION)

BY

G. KOHN, M.R.C.S., L.R.C.P.

Med. Grad., University of Amsterdam
Department of Clinical Investigation and Research, Royal Infirmary
and University of Manchester

E. H. M. MILLIGAN, M.D., D.P.H.

Medical Officer of Health, Glossop

AND

JOHN F. WILKINSON, M.Sc., Ph.D., M.D., F.R.C.P.
Director of the Department of Clinical Investigation and Research,
Royal Infirmary and University of Manchester

During the period Oct., 1941, to July, 1942 (37 weeks), he effects on the physical condition of feeding supplementary vitamin preparations to the school-children of Glossop had been investigated under a scheme devised by the Ministry of Health, and consequently we took the opportunity of using these same children in order to estimate the state of their vitamin A and C nutrition and the effects of any deficiencies on their physical condition. About 400 children, aged 9 to 14 years, were involved—200 having vitamin capsules, and 200 not receiving supplementary vitamins acting as controls; the former group (hereafter called the "vitamin group") received daily doses of 4,000 I.U. of vitamin A, 350 I.U. of vitamin B complex, 1,000 I.U. of vitamin C, 600 I.U. of vitamin D, 2 mg. of riboflavin, and 20 mg. of nicotinamide five times weekly; the latter group (hereafter called the "control group") received capsules not containing any vitamins. The present report is a preliminary consideration of the period 1941-2.

I. LEVEL OF VITAMIN C IN GLOSSOP SCHOOL-CHILDREN

Methods Employed

(a) The saturation test employed follows the method of Harris and Abbasy (1937). Test doses of 11 mg. per kg. of body weight were given in the morning, and the urine was collected during the fifth and sixth hours, acidified, and titrated against dichlorophenolindophenol. The advantage of this method is its

simplicity, especially if one is concerned with school-children, as in our case. Harris (1942) has dealt extensively with the criticisms of this method.

(b) *Estimation of the Vitamin in Blood.*—As a supplementary to the saturation test and as an essential to Part III of this paper, blood vitamin C estimations were regarded as necessary. The analysis was done on whole blood, following the method of v. Eekelen (1937) with the use of mercury acetate and hydrogen sulphide. Our findings are in agreement with those of Heinemann (1941), who discussed the value of this method fully. We do not consider it to be less informative than the method employed by Butler and Cushman (1940), who determined the ascorbic acid content of whole blood colorimetrically. In our opinion these methods are the most reliable indication of the vitamin C level in an individual. Measurable amounts of ascorbic acid are found in whole blood after the plasma level has become zero, and the fluctuation of the plasma values also influences considerably the reading in normal and saturated persons (Portnoy and Wilkinson, 1938). Analysis of the white-cell and platelet layer was carried out when severe deficiency was suspected, since the white-cell layer provides evidence of deficiency only and not of good nutrition. In the case of a deficiency, however, it has the advantage over whole-blood estimations that the results are independent of the plasma fluctuations, and the ascorbic acid appears to be retained longer in that layer than in other blood constituents. In following this routine, when sufficient blood was available, we estimated the content of the white-cell layer in cases of severe deficiency as indicated by a blood vitamin C estimation below 0.3 mg./100 ml.

(c) *Inquiry into the Dietary Intake.*—A comprehensive dietary survey covering a period of three weeks was made on the families whose children were concerned in this study. The parents kept an accurate daily record, on printed forms, of all the food used during this period, both purchased and grown in their own allotments. They were interviewed by us at the beginning and end of this period, so that the reports obtained may be regarded as reliable. We also estimated the amount of ascorbic acid and calculated the nutrients contained in the school meals during this time, thus obtaining a very detailed evidence of the dietary intake of the children. Under this heading our findings are given with regard to the vitamin C intake.

Procedure and Results

Since the combined investigations carried out on the school-children by the Ministry of Health and ourselves were of a very complex nature, and the tests were not allowed to interfere with each other, we had to choose what, in our opinion, were the most suitable methods available. Therefore, in Jan.-Feb., 1942 (three months after the beginning of the test period), all the 400 children were given two test doses of ascorbic acid and no more. This enabled us to assess the amount of non-saturation present at that time. The children in the vitamin group (200) had by then received 3,000 mg. each on an average. They were all found to be saturated, as indicated by an urinary excretion of 0.8 mg. or over per kg. of body-weight.

The control group (200) showed non-saturation in 72% of cases (145). Half of this number (71; 35%) showed no increase whatsoever, whereas the remaining 37% (74) excreted 0.3 to 0.7 mg. per kg. during the test period. The tests were continued in June, 1942 (at the end of the test period), with the object of ascertaining the severity of the deficiency. We assumed that those who in January and February had responded to the test doses with either saturation or increased excretion were not likely to be severely deficient in June. We therefore continued the tests with only the 35% of the boys who had shown no increased excretion at all. Samples of their blood were examined, and they were given test doses until full saturation was achieved. Out of these 71 boys 58 were found to be in a very deficient state—i.e., 36 having a blood value below 0.3 mg./100 ml. and requiring 5 to 7 test doses before saturation was attained, the remaining 22 a value between 0.3 and 0.5 mg./100 ml. and requiring 4 to 6 test doses for saturation. There is admittedly a good chance that some of the remaining subjects who were not investigated in June had become deficient, but their deficiency is not likely to be as

high as that of those examined. We analysed the white-cell layer in 11 cases of severe deficiency; the results obtained ranged from 3.5 to 11.3 mg./100 ml.

The dietary intake of vitamin C was calculated. Only 25% of the cases investigated showed a daily intake of over 30 mg.; 35% showed between 15 and 30 mg., and the remaining 40% under 15 mg. It must be emphasized that these figures are concerned with the period April-July only, but certainly this represents an extremely low intake.

Summary of Results

The extent of non-saturation was 72% in the control group. In the vitamin group all subjects were found to be saturated three months after the beginning of the test period. The most severe cases (58 in all) out of a group of 200 showed the following: 36 below 0.3 mg./100 ml. blood and requiring 5 to 7 test doses for saturation, 22 between 0.3 and 0.5 mg./100 ml., and requiring 4 to 6 test doses for saturation. For reasons explained in the text, it will be seen that the latter figure of 22 is probably higher. The vitamin C intake in the diet from April to June was under 15 mg. daily in 40% and between 15 and 30 mg. in 35% of all cases.

Although the level of vitamin C nutrition varied on the whole according to the social standard, there was a relatively large amount of severe deficiency present. Glossop children compared very badly with some school-children in other areas in which similar investigations have been carried out.

II. LEVEL OF VITAMIN A NUTRITION

The purpose of this part of the investigation was, first, to obtain some more evidence about the value of the dark-adaptation test; secondly, to discover if there was any correlation between the dark-adaptation test and the dietary intake; and, finally, to determine the incidence and degree of vitamin A deficiency in Glossop.

Methods and Procedure

(a) *The Dark-adaptation Test.*—The apparatus used was that described by Yudkin (1941a). As test object horizontal and vertical devices only were used, which were considered sufficient to exclude "guessing." When using these lines rather than the direction of arrows we obtained more constant and somewhat lower thresholds. We chose for our readings two parts of the curve—i.e., the final rod threshold and a field in the macular part of the curve. The former was determined after the subjects had been in complete darkness for at least 30 minutes. The latter we obtained by measuring the time required to attain a value of 6.5 μ l (logarithm of the threshold intensities expressed in micro-microlamberts) after an illumination of two minutes. As Dow and Steven (1941) have pointed out, this "recovery-time" test has many disadvantages as compared with the determination of the rod plateau; therefore reliance was placed only on "significant" changes in the cone values if they agreed with corresponding final rod changes. Although this occurred in over half of the cases, we are not of the opinion that any accuracy is gained by employing cone readings.

Our criterion of vitamin A deficiency, as indicated by the dark-adaptation test, was a vitamin A lability of the final rod plateau, as proposed by Steven and Wald (1941). The "control range" was determined in over 900 school-children after adequate supplementation with vitamin A. In 98% of cases the values obtained ranged from 2.8 to 3.4 log units. The remaining 2%, above 3.4 log units, were found to show a gradual slope when the percentage was plotted against the final threshold. The term "normal range," which appears so many times in the literature, has in most cases been employed incorrectly, and, in any case, is rather confusing. The process of dark-adaptation depends on many subjective factors, in connexion with perception and interpretation of visual stimuli, besides the various factors influencing light transmission. An assessment, therefore, of a borderline between "normal" and "subnormal" is futile unless limited to the object for which the test is being used. Since the determination of "normal" and "subnormal" thresholds is of no advantage for the purpose of testing for vitamin A deficiency, no attempt has been made to define these values. All that is required is to determine the individual variation and the "control" range, with special regard to its lower values. These findings will indicate the number of subjects within the lower limits of the control range who are not likely to improve above the individual variation

and therefore can be eliminated from further tests. All the other subjects must be given vitamin A treatment if deficient cases are not to be missed.

The variation of an individual was found to be 0.1 to 0.2 log unit during the same day and 0.1 to 0.4 unit over a period of 14 days. The latter high variation—values of 0.4 occurring in 20 out of 900 cases—must be taken into consideration when vitamin A therapy is given over a period of several days and when the significance of changes due to this therapy is being assessed. In the light of these variations all the subjects found to have initial rod plateaux of 3.1 μ l or over were subjected to vitamin A therapy after having had three tests in all.

Following the recommendation of Yudkin (1941b) the tested subjects were given at least 1,000,000 I.U. of vitamin A before the final tests were carried out, and the latter were performed 24 hours after a dose of 100,000 I.U. so that at least transient improvement would occur. The same conditions obtained in the determination of the "control range."

(b) *Calculation of the Dietary Intake.*—As part of our food survey the vitamin A intake of the test subjects was calculated. The method of this investigation is described elsewhere.

It should be added that the estimation of vitamin A in blood could not be made. Although our experiments did not show that the concentration of vitamin A in blood could be indicative of vitamin A deficiency, the comparison of the blood values with the results found by means of the dark-adaptation test and the dietary intake would have been of great value. However, taking blood from 400 children was impracticable.

Results

Adaptometer Readings.—(a) Comparison of adaptometer readings between the vitamin group and the control group before vitamin A therapy showed that the mean rod plateau was slightly but not significantly higher in the "control" group. (b) The following decreases in threshold were found after vitamin A therapy:

	0.5 Log Unit or Over	0.4 Log Unit	0.3 Log Unit
Vitamin group (200) ..	0 (0%)	3 (1.5%)	22 (11%)
Control group (200) ..	33 (16%)	14 (7%)	28 (15%)

Dietary Intake.—The intake was calculated in I.U. per kg. of body weight, and is given in percentages of the test population:

I.U. per kg.	%
Less than 20 ..	7
20-30 ..	20
30-40 ..	16
40-50 ..	12
Over 50 ..	45

Correlation of the Dark-adaptation Test and Dietary Intake.—The only definite correlation observed was that the subjects with a threshold lability of 0.5 log unit or over were in all but three cases found to have an intake of less than 30 I.U. per kg. The exceptions had an intake of 33, 48, and 60 I.U. per kg. respectively. Various subjects with a threshold lability of 0.4 log unit and many subjects with a lability of 0.3 log unit showed a really high intake. Also many cases with a very low dietary intake showed a vitamin-A-stable threshold.

Conclusions

The following conclusions may be drawn from our experiments:

1. *Criticism of the Dark-adaptation Test.*—Certain weaknesses are apparent: (i) A test based upon subjective evidence is not very satisfactory. (ii) The test is cumbersome: in order not to miss deficient cases it is necessary to administer over 1,000,000 I.U. of vitamin A to a large proportion of subjects. (iii) Vitamin-A-labile values of the order of 0.3 and 0.4 log unit can be interpreted either as being the range of individual variation or as being due to a vitamin A deficiency. Since the amount of vitamin A lability is not related to the severity of the deficiency, this is a serious disadvantage. On the other hand, a vitamin A lability of 0.5 log unit or over seems to be a definite indication of a vitamin A deficiency. In spite of the above-mentioned weaknesses, therefore, we regard the criterion of threshold lability as the best test now available for the detection of vitamin A deficiency, with the understanding that a positive result only is reliable and that various readings may be of doubtful diagnostic significance.

Concluding from our results regarding the individual variations and the correlation of the dark-adaptation test and the dietary intake, we regard a threshold liability of 0.5 log unit or over as indicative of vitamin A deficiency, of 0.4 log unit as a probable case of deficiency, and of 0.3 log unit as a possible deficiency.

2. *Incidence and Degree of Vitamin A Deficiency in Glossop.*—By means of the dark-adaptation test we found 16% deficient, 7% probably deficient, and 15% possibly deficient. The dietary intake was less than 20 I.U. per kg. in 7%, 20–30 I.U. per kg. in 20%, and over 50 I.U. per kg. in nearly half the cases.

3. *Vitamin A Requirement.*—A dietary intake of 30 I.U. per kg. and over can perhaps be described as the minimal daily requirement in children aged 9 to 14 to prevent impairment of night vision (as indicated by a threshold liability of 0.5 or over). This does not imply that an intake of less than 30 I.U. necessarily brings on an impaired night vision.

III. EFFECTS OF VITAMIN A AND C DEFICIENCIES ON THE PHYSICAL CONDITION OF THE SCHOOL-CHILDREN

In order to determine the effects of vitamin deficiencies on the physical condition of these children evidence was collected with reference to rate of growth (weight and height), strength, endurance, medical defects, incidence of gingivitis, serum complement titre, incidence of infection, and phosphatase content of plasma. For this purpose the following groups were compared:

Group A.—19–30 boys from the control group with vitamin A deficiency. All the subjects had a threshold liability of 0.5 log unit or over, and their dietary intake was in each case under 30 I.U. per kg.

Group C.—24–36 boys from the control group with severe vitamin C deficiency. All these boys had blood values below 0.3 mg. per 100 ml. and required 5 to 7 test doses for saturation. In 11 cases the vitamin C concentration in the white-cell layer was estimated; the values ranged between 3.5 and 11.3 mg. per 100 ml. Their dietary intake was under 20 mg. in all cases.

Group AC.—14 boys with combined vitamin A and C deficiencies.

Group O.—30–50 boys from the vitamin group. They were shown to be on an adequate vitamin A level and to be saturated with vitamin C. In comparing growth, strength, and endurance it was noticed that there was a difference in initial weight between the A and C groups. It was therefore considered advantageous to have two O groups—one of 36 boys and one of 50 boys, corresponding in weight to the A group and the C group respectively—so that there would be no significant difference in initial weight between the groups compared.

In assessing differences in this inquiry the following formula was used to obtain the statistical "T" figure:

$$T = \frac{\bar{x}_1 - \bar{x}_2 + \sqrt{\frac{1}{N}}}{\sqrt{S(x_1^2) - \frac{(\sum x_1)^2}{N_1} - S(x_2^2) - \frac{(\sum x_2)^2}{N_2}}}$$

Where $\bar{x}_1 - \bar{x}_2$ = means; x_1 the one set of variables and x_2 the other set; N_1 = the number of one set of variables and N_2 = the number of the other; S = summation and $\sqrt{\frac{1}{N}}$ = value of $\sqrt{\frac{N_1 + N_2}{N_1 \times N_2 (N_1 + N_2 - 2)}}$, to be obtained from tables according to number of variables. (Mr. H. C. Stone, B.Sc., kindly helped to work out some of the data.)

Dietary Intake

Before these groups were compared it was important to calculate their intake of animal protein, vegetable protein, total protein, fat, and carbohydrates in order to discover if there was a significant difference in the dietary intake of the groups which might account for any difference found. This evidence was obtained from the family budgets plus the amount of food received by the children at school (milk and other school meals). It was considered best to calculate the heat value of the food as purchased for the individual families, to deduct 5% for waste in housekeeping, and to add to this amount the school meals, after which the intake per man-value was calculated. The physiologically utilizable portion of nutrients and calories was not calculated, since loss in absorption is equal in both groups. In working out the vitamin content of the diet we used the tables given by Fixsen and Roscoe (1937–8, 1939–40).

Results.—No significant differences were found between the mean values of the protein, carbohydrate, and fat intake in

the groups compared. It may be assumed, therefore, that the groups differ only with regard to their vitamin intake in that the vitamin group had the additional capsules whereas the control group lived on the basic diet. The full analysis of the family budgets will be given in a separate report.

Interval.—The interval was 36.7 ± 0.078 weeks.

Ages			
Groups	Means	Standard Deviation	
O (36)	10.680 \pm 0.257	1.543	
A (20)	10.970 \pm 0.258	1.068	
C (24)	11.159 \pm 0.172	0.854	
AC (14)	11.170 \pm 0.358	1.342	

There were no significant differences between the groups in age.

Growth

The growth was worked out as percentage gains in 36.7 weeks of the test:

1. Weight

Groups	Initial Mean Weight in lb.	S.D.	Percentage Mean Gains in lb.	S.D.
O (36)	67.35 \pm 1.358	8.149	5.890 \pm 0.550	3.300
A (20)	67.00 \pm 2.464	10.750	4.427 \pm 0.324	1.649
O (50)	73.68 \pm 1.897	13.410	6.740 \pm 0.574	3.760
C (24)	72.24 \pm 4.680	12.040	6.676 \pm 0.875	4.290
AC (14)	73.26 \pm 4.820	18.060	5.500 \pm 0.895	3.148

There was a significant difference (as indicated by the T figure being over 2) between O (36) and A (20)—in other words, there was a significant difference in percentage gains of weight between the group deficient in vitamin A and the saturated group, the A group gaining significantly less in weight than the O group. No other significant differences were found.

2. Height

Groups	Initial Height		Percentage Gains in Height	S.D.
	Initial Mean Height in Ins.	S.D.		
O (36)	53.43 \pm 0.774	5.864	2.63 \pm 0.134	0.807
C (24)	54.75 \pm 0.878	4.304	2.65 \pm 0.185	0.903
A (20)	54.65 \pm 0.716	3.415	2.49 \pm 0.171	0.773
AC (14)	55.50 \pm 1.020	3.830	2.52 \pm 0.303	1.135

There were no significant differences in percentage gains in height, the T figure being under 2.

Endurance (Fatigue-resistance Potential)

The endurance was tested in terms of the time in seconds that the test subjects could hold themselves suspended on a horizontal bar.* The following comparisons are made:

1. Comparison of Groups Individually at Beginning and End of Test; also Comparison among Groups at Beginning of Test

Groups	Performance in Seconds		Differences
	Beginning of Test	End of Test	
O (36)	116.50	116.2	0.30
O (50)	116.06	112.2	3.86
C (24)	116.60	92.7	23.90
A (19)	127.00	107.4	19.60
AC (14)	125.30	91.1	34.20

Result.—The performance of the C and AC groups was significantly worse at the end of the test after 36.7 weeks as compared with the beginning.

2. Comparison between Groups at End of Test

Groups Compared	Difference in Seconds on Bar	T Figure
O (36) + C (24)	23.50	3.80
O (50) + C (24)	23.20	2.22
O (36) + A (19)	19.25	1.79
O (50) + A (19)	15.50	1.70
O (36) + AC (14)	34.20	2.79
O (50) + AC (14)	30.30	2.65

There was no significant difference between the groups at the beginning of the test.

* The time represents the fatigue-resistance potential per lb. of body weight as per formula $\frac{1}{2}MV^2 \times t$, in which $\frac{1}{2}V^2$ is constant (see Milligan and Lewis-Fanning, 1942; Milligan, 1943).

Result.—At the end of the test there were significant differences between the O and C groups and also between the O and AC groups, the performance of the C and AC groups being significantly worse.

3. Comparison of the Total Fatigue-resistance Potentials between the Groups

(The F.R.P.-figure = $\frac{1}{2}MV^2 \times t$, and represents the total energy.)

Groups Compared	Differences in Average Percentage Gains or Losses	T Figure
O (36) + C (24)	27.89	3.13
O (50) + C (24)	24.28	2.70
O (36) + A (19)	23.00	2.15
O (36) + AC (14)	29.66	2.38
O (50) + AC (14)	26.10	2.24

Result.—All groups as compared with the O group showed a significant decrease in the total energy figures.

N.B.—With regard to the A group the low rate of gain in weight would partly be responsible for the low energy figure (see elsewhere in paper).

Strength

The strength was tested by pulling on a dynamometer, and the results were worked out as gross pull in pounds divided by body weight.

Result.—No significant differences in strength were found between any of the groups compared.

Effect of Massive Doses of Vitamin C on Physical Efficiency

In dealing with strength and endurance, in addition to the "long-term" effect of vitamin A, a test was made of its "short-term" effect. At the termination of the official test time, massive doses of vitamin C were given to the vitamin-deficient boys; the results were noted by examination before the doses were given and immediately after the children were found to be saturated with the vitamin.

1. Strength

	Mean Pull in lb. Before Saturation with Vitamin C	Mean Pull in lb. After Saturation with Vitamin C	T Figure
C cases ..	165.46	180	1.07
AC cases ..	169	172	0.19

2. Endurance

	Mean Time on Bar Before Saturation with Vitamin C (Seconds)	Mean Time on Bar After Saturation with Vitamin C (Seconds)	T Figure
C cases ..	88	99	0.88
AC cases ..	94	88	0.43

The massive doses of vitamin C to saturation produced no significant results either in strength or in endurance. The short-term effects of vitamin C appear to be different from the long-term effects.

Incidence of Gingivitis

Method of Examination.—Miss P. Nicholls, L.D.S., kindly compared 36 cases of the C group with 36 cases of the O group at the beginning and the end of the test. Data were taken from the upper and lower incisor regions only. The fact that temporary teeth were retained or premolars erupting in a large number of cases made it necessary to exclude the back portion of the mouth. A detailed statement of the oral condition was made on each examination. The location of the inflammation was noted, also prophylaxis, irregularities, delayed eruption of teeth, cavities, etc. The conditions were classified into acute, subacute, and chronic; and the gums were described as "clear" if no signs of hyperaemia or hyperplasia were observed.

Results

	Groups	Clear	Acute	Subacute	Chronic	Total
Beginning of test (Oct., 1941)	C	7	22	6	1	36
	O	8	20	6	2	36
End of test (July, 1942)	C	16	9	7	4	36
	O	18	13	2	3	36

There was no significant difference in the incidence of gingivitis between the two groups, but it will be noted that the occurrence of gingivitis decreased remarkably in both groups at the end of the test as compared with the beginning.

The Serum Complement Titre

The serum complement has been shown to consist of many fractions, but it is nevertheless interesting to find that it has been reported to have very low values in scurvy. The purpose of this investigation was to discover if there was any decrease in the complement titre in subscorbutic cases.

The estimation of complement is difficult, but one of the best methods is that of Ecker *et al.* (1938), in which the end-point is taken when haemolysis first begins. Dr. F. Stratton kindly estimated these, employing essentially Ecker's method.

The serum complement of the C and O groups (each group consisting of 30 children) was estimated. No significant differences were observed between the two groups, and no substantially low values were found in the deficient group. In view of the immunological importance attached to the complementary property of serum, and the few conditions in which it has been shown to be diminished in titre, these observations indicate that complete exhaustion of the vitamin may be necessary, as in scorbutic conditions, before complement titre is significantly reduced. This should not, however, be taken to indicate that additional therapy with vitamin C is unnecessary in deficient cases, as these observations show nothing concerning the continued sustenance of a high-titre complementary property under continuing unfavourable dietetic conditions and a supervision of infection.

Incidence of Infection

A survey has been made with regard to the incidence of infection in each of the groups. Twenty-five subjects of groups O, A, and C were compared. A list was first obtained of all the boys who had been absent from school for more than two days. Subsequently the children's parents were interviewed and an allowance was made for non-relevant factors such as broken legs, etc.

Results

Groups	Mean Absences	S.D.
O	1.68 ± 1.110	5.550
A	5.96 ± 0.990	4.990
C	4.76 ± 1.265	6.318

A significant difference was found in the incidence of infection both between O and A groups ($T=3.14$) and between O and C groups ($T=2.40$).

Medical Defects

The assessment of physical defects is not an easy undertaking and allowance must be made for errors, so that it must be frankly said that great accuracy is not possible. There were, however, certain conditions that could be assessed with more confidence than others, such as various skin conditions (acne, boils, other sepsis, chilblains), glands (enlarged tonsillar glands), lungs (cough and rales), and cheilosis. Only these conditions were assessed.

Results.—(1) Examination at beginning of test (Oct., 1941): No significant differences existed between any of the groups compared. (2) Examination in March, 1942: Significantly more defects were found in the A and AC groups as compared with the O group. (3) Examination at end of test (July, 1942): No significant differences were found between any of the groups. Our impression, however, during the examinations in March and July was that the skins of the O group were clearer, smoother, and sleeker than in the other groups. Similar observations were made by Wilkins and Rollason (1937).

Phosphatase Content of Plasma

When taking blood samples of the O and C groups for the determination of the vitamin C content and the complement titre, the estimation of the phosphatase content in the plasma was carried out with a view to detecting early bone changes in cases of avitaminosis. We employed the micromethod described by King *et al.* (1937), which measures the amount of phenol liberated from phenylphosphate when incubated at 37° C.

Result.—There was no significant difference between the two groups, and no substantial increases were noted in the C group. We wish to thank the head teachers and staff of the Glossop schools, the parents of children, the Health Department staff, and various voluntary technicians for their co-operation, which made this investigation possible. We also are indebted to Messrs. Organon Laboratories, Messrs. Roche Products Ltd., and Messrs. Glaxo Ltd. for generous supplies of the vitamins.

REFERENCES

- Atter, A. M., and Cushman, M. (1940). *J. clin. Invest.*, 19, 459.
 Bow, D. J., and Steven, D. M. (1941). *J. Physiol.*, 100, 256.
 Ker, E. E., Pillemer, L., Wertheimer, D., and Gradis, H. (1938). *J. Immunol.*, 34, 19.
 Kelen, M. v., et al. (1937). *Z. Vitaminforsch.*, 6, 150.
 Kelen, M. A. B., and Roscoe, M. H. (1937-8). *Nutr. Abstr. Rev.*, 7, 823.
 — (1939-40). *Ibid.*, 9, 795.
 Larris, L. J. (1942). *Lancet*, 1, 644.
 — and Abbasy, M. A. (1937). *Ibid.*, 2, 1429.
 Einemann, Martin (1941). *J. clin. Invest.*, 20, 39.
 King, E. J., Haslewood, G. A. D., and Delory, G. E. (1937). *Lancet*, 1, 886.
 Kilgus, E. H. N. (1943). *Med. Officer*, 1, 13.
 — (1943). *British Medical Journal*, 1, 554.
 — (1943). *Med. Officer*, 1, 461.
 — (1943). *Med. Officer*, 58, 115.

AGE INCIDENCE AND PROGNOSIS OF EPILEPSY

BY

F. J. NATTRASS, M.D., F.R.C.P.

Professor of Medicine, University of Durham; Physician, Royal Victoria Infirmary, Newcastle-upon-Tyne

In the course of some 20 years' experience of epilepsy in hospital and private practice I have been impressed by the number of cases of epilepsy of unknown origin beginning in middle and later life. While all writers recognize that idiopathic epilepsy may arise at any age, an onset in later life is generally thought to be rare. Organic disease of the brain which may cause epilepsy is commoner in later life, and therefore epilepsy in such patients is more likely to be a symptom of progressive intracranial disease than in children or adolescents. A statement such as the following, taken from the latest edition of Osler's *Medicine* (Christian, 1942), is typical: "It is well always to be suspicious of 'epilepsy' beginning in adult life, for in a majority of such cases the disease is not epilepsy" (italics mine).

Some statements, however, are much more dogmatic. For example, Penfield and Erickson (1941), in their recent book *Epilepsy*, which is a very fine study of the surgical aspects of the problem, lay great stress on the age of onset of fits as a factor in diagnosis, though they are careful to state that idiopathic epilepsy may occur at any age. They say:

"In cases of onset of seizures between 35 and 55, the most frequent cause is cerebral neoplasm" (italics mine). "After 55 years the various cerebral lesions produced by abnormality of the cerebral blood vessels become more frequent, though the strong probability of neoplasm must still be remembered." And lastly: "Idiopathic epilepsy comes on in youth, not in early infancy, and not in middle age or old age."

Age of Onset

As such statements did not correspond with my experience, I instituted, with the aid of Flight Lieut. H. G. Miller, formerly medical registrar, and Dr. Frank Robertson, first assistant, an inquiry into the age of onset in my cases, and, secondly, into the cause of attacks in the later age groups.

TABLE I.—Age of Onset of Epilepsy: Present Investigation

Age (Years)	Private	Hospital	Total
0-10	20 (22%)	83 (22%)	133 (22%)
11-20	56 (58%)	122 (32%)	185 (31%)
21-30	49 (51%)	82 (22%)	131 (22%)
31-40	28 (12%)	44 (12%)	72 (12%)
Over 40	41 (17%)	40 (11%)	81 (13%)
Total	231	371	602

The cases number 602. The private cases cover a period of 18 years, hospital cases 12 years; hospital out-patient records before this time were removed for salvage without my know-

ledge. No cases seen during the past two years have been included, as insufficient time has elapsed to judge of their outcome. A study of the figures will reveal that there is a general correspondence between the private and hospital groups, and that of the whole series 25% showed the first evidences of epilepsy after the age of 30 and 13% after the age of 40. The group of 81 patients with onset of attacks over the age of 40 were chosen for special follow-up.

Table II shows a comparison with previous records of the age of onset of epilepsy. While all the records show the

TABLE II.—Age of Onset of Epilepsy: Comparison with Previous Records

Age (Years)	Gowers (1,450 Cases)	Turner (1,033 Cases)	Nattrass (602 Cases)
0-10	29%	31.3%	22%
11-20	46%	46.7%	31%
21-30	15.7%	12.7%	22%
31-40	6.4%	5.8%	13%
Over 40	3.3%	4.6%	13%

highest incidence in the second decade, the figures of these eminent observers (Gowers, 1901; Turner, 1907) indicate only 9 to 10% of patients in whom the first fits occurred after the age of 30, as compared with 25% in my series.

Results of a Follow-up

Table III summarizes the results of a follow-up of the 81 patients who developed attacks diagnosed as epilepsy with onset after the age of 40, and in whom at the time of initial examination no cause could be found for the attacks.

TABLE III.—81 Cases diagnosed Epilepsy of Unknown Origin with the First Attack after the Age of 40

Untraced	24
Deaths	16
Tumour proved	5
G.P.I.	1
Cerebral arteriosclerosis	1
Heart failure	1
Air raid	1
Pancreatic tumour, ? hypoparathyroidism	1
Unknown	3
Living and traced	41

The number of untraced patients (24) is perhaps not surprising considering the years involved in the inquiry. The 41 patients living and traced were nearly all re-examined; of the few who could not attend adequate information was obtained. The present condition of these 41 patients is indicated in Table IV.

TABLE IV.—Present Condition of 41 Traced Patients of the Series in Table III

3 patients have had only 1 fit:	
11 years ago, at age 53	
7 " " " 55	
6 " " " 43	
1 patient had 2 fits at age 47, now aged 54	
6 others have had no fits for the past 9 years (2 cases), 5 years (1 case), 5 years (1 case), 2 years (2 cases)	
The remainder continue to have fits at very variable intervals	

In some cases the frequency of fits remains unchanged, but on the whole there seems a tendency to diminution in the frequency and severity of attacks with the passing years. None of these patients shows any symptom or sign of intracranial tumour. Their general condition on the whole is good; most of them are living almost normal lives and are at work. For example, one patient is the manager of a large branch of an insurance company though he is the subject of major seizures and has very severe myoclonic twitching from time to time between attacks. Another patient had 7 major nocturnal attacks between the ages of 67 and 77, when they ceased. He is now aged 83, and is exceptionally well.

With regard to evidence of cerebral arteriosclerosis, a moderate degree of hypertension is found in a proportion of cases (Table V).

TABLE V.—Incidence of Hypertension (41 Cases re-examined)

B.P. in one patient	= 210/120
B.P. " " "	= 190/130
B.P. " " "	= 190/100
B.P. " " "	= 195/95
B.P. " " "	= 180/100 (Attacks ceased since 1935)

Hypertension seems to us to occur in no greater proportion in these patients than in non-epileptic subjects of the same age, and the height of the blood pressure has not been found to

bear any relation to the frequency of fits. Blood pressure in these patients has shown little variation since the onset of their fits. Other evidences of cerebral arteriosclerosis—for example, strokes and mental deterioration—are notably absent. Only one case showed marked mental changes when he first came under observation; this condition improved with the response of the fits to treatment, and the man has been back at work for some years.

Jacksonian Epilepsy

The question arises whether Jacksonian epilepsy is especially suggestive of tumour. Among the total of 81 patients with onset over the age of 40, 7 are known to have had Jacksonian attacks (Table VI). Of these, 6 are dead, the cause being shown.

TABLE VI.—Significance of Jacksonian Epilepsy among 81 Patients

Number known to have Jacksonian attacks	7
Dead	6
Cerebral arteriosclerosis	2
G.P.I.	1
Heart failure	2
Unknown cause	1

The mortality rate is probably exceptional, but the point which emerges is that Jacksonian attacks, while revealing the site of the disturbance, give no indication of the nature of the lesion.

Time of Epileptic Attack

A last point of clinical significance is the time of epileptic attacks. Among the 41 surviving patients of the last group the time of attack was: nocturnal only, 13; diurnal only, 16; irregular, 12. The purely nocturnal incidence of attacks has two important advantages: first, such attacks, occurring in bed, are unassociated with danger of injury, and the patient is able to lead an ordinary life by day; secondly, there is a better chance of controlling nocturnal attacks by maximum doses of an anti-epileptic remedy given at night.

Summary and Conclusions

The age of onset of epilepsy is considered in a series of 602 cases.

81 patients in whom epileptic attacks began after the age of 40 were followed up, and the results of the inquiry are recorded.

Making full allowance for errors in diagnosis, it is clear that the majority of these patients who began to have fits after the age of 40 could not be the subjects of cerebral tumour, severe cerebral arteriosclerosis, G.P.I., or other progressive disease. Most of them continue to have epileptic attacks from time to time without other evidences of disease.

These observations provide no contribution towards the aetiology of idiopathic epilepsy, but they suggest some conclusions which may be of practical value: (1) According to my experience idiopathic epilepsy is by no means uncommon in persons of mature years. (2) Though fits may be the first symptom of intracranial tumour it is rare for them to precede all other symptoms and signs by months or years. (3) In the later years of life epilepsy has remarkably little effect on intellectual powers and general health.

I am interested in this matter from the point of view of teaching. I would suggest that students should be advised always to regard epilepsy as a symptom and to search for the cause both in the nervous system and elsewhere; and, secondly, to try to discover the site of the disturbance by careful analysis of the aura or earliest stage of the fit; but that these rules should apply to epilepsy at any age, and we should not stress unduly the incidence of progressive disease as a cause of epilepsy in the later years of life.

REFERENCES

- Christian, H. A. (1942). *Osler's Principles and Practice of Medicine*, 14th ed., p. 1363, Appleton, New York.
Gowers, W. R. (1901). *Epilepsy*, London.
Penfield, W., and Erickson, T. C. (1941). *Epilepsy and Cerebral Localization*, Baillière, Tindall and Cox, London.
Turner, W. A. (1907). *Epilepsy*, London.

H. Weyler and C. C. Dustin (*New Engl. J. Med.*, 1942, 227, 785) record their observations on a woman aged 24 who presented paroxysmal auricular tachycardia throughout the latter part of four pregnancies over a period of five years.

THE SCOPE OF PREVENTION IN OPHTHALMOLOGY

BY

IDA MANN, D.Sc., F.R.C.S.

(Nuffield Laboratory of Ophthalmology, Oxford)

The recent publication by Marshall and Seiler* of the statistical analysis of 3,219 persons certified blind during 1923 raises the question of the preventive function of ophthalmology. There is at the present time a total of 74,000 blind persons in England and Wales whose maintenance costs the State £4,500,000 annually, while practically nothing is spent on planned prevention of blindness by improved facilities of treatment, by education of the public, or by research.

Marshall and Seiler's figures bring out certain noteworthy points. First, the seven most important causes of blindness are, in order of occurrence:

Cataract	16.77%	of the total examined
Myopia	16.34%	" "
Venereal disease	13.95%	" "
Uveitis	10.72%	" "
Glaucoma	8.69%	" "
Congenital anomalies and abiotrophics	7.45%	" "
Injuries	6.42%	" "

Secondly, although at first sight the first four items would suggest that the greatest amount of blindness occurs in older age groups and does not therefore carry so great economic importance, yet actually only half the cases began blind after 50, and in two-thirds of these the underlying cause had started before that age. In view of the longer expectancy of life now than formerly, and the increasing average age of the population in general, as well as of workers in responsible positions, it is obvious that most of the causes of blindness begin to operate early enough to constitute a risk of economic importance. Thirdly, the relatively low percentage of blindness from injury appears surprising until we realize two points: namely, that the position of injury in the list of causes varies between 10.3 and 5.8%, according to whether the first or the second eye, or both, are involved; also, most serious industrial eye injuries lead to loss of one eye rather than both, only those of great severity such as explosions and fires leading to blindness. Injuries appearing to any extent in statistics of blindness, the time lost from injuries short of this order is of great economic importance.

Although, because of the certification of blind persons for the payment of pensions to the blind, statistics are readily available, what we lack is a precise knowledge of the amount of working-time lost and of inefficiency and disability caused by eye injuries and diseases which do not end in blindness but which nevertheless should be, if possible, reduced in number. Even if the condition does end in blindness there is a latent period of illness and steadily increasing disability during which the patient is unable to work. This is brought out by Marshall and Seiler's tables, which show the average times between the onset of the cause of blindness and the actual certification. In some cases it is considerable: for example, in all accidents the difference between the age of onset and the mean age of blindness is 3.11 years; in glaucoma it is 2.94, in cataract 5.1, and in inflammatory conditions it is higher still (e.g., trachoma 25.58, and uveitis 15.15, while it is highest in myopia (36.24 years). Quite apart from these figures exists the mass of time lost from accidents which prevent recovery and from accidents leading to the loss of one eye only, which never come to certification. As pointed out by these authors, these must be borne in mind as explaining the surprisingly low figures for blindness as a result of injury. It is to be emphasized that in any discussion on prevention the non-blinding conditions must be taken into account.

When we consider the list of conditions involved from the point of view of possible reduction of eye disease it becomes obvious that advances could occur mainly in three directions:

* Marshall, John, and Seiler, H. E. (1942). *Brit. J. Ophthalmol.* 337, 385, 434.

namely, by improvement of the ophthalmic services of the country, by education of the public on ophthalmic matters, and by further research into aetiology and therapeutics.

Improvement of the Ophthalmic Services of the Country

From certain of Marshall and Seiler's figures it would appear that some relation exists between the number of blind, specially in the higher age groups, and the hospital facilities of the district. This is to be expected, and could only be countered by making modern ophthalmic hospital treatment equally available for everyone. This would entail geographical planning and co-ordination on a regional basis, together with the provision of a larger number of ophthalmic surgeons than are at present available. Some more standardized system of training for ophthalmologists at recognized centres and a reconsideration of the requisite examination standards would be advisable, as, at present, postgraduate teaching is somewhat haphazard and there is no uniformity of qualifications demanded by hospitals in various parts of the country. Thus the problem is linked with those of regional planning and of medical education. In addition, the vast questions of ophthalmic benefit and the relations between approved societies, ophthalmic surgeons, hospitals, and opticians would also appear to be involved. There is need, too, for a closer supervision and better facilities for diagnosis and treatment of children under school age and of adolescents leaving school but not yet eligible for ophthalmic benefit. At present no provision is made for these groups, and much preventive work might be done on them.

Education of the Public

This is a basic factor in maintaining the national health. One has only to consider the chaos which exists in the public mind on such subjects as the difference between a refractive error and a disease (and, through this, between an optician and an oculist), the value and nature of orthoptic exercises, and the relation between the condition of the eye and the general health, to realize that much could be done by clearing up misconceptions alone. It is well known that many people with glaucoma postpone medical treatment beyond the limit of safety by buying stronger glasses as a makeshift, and that practically all amblyopic eyes in children are due to the belief of parents that the child will outgrow the squint and that young children should not wear glasses. So little is known of the anatomy and physiology of the eye that it is usually difficult to explain to patients such simple problems as the nature of myopia and of cataract. This ignorance paves the way for the development of ocular neuroses and the accompanying vogue for magical or much-advertised systems of treatment. That these are successful in many cases points to the need for a higher standard of diagnosis among ophthalmologists and a higher level of educated co-operation from the patients. Education is needed at three levels. Some biological and physiological instruction in schools should be obligatory: it should include an understanding of the mechanism of sight and the nature of binocular vision and of errors of refraction. In adult life authoritative information should be available on such subjects as the care of the eyes (such as the futility of constant eye baths) and the nature of presbyopia. Most especially, however, instruction is needed on protection of the eyes in industry, since most minor injuries are due to the prevalent attitude towards safety-first measures and to ignorance of the possible effects of such injuries.

Research

The trend of medical research at the present time is towards greater collaboration between experts in different branches of science. Since medicine is largely an art there must be, for progress, close contact with the basic sciences underlying it. Advances in ophthalmology of recent years owe practically everything to basic discoveries in the realms of physics and chemistry—pharmacology and physiology also, co-operating. We have only to mention the practical application of the diathermic current and of the cathode ray, the improvement in optical glass and plastics, the synthesis of the sulphonamides, the discovery of the nature of vitamins and their biochemical action, and the researches of psychologists into

the visual function to show how closely interlocked with advances in ophthalmology are discoveries in other fields. Too often, however, the ophthalmologist, overburdened with the mass of clinical work confronting him, lacks the requisite contact with the experimental sciences. The establishment of research teams in association with laboratories where physicists, physiologists, biochemists, and pathologists, among others, could unite with ophthalmologists for the solving of given problems would seem to be desirable. For example, to return to Marshall and Seiler's report and the seven most common causes of blindness, we can foresee that the problems of cataract and glaucoma will require the help of biochemistry for their solution and that uveitis must invoke experimentation in pathology, bacteriology, and immunology. Venereal disease is already yielding to chemotherapy, and myopia and the abiotrophies probably require genetical research for their unravelling. The question of injury includes experiments in the design of protective goggles and work on the best psychological approach to ensure their use.

If these desiderata be kept in mind it is possible that when the next survey of the statistical position can be undertaken a distinct improvement may be manifest.

RISE IN POTASSIUM CONCENTRATION IN THE BLOOD STREAM FOLLOWING ISCHAEMIA OF MUSCLE MASSES

BY

R. E. REWELL, M.D., M.R.C.P.

(From the Department of Pathology, Guy's Hospital Medical School)

It is well known that the concentration of potassium is much greater in cells than in tissue fluids. Thus Eichelberger (1941) found 25 times as much by weight in dog's muscle (corrected for blood and fat content) as in the serum. This great difference in potassium concentration on the two sides of the cell membrane is maintained only so long as this structure remains undamaged. Prolonged asphyxia is one method of causing such damage. Baetjer (1935) found, by measuring its concentration in the perfusate, that loss of potassium from cat's muscle increased as the rate of blood-flow was reduced, but that the actual excitability of the muscle remained unaltered. Fenn *et al.* (1939) found that there was a limit to the potassium reduction in cat's muscle that could be brought about by perfusion. Later, Fenn, Koenemann, and Sheridan (1940) observed that no increased loss of potassium or production of lactic acid followed periods of asphyxia in perfused frog's legs.

Method of Investigation

The present investigation was undertaken to determine whether or not any appreciable loss of potassium followed periods of asphyxia in the larger muscle masses of human beings. The subjects were patients to whose limbs tourniquets had been applied for periods ranging from 35 to 100 minutes in the course of orthopaedic operations. They were all muscular young adults, mostly men. Blood samples were taken from the antecubital vein just before and at seven minutes after the removal of the tourniquet. From the first few patients additional samples were taken—one at the start of the operation and another one hour after its conclusion; but since the former revealed only the usual slight fall in the concentration of potassium that occurs during the administration of an anaesthetic, and the latter a subsequent return to normal, they were soon discontinued. The clot and serum were separated as soon as possible, and any specimen with a trace of haemolysis was discarded. The potassium was estimated by the cobaltinitrite method of Tisdall and Kramer (1921), using duplicate samples and putting through a standard with each batch. In the later cases inorganic phosphate was determined

SERUM POTASSIUM AFTER MUSCLE ISCHAEMIA

BRITISH
MEDICAL JOURNAL

as well, applying the phosphomolybdate method of Denigès (1921) to the usual trichloroacetic acid filtrate. The results are shown in the accompanying table. The significance of the differences observed was calculated by the method of Fisher (1938), and a value for P of less than 0.01 was found. The rise in the serum potassium is thus statistically significant. Although marked and consistent, the observations upon the serum phosphate are too few for statistical methods to be applied.

I have to thank Mr. E. S. Jamieson for the opportunity of making these observations on his cases.

REFERENCES

- Baetjer, A. M. (1935). *Amer. J. Physiol.* 112, 139.
Beall, D., Bywaters, E. G. L., Belsey, R. H. R., and Miles, J. A. R. (1941). *Brit. Medical Journal*, 1, 432.
Bywaters, E. G. L., and Beall, D. (1941). *British Medical Journal*, 1, 427.
Denigès, G. (1921). *C. r. Soc. Biol., Paris*, 84, 875.
Eichelberger, L. (1941). *J. biol. Chem.*, 138, 583.
Fenn, W. O., Koenemann, R. H., and Sheridan, E. T. (1940). *J. Cell Physiol.* 16, 255.
Fisher, R. A. (1938). *Statistical Methods for Research Workers*, Edinburgh.
Houssay, B. A., Marenzi, A. D., and Tisdall, F. F. (1923). *J. biol. Chem.*, 57, 6.
Roessle, E., and Roulet, F. (1932). *Mass und Zahl in der Pathologie*, Berlin.
Tisdall, F. F., and Kramer, B. (1921). *J. biol. Chem.*, 48, 1.

Table of Results

Case No.	Duration of Ischaemia (Mins.)	Position of Tourniquet	Serum Potassium			Serum Phosphate		
			Before Removal	7 Mins. Later	Rise	Before Removal	7 Mins. Later	Rise
1	90	Top of thigh	19.5	22.6	3.1	—	—	—
2	50	Below knee	22.2	23.6	1.4	—	—	—
3	80	Half up thigh	21.2	27.6	6.4	—	—	—
4	50	Top of thigh	18.6	21.2	2.6	—	—	—
5	70	Above knee	20.3	20.2	-0.1	4.5	5.2	0.7
6	70	Above knee	18.6	16.5	-0.6	—	—	—
7	45	Right arm	16.7	18.7	-0.2	—	—	—
8	100	Below knee	17.4	19.2	1.3	—	—	—
9	90	Above knee	17.1	19.2	2.1	5.4	7.4	2.0
10	35	Half up thigh	19.5	20.0	0.5	3.3	4.0	0.7
11	60	Top of thigh	16.9	17.7	0.8	3.8	4.8	1.0
12	60	Top of thigh	19.7	21.4	1.7	4.3	—	—

The values for the serum potassium and phosphate are in mg. per 100 c.cm.

Discussion

Houssay *et al.* (1937) found that in chloralosed dogs general asphyxia for from two to four minutes led to an increase in the serum potassium, but that this did not occur after removal of the liver or suprarenal cortex or section of the splanchnic nerves. It is to be assumed, therefore, that the potassium was released from the liver by parasympathetic stimulation. Thus in the present series there are two possible sources of the extra potassium found in the serum. It might have come either from the asphyxiated cells, presumably those of the muscles, or from the liver by the action of a hypothetical substance present in the ischaemic limb and suddenly released into the circulation—such a substance as Blalock (1930) postulated in his experiments on the production of shock. It should be noticed that in only three cases—Nos. 5, 7, and 9—was severe trauma applied to the limb during its period of ischaemia, and that these showed no exceptional rise in serum potassium, and that other operations were for the removal of semilunar cartilages, or manipulations of similar severity.

The only feature in common between this series and cases of the "crush syndrome" is the period of ischaemia undergone by the muscles. Recent observations on that condition—e.g., those by Beall, Bywaters, Belsey, and Miles (1941) and by Bywaters and Beall (1941)—have shown that a steady and prolonged rise in the serum potassium occurs. This is possibly due to the concomitant renal failure, and would certainly mask the small and transient change noted here, as also would any marked release of potassium by direct trauma to the muscle cells.

No attempt has been made to find any correlation between the duration of the asphyxia, the weight of muscle involved, and the amount of potassium released. This might shed light on the origin of the potassium, but it cannot be attempted without a larger series than the present. In this connexion it should be noted that if it could be assumed that equilibrium between the blood and the intracellular fluids of the tissues had been reached, every rise of 1 mg. % in the serum potassium would mean that 0.19 g. of the ion had been released into the circulation. The weight of the muscles of the calf and foot is about 1,300 g. (Roessle and Roulet, 1932), while the potassium content is about 0.3% (Gamble *et al.*, 1923; *Tabulae Biologicae*, 1926), so that in Case 9 of the present series the ischaemic muscle would have to give up about 10% of its potassium to account for the whole of the rise observed in the serum.

Summary

A series of observations is reported in which the serum potassium showed a significant rise after the removal of a tourniquet applied to a limb during the course of orthopaedic operations. The extra potassium in the circulation might have come from the cells in the ischaemic area or from the liver by the action of a hypothetical substance released in the limb.

Medical Memoranda

Manual Dilatation of the Pelvis: Four Further Cases

In 1936 I reported (*British Medical Journal*, 2, 282) a case in which the pelvic girdle was dilated to avoid the death of patient in parturition. On that occasion the measure was adopted as one of desperation. The result was gratifying. Since then we have made considerable use of the method as one of election, and experience has been progressively encouraging. I am now able to single out four definite cases in which we feel justified in ascribing to its use the getting of a live undamaged child from an undamaged mother. (We acknowledge its valuable help on other occasions.)

Three cases do not need a separate description. All three were primiparae; (b) had a minor degree of pelvic contraction which ante-natally justified an expectation of successful delivery (perhaps assisted), given normal opportunity for natural dilatation of the passages and moulding of the head; (c) were complicated by early rupture of the membranes; (d) required intervention on account of signs of foetal distress; and (e) required this intervention at a stage when, although labour was already more or less protracted, the size-relation of the head and passages was unfavourable.

The fourth case was that of a 1-para with marked general contraction, and properly a hospital case; she was a new-convert to the district, and an unexpected call. The membranes ruptured at the onset of labour. A good degree of moulding was allowed. When delivery was undertaken it was necessary to make full use of manipulation.

PURPOSE AND INDICATIONS

The purpose is to minimize damage to the mother, and damage, especially cerebral damage, to the child. It is meant to replace any current practice, except forceful dragging of a child through unnecessarily narrow passages. It is indicated in proportion to the expectation of difficulty. It is indicated to be indicated whenever forceps are used to overcome resistance by the bony passages to the transit of the head, and to be as rational on behalf of the child as completing the dilatation of the soft passages is on behalf of the mother.

In at least some cases of disproportion (particularly with early rupture of the membranes), when the head gets an unfavourable entry at the brim, the disproportion tends up to a certain stage to become worse. Although confident that this can occur, I feel that an attempt to analyse the mechanics of the process might bring me into one-sided conflict with the anatomist. The labour may survive this phase successfully; but if for any reason delivery has to be undertaken before the head has become adjusted to the passage, corrective measures should be addressed to the bony as to the soft passages. In the first degree this correction is, in the jargon of the moment, a "de-worsening," but some further stretching of ligaments and easing of joints are almost always attainable with comparative ease and with safety.

TECHNIQUE

The technique is essentially elastic. Leverage must be from bone to bone, and may be done with the finger-tips on one and the knuckles or the back of the hand against another, or with other. Much depends on the size of the operator's hand and other local conditions. One must ensure that bone is underneath the finger-tips, as there is usually some degree of oedema of the soft tissues, and these are easily damaged. Leverage

should be applied only for a second or two at a time, the changes being rung from one pair of points to another. The degree of pressure used is comparable to that used on a joint stiff from disuse—say an elbow which has been immobilized for some weeks. It can be more than this, but should not be much more. Firm stroking across their axis with the pulp of the finger-tip helps to stretch ligaments which are still taut. The gain may not be appreciable during the application of pressure, but becomes clear as one works round and returns, is one repeatedly does, to points already treated. A most useful increase of room for the passage of the head can be obtained without haste and without trauma in two or three minutes. When one feels that the best has been done, the hand already in the vagina guides the blade of the forceps. The anaesthesia is not significantly prolonged.

CONCLUSION

It is submitted that manual dilatation of the bony pelvis can be safely and successfully used to minimize birth trauma; that it is specially indicated in cases of slight disproportion which have to be delivered at an unfavourable stage; and that it constitutes a useful rejoinder to early rupture of the membranes.

Lochmaddy, Isle of North Uist. ALEX. J. MACLEOD, M.B., Ch.B.

Treatment of Fusospirillary Balanitis

The aetiology of this type of balanitis was proved by Corbus and Harris in 1907 to be due to the symbiosis of a Gram-negative spirochaete and fusiform bacillus, and the resulting clinical features, described in detail by them, are briefly recapitulated here.

Predisposing factors are a tight prepuce, wetting the prepuce with saliva, and unnatural sexual gratification. About 3 to 4 days after intercourse there is a feeling of irritation under the prepuce, soon followed by the appearance of a copious frothy yellow offensive discharge and superficial ulceration of the glans penis and under-surface of prepuce. Phimosis with inability to retract the prepuce may subsequently occur, but usually only develops after 8 to 14 days in the absence of treatment. The inguinal glands may be slightly enlarged but do not suppurate.

On examination, after retracting the prepuce and removing the pus, small greyish-white patches are found in the preputial area, with erosions on either side of the coronal sulcus. The edges of the ulcerated areas are often circinate in outline. Diagnosis is made by staining a smear of the pus with gentian violet or neutral red—when large numbers of spirochaetes and fusiform bacilli are seen—or, alternatively, by dark-ground illumination. Prevention, apart from circumcision when there is a tight prepuce, consists in the regular cleansing of the preputial area, especially after sexual intercourse. The condition may be treated by frequent bathing with hydrogen peroxide or other mild antiseptic. A preparation of stovarsol as a jelly (containing merfenil 1:100,000) has been tried in a series of 38 cases. The advantages of this preparation are several. It is dispensed in a small collapsible tube which can be carried by the patient in his pocket or haversack, and may be applied quickly without mess in the secrecy of the lavatory; it relieves the irritation after the first application, and is rapidly curative. It contains no sulphonamide, and therefore cannot produce sulphonamide sensitization.

In all, 38 cases have been treated with this preparation—32 as out-patients and 6 as in-patients. After washing the glans penis and subpreputial space with saline a small quantity of the ointment is squeezed from the tube and spread gently over the area. The prepuce is drawn forward and any excess wiped off. When the preparation could not be applied direct to the subpreputial areas on account of phimosis the subpreputial space was washed out with saline, and a cotton-wool-tipped probe soaked with the jelly was then passed all around under the prepuce. In most cases the ointment was applied twice daily, but in-patients were treated three times a day. The average number of applications of jelly for all cases was 5.5 (minimum 2; maximum 13) and the average number of days taken for complete healing was 3.5. Several mild infections cleared up in two days. Four cases relapsed, but were cured by further treatment.

I regard this new method of treatment as highly effective, but the independent observations of others are desired.

I wish to thank Dr. R. C. L. Batchelor for permission to study those cases in the Edinburgh Venereal Diseases Department, and to Pharmaceutical Specialities (May and Baker) Ltd. for supplies of stovarsol jelly.

Edinburgh. G. M. THOMSON, M.D., M.R.C.P.Ed., D.P.H.

REFERENCE

Corbus, B. C., and Harris, F. G. (1909). *J. Amer. med. Ass.* 52, 1474.

Reviews

PERMEABILITY OF MEMBRANES

The Permeability of Natural Membranes. By Hugh Davson, D.Sc., and James Fredrick Darstlin, D.Sc. With a foreword by Prof. E. Newton Harvey. (Pp. 351; illustrated. 25s.) Cambridge: The University Press. 1943.

The subject of the permeability of membranes, and more particularly that of their differential permeability, is one of the most fundamental and important in the whole of biological science. It lies at the root of most of the phenomena of life in animals and in plants of all degrees of organization. The phenomena involved are primarily physico-chemical, and studies of permeability have been made by the most varied methods and upon the most diverse kinds of cells. It is no light task, therefore, to assemble and critically to review and digest the results of the numerous investigations which bear upon the subject of permeability, and to deal with the frequently abstruse physical chemistry which has been directed to the elucidation of the manifold phenomena which have emerged from those studies.

This formidable task has been very well performed by these authors, and they have produced a treatise which should serve as a loadstone for some years to all who wish to enter this perplexing territory. Much of the work discussed concerns the permeability of the red cells, which are obviously well suited for investigation. But it is made clear that what holds good for the erythrocyte cannot necessarily be transferred to other cells, or even from erythrocytes of one species to those of another. Much of this work is that of the authors themselves. The illustrations are clear, the bibliographies comprehensive, and altogether the work is a mine of carefully compiled and well-digested information. Perhaps some of the physico-chemical explanations are a little optimistic; and one would have liked to see more, if more is known, about the permeability of the lung membrane to gases. But the general impression is one of excellence.

UROLOGY IN GENERAL PRACTICE

Urology in General Practice. By Nels F. Ockerblad, B.S., M.D., F.A.C.S., and Hjalmar E. Carlson, B.S., M.D., F.A.C.S. (Pp. 383; illustrated.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co. 1943.

The preface to this book points out the desirability of stimulating an interest in and knowledge of urology among general practitioners and medical students. It was written for this purpose. Those who read the preface will expect to find something worth while in the pages which follow, and they will not be disappointed. General surgeons who have a leaning towards urology and make it their hobby (which is far better than specialization in the narrow sense) will find in this small volume a fund of practical information presented and illustrated in an attractive manner.

The authors are masters in the art of instruction. The technique of cystoscopy is described adequately in simple language. There is a good summarized account of medical ailments such as nephritis. These references are relevant and are too often omitted from surgical textbooks. The authors believe that doctors "are coming more and more to realize that the urologist knows more about the kidney and the diagnosis of its diseases than anyone else." The chapter on lithiasis is vague and is not quite up to the high standard set in other sections, but any omissions here are counterbalanced by the clear and detailed accounts given of carcinoma of the prostate, sterility, and the use of sulphonamides in urology.

There are 362 pages (excluding the index and preface) with 98 illustrations. In so confined a space some good material of necessity must be omitted. Nevertheless, the doctor who masters the contents of this book, and puts its precepts into practice, will be able to deal in an expert fashion with the majority of urological cases. His knowledge will not be confined to the commonplace, for he will find illustrations of certain rare conditions such as wide dilatation of the lower third of the ureter, without obstruction, probably congenital in origin.

A DICTIONARY OF SKIN DISEASES

Synopsis of Diseases of the Skin. By Richard L. Sutton, M.D., and Richard L. Sutton, jun., M.D. (Pp. 480; illustrated, 28s.) London: Henry Kimpton, 1942.

There is certainly a great deal compressed into a small compass in this volume, which will go conveniently into a not very capacious pocket. The authors remark that it pleases them to observe how much can be said with comparatively few words. The result is that they have produced a book which is more like a dictionary of skin disease than anything else: in fact, we rather fancy that it would be improved if any arrangement were abandoned and an alphabetical arrangement of which the authors are proud does not make for easy reading, and for that reason it is hardly suitable as a student's textbook, while as a treatise of a comprehensive character it cannot, of course, compete with the monumental works on dermatology of which the same authors' own production is a notable example. The function of the present volume lies hardly among the medical profession at all, but it would find a distinct sphere of usefulness in the world of journalism. Nowadays disease is news among the general public, and the presence of a work like this in the newspaper office or on the desk would certainly prevent many errors in those who offer to the general reader items of dermatological significance thought sufficiently spicy or dramatic to interest him. The numerous and excellent photographs with which this book is embellished will also be found very helpful.

TESTS FOR COLOUR VISION

The Series of Plates designed as Tests for Colour-Blindness. By Dr. Shinobu Ishihara, Professor of Ophthalmology, Imperial University of Tokyo. Ninth edition (complete edition). (32 plates. £2 10s.) London: H. K. Lewis and Co. 1943.

The deserved popularity of the Ishihara plates used as tests for colour vision has created a demand for this work, which is out of stock in this country and cannot now be obtained from Japan. Messrs. H. K. Lewis and Co. have shown public spirit in obtaining permission from the Patent Office to bring out a facsimile of the original to satisfy the demands of the three Services and of private practitioners, and the Chiswick Press has on the whole carried out satisfactorily a difficult task. In format and execution this facsimile is a close approximation to the original, but it must be stressed that it is only an approximation. Most of the plates in this reproduction are as serviceable as those of the original, even if some of them do not quite catch the exact shade of colouring of the original, but some few fall below standard. Plates 10, 11, 12, and 13 are more difficult to read in the facsimile than in the original, while Plates 16 and 17 are not above criticism. The examiner will have to use this reproduction with discretion if he wishes to avoid unnecessary rejections on the ground of colour blindness.

Notes on Books

Prof. WILLIAM BOYD's popular *Textbook of Pathology* has appeared in its fourth edition (Henry Kimpton; 48s.), somewhat diminished in size in spite of the introduction of much new matter. This has been achieved by omitting a chapter and several sections on subjects which are dealt with in books of other kinds, and by what the author characteristically describes as a "tightening of the belt of speech." Few medical authors make so telling a use of metaphor, or captivate their readers by presenting their subject in so engaging a style. New and up-to-date information has been introduced on a large number of subjects, among which are several that have only very recently come into prominence, and there are many new illustrations.

The second edition of *Social Service in the Clinic for Venereal Diseases*, by DOROTHY MANCHÉE, is even more welcome than the first because the problems dealt with are more insistent in wartime than in peace, and case-holding and follow-up have assumed a much greater importance since the launching of the anti-V.D. campaign and the introduction of Regulation 33B. The wartime upsets of family life and the direction of female labour into industry have introduced difficulties never dreamed of in peacetime. There can be no doubt that an almoner in every V.D. treatment centre is rapidly becoming a necessity rather than a luxury, and Miss Manchée tells us what such a lady can accomplish. The book is specially recommended, to all directors of venereal disease clinics. It is published by Baillière, Tindall and Cox at 5s.

REVIEWS

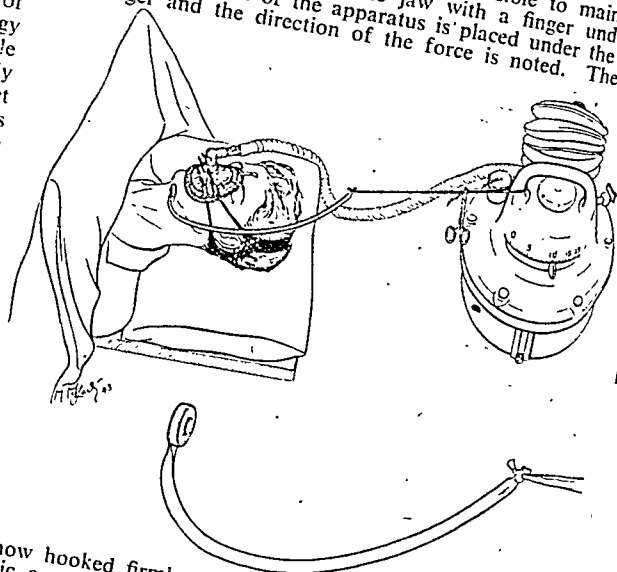
Preparations and Appliances

BRITISH MEDICAL JOURNAL

ANAESTHETIST'S THIRD HAND

Flight Lieut. P. S. A. HEYWORTH, R.A.F.V.R., writes:

Before describing this simple piece of apparatus, shown in the accompanying sketch, it must be emphasized that (1) it may be a dangerous gadget in the hands of the occasional anaesthetist; (2) it was devised for the experienced anaesthetist working under short-handed conditions, and not to relieve him from supporting the jaw during normal times. The patient is settled so that it is possible to maintain clear airway by supporting the jaw with a finger under the chin. The cushion of the apparatus is placed under the holding finger and the direction of the force is noted. The tap



is now hooked firmly round a convenient piece of the anaesthetic apparatus and secured with a pair of forceps. If the direction of the pull is inconvenient, the position of the patient's head can, of course, be altered.

The knack of maintaining a clear airway cannot be acquired by brief training. For two years, while working with changing apparatus to handing the patient over to an unskilled assistant, I have often eliminated the necessity for an endotracheal tube and has proved invaluable when a blood or plasma transfusion has to be given by the anaesthetist and there is no one free in the theatre to support the patient's jaw. During thyroid surgery it is a pleasant relief to aching fingers if the main pull is taken by this little apparatus.

I wish to thank Air Commodore R. R. Macintosh for his help and criticism, Miss M. C. McLarty for the drawing, and Mr. R. Salt for his help in making the original holder. The instrument can be obtained from Medical and Industrial Equipment, Ltd., 12, New Cavendish Street, London, W.1.

RECENT GLAXO PRODUCTS

Glaxo Laboratories, Ltd., Greenford, Middlesex, are now introducing certain new products.

2:1-diaminoacridine hydrochloride is said to have the lowest toxicity of all the flavines; in dilutions of 1 in 1,000 it has the least effect on living tissues. It is rapidly bactericidal, and in effective concentration does not interfere with healing. It is also effective against certain Gram-negative organisms—*B. proteus*, *B. coli*, and *Ps. pyogenes*—that are not affected by other acridines in similar concentrations.

5-aminoacridine hydrochloride in dilutions of 1 in 1,000 is a non-irritant antiseptic with an antibacterial activity similar to that of other flavines against the common pyogenic organisms. It does not stain the skin and is easily removed by water from fabric.

Nicotinamide, while possessing a similar therapeutic value to nicotinic acid, has the important advantage of not producing the uncomfortable flushing and other skin reactions so common with the acid "Pelonin" amide, brand of nicotinamide, is available in tablets and in ampoules containing 50 mg.

Suspended T.A.B. Vaccine (synthetic culture medium) Glaxo physicians prefer a suspended type of T.A.B. vaccine because many antigenic properties of the organisms are retained, while the absence of protein from the culture medium restricts the reaction to that produced by the bacteria themselves.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY OCTOBER 16 1943

BEHAVIOUR AND NEUROSIS

he attempt to reduce psychoneurotic reactions in human beings to terms of conditioned reflexes has been criticized before. There has been an impression in some minds that such a conception is somehow more scientific than one that includes psychological as well as physiological principles. It is therefore of all the more interest to know that in all the years of his investigations of animal behaviour Pavlov was so married to his rigidly mechanistic philosophy that, as is recorded by his pupil Frolov, he would actually impose a fine on any of his assistants who ventured to suggest that the behaviour of experimental animals might be determined largely by physiological needs, aversions, conflicts, or other internal motivations. This is hardly the spirit of science, but the bias persisted to the end of Pavlov's life. It is true that towards the end he began to look at clinical problems, but by that time he approached them inevitably backwards, as it were, with his mental vision fixed upon a picture of cortical processes. Having by then discovered, as he thought, a fundamental physical basis for the genesis and mechanism of neurotic reactions in dogs in terms of excitement and inhibition in parts of the cortex, he sought to explain the social behaviour of human beings in the same terms. He approached the whole in terms of the part and not the part in terms of the whole, which was curiously contrary to the general trend of physiological philosophy in his later years. It did not occur to him to think in terms of the meaning of the stimuli; a bell was a sound, for example, and not something that meant food or nothing, according to whether the animal wanted food or not. A neurosis was merely a conflict between excitatory and inhibitory phases in more or less of the cortex and not a struggle to solve a problem of vital importance to the animal as a whole. Although these criticisms seem more or less obvious, any effort to make them was accompanied by a sense of discomfort, because no experimental control of Pavlov's work had appeared. All the work in conditioned reflexes, or, at any rate, all that part of it that seems relevant, has been done by Pavlov's disciples, who used the same language and the same concepts. Of those signs the dog gave of responding to a stimulus because no food followed, it was said that the "threshold" response was "raised" by the stimulus. Nothing, as Masserman puts it in his recent book,¹ was said about the dog's frustration or even about his hunger.

It is particularly welcome that a book should appear which embodies experimental work on Pavlovian lines but which undertakes it from the aspect of the organism as a whole, taking into account all drives and instincts as well as localized cortical processes, and making the setting of the experiment much less artificial. The animal is not placed in complete isolation and protected from every stimulus except the experimental one. The experiment is not only with a conflict of stimuli. Masserman shows that unless the stimuli are related to the animal's needs no conditioned response can be established. Masserman made experiments also with a conflict of motives—for example,

between hunger and fear—and in this way, for the first time, a real parallel was drawn with human problems and failures to solve them. After all, the very fact of the use of the unconditioned stimulus in all Pavlov's work implied a reference to the emotional or instinctive side of life, which was never admitted. The difference in conceptual approach is between a narrow mechanistic and a biological conception. Masserman insists that motivation is an essential basis for even the most elementary Pavlovian experiment. He points out that the reaction is not to a mere stimulus; it occurs only in relation to the total apperceptive field. The dog salivates to the sound of a bell only if the sound has come to mean food and if the dog is hungry. What matters is the significance of the sound and not merely its physical conformation as a wave front impinging on a receiving apparatus. That the linkage is not solely a mechanical one between a cortical disturbance and some sort of local emotional mechanism is suggested by the failure of attempts to link the response to a pure sound stimulus with the effects of direct stimulation of the hypothalamus—e.g., with a "sham rage" reaction. No linkage between sound and rage reaction could be established in this way.

Consistent neglect of the importance of the meaning of a stimulus led Pavlov to postulate inhibition, where, for example, the response becomes extinct from lack of "reinforcement," such as lack of feeding. What really happens in such circumstances is—nothing. The animal has failed to be interested. Pavlov arrived at a specious physiology by neglect of analysis in psychological terms. We are still, as Sherrington said long ago, very far from having a physiological picture of an idea. Masserman's work is important as probably the first criticism of Pavlov's work by means of experiments based on a wider philosophy. By his method he has shown that it is possible to provide experimental analogies at least with emotional conflict in neurosis, with symbolic behaviour, with phobias and, more doubtfully, with regression, as well as with the cure of neuroses by manipulation of the environment, or, where a solution is forced on the animal, by "working through" the problem.

INTERCELLULAR HORMONES

For some years it has been known that growth-promoting factors can be obtained from plant and animal tissues and in greater amount when such tissues have been injured. The frequent speculations on the role of these factors in the processes of wound healing and in tissue overgrowth have been severely limited by the obscurity surrounding their origin and nature. Recent publications of Loofbourov and his colleagues,¹ however, have gone far to unveil the mysteries of these factors, called by him "intercellular hormones." The earliest of their publications showed that there appeared in the fluids surrounding the tissue factors which stimulated cellular proliferation when yeast, various other micro-organisms, living tissues of rat, mouse, and chicken embryos and of the adult newt are subjected to various forms of injury such as lethal ultra-violet irradiation, x rays, mechanical injury, and chemical irritation. The findings of previous workers were supported and extended. In the later papers, however, by limiting their attention to the growth factors produced by yeast cells damaged by ultra-violet light, and assaying the potency of these factors by their ability to promote the proliferation of yeast cells in Reader's solution, Loofbourov and his co-workers have made some interesting advances.

¹ *Behavior and Neurosis. An Experimental Psychoanalytic Approach to Psychobiologic Principles*, By JULES H. MASSEMAN, M.D. (18s.). Chicago: University of Chicago Press; London: Cambridge University Press. 1943.

¹ *Biochem. J.* 1940, 3, 432, 1580; 1941, 35, 603; 1942, 36, 513, 631, 737.

The first fact to be established was that these proliferation-promoting intercellular hormones were to a great extent soluble in alcohol and in acetone, largely thermostable, entirely free from proteins, and similar in many respects to "bios"—the term used to describe the body of factors required for the growth of yeast and including inositol, vitamins B₁ and B₆, β -alanine, pantothenic acid, and biotin. It was also noted that the higher the potency of the intercellular fluid the higher was its content of substances with an absorption spectrum showing a maximum at 2,600 Å, characteristic of purines and pyrimidines. Experiments were then planned to determine whether these factors were released as a result of cell disintegration or of increased cell permeability, whether the factors were largely synthesized by living injured cells and released by them into the intercellular fluids, or whether the activity of these fluids was attributable to some combination of these possibilities. It was found that slow injury yielded intercellular fluids of greater potency than did rapid killing, the potency of the fluids increasing rapidly before appreciable mortality occurred. Further, the potency was greater when cells were injured in a physiologically favourable suspension medium such as Ringer or Reader solution than when injured in distilled water or isotonic salt solution. Active factors appeared in suspensions of cells exposed to high concentrations of CO₂, though the cells were not killed. Cells killed quickly by grinding or boiling and then subjected to lethal ultra-violet light yielded less potent preparations than cells injured slowly by ultra-violet light before grinding or boiling. It thus seemed probable that the proliferation-promoting activities of the intercellular fluids were due either to the release of normal cell constituents as a result of increased membrane permeability or to the release of materials synthesized in the living cell as a response to the injury, or to both of these processes. Further observations supported and extended these possibilities. No change in cell numbers and no cytotoxicity were observed during the irradiation of cell suspension, indicating that the proliferation-promoting factors were released to the intercellular fluids through the membrane of substantially intact cells. Studies with radio-active phosphorus indicated that cell membrane permeability increased during radiation—a fact confirmed by the observation that during injury the average cell volume decreased by more than one-quarter. From these studies Loofbourow and his colleagues conclude that the production of the intercellular hormones by damaged cells is due to increased cell membrane permeability, allowing the diffusion into the surrounding fluid of various normal non-protein cell constituents and the resynthesis of some or all of these materials within the living injured cell as their concentration in the cell is disturbed by the diffusion process.

With such an interpretation of the manner in which the intercellular hormones may be produced, it was almost inevitable that attempts should be made to determine whether known growth factors could account for the proliferation-promoting effects of damaged yeast-cell suspensions. Tests with 15 amino-acids, yeast and thymus nucleic acids, inositol, thiamine, riboflavin, adenosine, and nicotinic acid, used singly, had either imperceptible activity or not enough activity to account for that of intercellular hormone preparations. When, however, some of these materials and other known growth factors were used in combination, the proliferation of yeast-cell suspension was profoundly stimulated. A mixture of thiamine, riboflavin, pyridoxine, calcium pantothenate, biotin, choline, and nicotinamide strongly stimulated the proliferation of yeast cells in Reader's solution, while the further addition of a mixture of glutamic acid, asparagine, aspartic acid, leucine, and

arginine increased this effect. The vitamins also hastened the growth of yeast in the presence of preparations from damaged and undamaged cells, the further addition of the amino-acid mixture increasing the effect still more. However, the growth kinetics with the vitamin and amino-acid supplements differed from those with the damaged cell product, and it seemed that additional factors were present in the latter. Since a correlation had already been found in damaged cell preparation between proliferation-promoting activity and the concentration of materials showing absorption spectra characteristic of purines and pyrimidines, and in particular of adenine, a number of such compounds were tested. None when used alone would produce the activity of damaged yeast, though adenosine triphosphate showed activity greater than the others. A mixture of adenosine triphosphate and the vitamin supplement was found to have a proliferation-promoting activity like that of a damaged cell preparation, while further supplementation with the amino-acids increased this activity still more. However, the amount of adenosine triphosphate required to produce this effect was about ten times the amount indicated by the intensity of absorption at 2,600 Å of the damaged yeast-cell preparation used, suggesting that adenosine triphosphate was not necessarily the purine or pyrimidine derivative partially responsible for the activity of these products.

It is extremely satisfactory research which enables a phenomenon previously shrouded in mystery and cluttered with cumbersome descriptive phrases to become explicable in terms of the behaviour of known chemical substances. Loofbourow and his collaborators have still a number of gaps to fill in the story of their "intercellular hormones," and this they will no doubt hasten to do. In the meantime however, their work should prove a valuable stimulus to studies on wound healing and tissue regeneration. Perhaps the hastening of wound healing induced by embryonic and other tissue fluids and by maggots will also become more completely explicable in terms of known chemical substances. One of the most pleasing aspects of Loofbourow's work is the clear demonstration that, while substances used alone may have no marked activity, when used together they become active. It seems that the experiments now in progress in various laboratories on vitamin C in healing processes would perhaps lead to more useful results if additional essential nutrients were taken into consideration at the same time.

INDUCED VITAMIN B₁ DEFICIENCY IN MAN

Williams and his co-workers, who have already published three studies on induced vitamin B₁ deficiency in man,^{1,2,3} have made yet another contribution to the subject.⁴ Two volunteers were given a basal diet containing not more than 0.1 mg. of vitamin B₁ per 1,000 calories daily (0.1 to 1.0 mg. per 1,000 calories daily is considered the optimum). This is much less vitamin B₁ than was given in previous studies. The diet was adequate in other respects and was supplemented with halibut-liver oil, irradiated ergosterol, ascorbic acid, riboflavin, nicotinamide, pyridoxine, pantothenic acid, choline, inositol, iron, and calcium—all known to be essential for either human or animal nutrition. Any deficiency symptoms could then be reasonably attributed to lack of vitamin B₁. The experiment lasted for 120 days, although every two weeks an injection of 1.0 mg. of vitamin B₁ was given for a "periodic partial cure" of the deficiency. Symptoms of vitamin B

¹ *Proc. Mayo Clin.*, 1939, 14, 787.

² *Arch. Intern. Med.*, 1940, 66, 785.

³ *Ibid.*, 1942, 69, 721.

⁴ *Ibid.*, 1943, 71, 38.

deficiency developed as early as the thirtieth day of restriction. The first objective evidence of abnormality was a decrease in the urinary excretion of the vitamin after a test dose of 1 mg. Almost simultaneously the pyruvic acid level in the blood after the administration of glucose became elevated, and the subjects became listless and complained of anorexia and easy fatigue. Listlessness progressed to apathy, anorexia to nausea, and fatigue to prostration, with diminished response to test doses of vitamin B₁ and with an elevation of the blood pyruvic acid. At the same time complaints of paraesthesia in the legs were made. Later objective signs of disturbances in the nervous pathways became evident, and after 110 days on the restricted diet signs and symptoms of polyneuropathy appeared. Defects in the cutaneous sensory pathways, depression or disappearance of the tendon reflexes, and paralysis of the muscles of the thighs and legs became apparent. Paralysis of muscles and loss of tendon reflexes were not observed in the earlier studies—possibly in the first study the restriction of vitamin B₁ was too severe for the experiment to be carried on over any length of time, while in the other studies the restriction was not severe enough. The disturbances responded to the administration of large doses of vitamin B₁, but only after many weeks, and in one of the cases incompletely after four months of continuous treatment. It was also noted that invariably appetite was improved and activity resumed for 7 to 10 days after the injection of the test dose. The outstanding subjective features of a pure vitamin B₁ deficiency in man would therefore appear to be anorexia, fatigue, and symptoms of polyneuropathy.

Johnson and his colleagues³ subjected ten men to hard physical work on diets deficient in parts of the B complex. Fatigue, deterioration in physical fitness, muscle pains, poor appetite, and constipation were complained of after two weeks. Vitamin B₁ alone in doses of 2 mg. daily did not clear up these symptoms, but brewer's yeast did. Similar observations were made by Egeña and others⁴ on sedentary subjects.

Interesting as these studies are, it must not be forgotten that in actual practice deficiency diseases are never limited to lack of a single factor, or even a group, such as the B vitamins. Beriberi is not caused by a deficiency of vitamin B₁ alone; it is a poly-avitaminosis. Polished rice, which is consumed in countries in which beriberi is endemic, is deficient not only in vitamin B₁, but also in vitamins A, D, and E, riboflavin, nicotinic acid, pyridoxine, choline, calcium, iron, and other minerals. Deficiency of vitamin A and members of the vitamin B complex has been shown to produce central and peripheral nerve lesions.^{5,6} It is also possible that vitamin E deficiency may play a part in the advanced muscular degeneration seen in beriberi. Another fact that may complicate the picture is that polished rice may be deficient not only in vitamins but in certain amino-acids (e.g., methionine) essential for human nutrition. The fact remains that in none of the studies on induced vitamin B₁ deficiency in man has the full-blown picture of beriberi been produced.

HOSPITAL PHYSICISTS ASSOCIATION

The inaugural meeting of the Hospital Physicists Association, held in London at the British Institute of Radiology on Sept. 24, was attended by 37 physicists drawn from hospitals all over the country. The aims of the new Association are to discuss matters arising out of the mutual

interests of those engaged in a branch of scientific work which has grown up largely in the last 30 years. Membership is open to physicists attached to hospitals, medical schools, medical or biological research departments. The first meeting was followed by visits to the Middlesex, Royal Cancer, and Westminster Hospitals on Sept. 25. The afternoon session was devoted to papers. Dr. H. T. Flint spoke on technique with the various radium gramme units, Prof. Hopwood gave an account of the betatron, Prof. Stead discussed teaching for the diplomas, and Prof. Sidney Russ read a paper on the professional equipment of a hospital physicist. Messages of good will from the National Radium Commission and the Council of the British Institute of Radiology were read at the meeting. It was agreed to hold at least three meetings during the year, one of which should be in the Provinces. Prof. Russ was elected chairman for the first year, with Dr. Wilson of Westminster Hospital acting as hon. secretary. Prof. Russ recalled that the first full-time appointment as physicist to a hospital was made 30 years ago. It seemed likely that to-day between 50 and 60 physicists were engaged in some capacity in hospital or medical research work. A good start was made with the new association, with plenty of evidence of vitality among its members.

PLANNING THE AIR ABOVE

The replanning of towns and cities will be largely frustrated if there is no planning of the air above them. One of the many good causes which has suffered a setback in the war is smoke abatement. Excessive smoke emissions from factory chimneys are now too often seen, and authority gazes at them with a blind eye. Planning for smokeless air, as the general secretary of the Smoke Abatement Society, Mr. Arnold Marsh, pointed out recently, must proceed in two phases: the first to ensure that new sources of smoke are not created in post-war buildings, and the second, and more difficult, to endeavour to get rid of the smoke nuisance in buildings that now exist. So far as new building is concerned, over eighty local authorities, including the councils of most of the large cities, have passed resolutions supporting certain proposals for the prevention of new smoke. One of the most important of these is to require the approval of a special authority before new fuel-burning plant is installed in industrial premises. This method, which has found a wide acceptance in the United States, has also during the last seven years been followed in a voluntary way at Birmingham, where, on plans for new buildings being deposited with the surveyor's department for approval, they are passed on to the public health department for "observations," thereby affording an opportunity for discussion and suggestion concerning the suitability of fuel-burning plant from the point of view of smoke prevention.

The larger ogre to be combated, however, is domestic smoke. The ten million chimneys of the homes of England are responsible for about two-thirds of the total nuisance. If clean air is to be enjoyed in the urban parts of this country something must be done about the domestic open fire. The open coal-fire grate is entrenched not only in house architecture but in sentiment, and although gas fires and electric heaters have their place, nothing short of a revolution will dislodge the open fire from the main living-room. Indeed, did not the recent committee of the Royal College of Physicians, in its report on new housing, concede one open fire for each house? From a recent address delivered by a fuel expert to the Women's Advisory Panel of the Domestic Fuels and Appliances Committee, which is advising the Government on fuel economy, we

³ *J. Nutr.*, 1942, 24, 585.

⁴ *Amer. J. Physiol.*, 1942, 137, 731.

⁵ *J. Physiol.*, 1941, 99, 467.

⁶ *Arch. Neurol. Psychiat.*, Chicago, 1937, 37, 286.

gather that the solid-fuel industry is concerned in evolving a fire grate which will make unnecessary the sooty flurry that attends the lighting of the fire every morning. A grate is being constructed in which the fire can be so banked up at night that a touch of the bellows will rekindle it within a few moments. Along with this goes another development towards the production of some appliance for burning coal or one of its derivatives smokelessly or almost so. These two inventions when they arrive will make the solid-fuel industry complementary to the gas and electric industries and will do away with the stigma at present attaching to the open coal-fire that it causes atmospheric pollution.

These improvements relate mainly to future building. There remains the problem of getting rid of the smoke from which we at present suffer. This must be gradual, but it need not be slow. One proposal is to establish smokeless zones in the centre and new areas of towns as the first stage of planning for the total abolition of smoke, these areas to be enlarged as fuel appliances for the necessary replacements become available. If this is done, the secretary of the Smoke Abatement Society (surely the Society might change its name to "prevention" or "abolition") thinks it not too sanguine to foretell a smokeless Britain within ten years. One outstanding difficulty may well be railway smoke, on which subject those who live near the main lines of railways could say a great deal. Electrification has gone some way to solve the problem and may go still further, but we cannot see electrification being introduced for a long time to come in the goods traffic marshalling yards of railways, which will remain the final lairs of the twin dragons of smoke and noise.

POISONING FROM HAIR DYE

Since the introduction of coal-tar dyes into the fur industry in 1888 and the subsequent widespread use of one in particular—paraphenylenediamine—as a dye for human hair, there have been many reports of poisoning by this substance. The first toxic effect noted was dermatitis, an epidemic occurring in London in 1922 among women wearing coats with fur collars. During the investigation stimulated by these cases it was found that dermatoses were very frequent among workers in the fur industry, and were due in general to the oxidation dyes and in particular to an intermediate product formed in the course of the oxidation. The dermatoses were in most cases allergic. In a recent investigation of the fur industry in New York¹ these findings have been again confirmed, and patch tests showed in the great majority of cases a hypersensitivity to paraphenylenediamine. The distribution of the rash was variable, beginning generally on the hands, sometimes on the face, arms, trunk, or legs. More serious than the skin-irritant property of paraphenylenediamine, or even than its capacity for producing bronchial asthma—also probably an allergic phenomenon—is its systemic toxic effect, especially on the central nervous system. In acute poisoning the neurological symptoms—dizziness, nystagmus, tinnitus, vertigo, and diplopia—predominate, while in fatal cases acute and subacute necrosis of the liver and severe congestion of the viscera have been found. In one case at least a fatal anaemia has been attributed to the use of a hair dye containing paraphenylenediamine.

Although neurological complications, including papilloedema, retinal haemorrhages, and even optic neuritis, have been described in a number of cases, the actual effects of the poison on the central nervous system have been fully investigated only recently, and the histopathological

changes reveal an interesting link with the earlier post mortem appearances of the liver.² In the case described that of a woman who had used "ursol," a paraphenylenediamine hair dye, for eighteen months, the chief neurological signs were asthenia, drowsiness, muscle tenderness, slightly exaggerated deep reflexes, left ankle clonus, absence of abdominal reflexes and plantar responses. There was also low-grade fever, glossitis, yellow-greyish discoloration of the skin, albuminuria, and severe anaemia. The patient's condition gradually deteriorated, and she died about nine months from the onset of symptoms. At necropsy gross hepatosplenomegaly was observed, and microscopic examination of the liver showed areas of atrophy and local necrosis. In the central nervous system pathological changes in the nerve cells indicated both primary and secondary changes as the result of the paraphenylenediamine poisoning. The most important of these was the deposition of peculiar pigment granules in the nerve cells of the pallidum, the striatum, the hypothalamus, and the dentate nucleus. These were regarded as an "oxidase" reaction due to the direct action of the toxin circulating in the blood stream. Changes considered secondary to the involvement of the liver were deposits of iron pigment, the presence of Alzheimer glia cells, and chromatolysis. As in the case of so many other toxic organic compounds, it appears that the very property which makes paraphenylenediamine industrially effective—that is, its readiness to oxidize into a fixed discoloration—confers upon it its essential toxicity—the capacity for being readily oxidized by the blood and tissues of the living organism.

FAMILIAL MORTALITY AND SCHIZOPHRENIA

Dr. S. Rosenzweig and Mr. D. Bray, of the State Hospital, Worcester, Mass., raise an interesting point in a recently published paper,³ which is mainly statistical. In a comparison of samples of schizophrenics, manic-depressive patients, general paralytics, and normal subjects, families of the first-named showed a higher frequency of instances in which one at least of the siblings died within the subject's lifetime and before he (the subjects were males) reached the age of 19. Anyone familiar with the pitfalls of selection—namely, biased or possibly biased sampling—naturally insists on a critical analysis of the evidence. The authors have taken pains and had the advice of a statistician in the United States Bureau of the Census; we think the conclusion drawn is justified by the evidence. One statistical result probably needs control. The authors find that in the families of the schizophrenics 56% of the deaths occurred before the patient was 6 years old, and so only 44% between the patient's sixth and nineteenth birthdays. This result is used as argument in favour of the death having some aetiological importance as a psychological factor of the psychosis. It is to be noted, however, that the proportion of deaths under the age of 6 (taking the last life table of England and Wales for males) is 39 which would occur under the age of 6 is about 56%. Unless the result for schizophrenics is significantly different from that for the other groups, much stress can be put upon it.

The first Inter-American Congress of Surgery will be held at Santiago, Chile, on November 14 with the cooperation of the surgical societies of Argentina, Brazil, Bolivia, Paraguay, Uruguay, and Chile. The Congress has been organized to commemorate the centenary of the University of Chile.

² Dawson, C.: *Arch. Neurol. Psychiat.*, Chicago, 1943, 49, 254.
³ *Arch. Neurol. Psychiat.*, Chicago, 1943, 49, 71.

¹ Heumann, H.: *J. ind. Hyg.*, 1942, 24, 322.

POST-WAR HEALTH SERVICES

RECENT SPEECHES BY THE MINISTER.

In the first week of this month the Minister of Health, Mr. Ernest Brown, gave public addresses in which he referred to the Government's plans for a comprehensive health service, to the need for further improvement in non-institutional medical facilities, both curative and preventive, and to the relation of the individual doctor to the organization of preventive medicine.

At Oxford on Oct. 1, where he was the guest of the Nuffield Provincial Hospitals Trust, the Minister began with compliments to the energy and enthusiasm with which the Trust pursues its aims, and in particular to the work done during the past year, jointly with his Department, in making surveys of the hospital services throughout the country. Under wise guidance, he said, Oxford had come to be regarded as a laboratory in which all manner of experiments in relation to medical and hospital services were being conducted, or as a power-house providing the motive force for developments elsewhere. Two passages from the Minister's speech are quoted here because they seem to go beyond the matter in which the Oxford audience was primarily concerned.

A Comprehensive Medical Service

"Since we met a year ago developments have occurred in relation to the post-war health services generally which have tended to overshadow the purely hospital aspect of the health problem. It has, of course, been clear to me from an early stage—as I am sure it has been clear to the Trust and to every group of careful observers—that there is room for improvement in the non-institutional as well as in the institutional medical services. Sir William Beveridge's report brought this aspect of affairs before the eyes of many who had not previously been aware of it, and at the same time gave an impetus to our plans for post-war reform. As you know, the Government at once accepted Sir William Beveridge's 'Assumption B'—the provision of a comprehensive health service—and instructed the Secretary of State for Scotland and myself to go in detail into the methods by which their decision might best be implemented. Accordingly we have during the earlier part of this year been engaged in a series of informal and non-committal—but none the less useful—discussions with representatives of the medical profession, the local authorities, and the voluntary hospitals."

"Naturally enough, perhaps, in discussions of this kind, there have been unfruitful as well as fruitful passages. Unfortunate though it may appear, unfounded suspicions about the Government's intentions have given rise to still more unfounded misstatements, which have in turn engendered unnecessary resolutions. Hard words have been said about politicians—not that the politicians will take offence, for they are perfectly accustomed to this method of relieving the feelings. I am confident that this is a passing phase, and that when the Government's proposals are published, and informed criticism and debate become possible for the first time, a calmer atmosphere and wiser counsels will prevail. Criticism of proposals which are not known can scarcely fail to be unfruitful. There is now in preparation a White Paper, which will serve as a basis for public discussion before the next stage of legislation. With the issue of the White Paper debate can usefully begin; until then it is wiser to suspend judgment."

The Promotion of Health

In his inaugural address at Westminster Hospital Medical School on Oct. 4 the Minister took the opportunity to consider some aspects of the future of the national health services. He recalled that the Act which created the Minister of Health twenty-four years ago defined his duties as those of "the promotion of the health of the people." What was this phrase likely to mean in the future, both in general terms and from the point of view of the individual doctor?

Curative Medical Services

The first aspect of the promotion of health, and the one that had bulked largest in history, was that of healing the sick. In this country a vast apparatus of curative services had been built up, originally by private enterprise and voluntary effort, more recently by public action. In the front line was the general practitioner attending and treating his patients either privately or under the National Health Insurance scheme. To support and help him were the consultant and specialist, with all the resources of the voluntary and municipal hospitals, and all the skill of the nursing and other ancillary professions. Scientific advances were constantly being made—we were in the midst of one now with the remarkable developments of chemotherapy. By all the tests that could be applied the results were good—for example, even within the

limits of the present century there had been a fall of 31% in the crude death rate, and in a hundred years it had been halved. But in spite of the quality and range of the curative services we were not making the best possible use of the brains and hands and equipment available. Indeed, how could we have done so?—for hitherto no one had been charged with the specific responsibility of making sure that quantity and distribution of the services were such as to enable every member of the community to enjoy their use whenever required. There were other defects too, giving rise to other queries. If the services were inadequate in quantity, could reorganization effect improvements? Was there room for more co-operation and less competition? All these questions had become more and more insistent of recent years, largely, he suggested, because planning and development of the curative services had lagged behind those of other aspects of the health service. That was why the Government had accepted Assumption B of the Beveridge report and had put its hand to the task of creating a truly comprehensive service. What the exact form of the service would be, and how it would immediately affect the individual doctor or the individual hospital, remained for discussion after the forthcoming White Paper had been issued.

"But from the point of view of long-term development some general implications seem clear—the integration of all hospitals in a common service, the development of fuller consultant and specialist services based on the hospitals, closer team-work between general practitioners, assisted perhaps by the creation of health centres. Changes like these may appear to mean some loss of freedom. I would suggest that the true liberty of the professional man is freedom to exercise his knowledge and his skill according to his conscience and his ability, without fear or favour."

The Preventive Services

The second branch of the promotion of health was one of more modern growth—that of preventive medicine. Historically it first emerged as the prevention of disease by improvement of the human environment. In this sense the nineteenth century was the great era of preventive medicine, for the environment of the huge new urban population created then new problems of disease on a much vaster scale, and necessitated the organization of prevention as a more effective alternative to cure—the building of the sewer instead of the pest-house. Removal of nuisances, drainage, water-supply, housing, town-planning—that was roughly the order in which preventive medicine tackled the problems. The results were almost staggering; they surpassed even the triumphs of curative medicine. Cholera had long been unknown; there had been no deaths from typhus for twenty years; the death rate per million from enteric fever had fallen from 370 to 2 in the last seventy years. More recently preventive medicine had branched out in a new direction. After the Boer War the school medical service was founded to watch over the health of school children. Later the maternity and child welfare service was put on a more regular footing to perform the same function in relation to pregnant women and young children. Thirty years ago the tuberculosis service began to get under way, one of its objects being to trace contacts, to stop the spread of the disease, or to check it at the earliest stage. None of these types of activity, any more than vaccination against smallpox or immunization against diphtheria, was primarily curative; nor were they environmental, though they all embodied the preventive principle. The essence of each was that it represented the application of preventive medicine personally to individuals. A third aspect of preventive medicine had given rise to the phrase "positive health." The questions asked in relation to disease: "What is the cause of this condition? and what is the treatment for it?" led on naturally to a third question: "How can the recurrence of this condition be prevented?" The developments of preventive medicine had reworded the last question in a new form: "How can individual health be promoted by positive action so that this condition will not occur at all?" This was a field which in many ways we were only beginning to explore, though we knew some of the answers to a few of the ramifications of the question.

The Family Doctor and Preventive Medicine

Some of the problems involved, Mr. Ernest Brown said, raise broad questions of social policy—housing, agriculture, foreign trade, taxation. On these the individual doctor as citizen had his part to play, a part which could not fail to be important owing to the professional weight attaching to his views. But as a doctor even more than as a citizen he must be closely concerned with the promotion of health.

"Some of the profession will, of course, be in contact as experts with environmental problems—the medical officer of health, the bacteriologist. What I have in mind, however, is rather the general practitioner, the family doctor, and his relationship to prevention. Here there is one reform we must work for, and that is to bring together again the family doctor and those personal preventive services like child welfare and the care of pregnancy, which have tended to develop along increasingly divergent courses. That is one reason why it is so essential to plan for a comprehensive

service which provides a family doctor for those many families that have hitherto been without one. Another reason is that the general practitioner can and will have a most important role in putting across to the individual citizen the principles of positive health. We are gradually realizing the importance of health education, and we are gradually learning more effective ways of catching the ear and the eye of the public at large. But in bringing home to the parent or adolescent or child the principles of healthy living there is no method so effective as that of personal contact and individual advice, and no adviser so effective as the family doctor. My hope is therefore that, on the firm foundation of comprehensive curative medical facilities available to every citizen, we shall be able to build a health service with the positive promotion of health as its foremost object."

Nova et Vetera

COS AND HIPPOCRATES A HISTORICAL REVISION

The events of the war have brought Cos into the news. Inevitably there comes to memory the name of its great medical son. Hippocrates of Cos has always been revered as the father of medicine. The extensive, interesting, and beautiful literature in his name has attracted scholars in every generation. From these great books, from ancient traditions, from contemporary and later references, from various material remains, from the results of excavations, from ancient but relatively late and unauthentic "lives," and perhaps not least from their inner consciousness, medical writers have evolved the character of the ancient Greek physicians as exemplified by their great progenitor. Unquestionably this picture, which has existed for at least 2,000 years, is a very moving one. It has proved to be of highest ethical value to practitioners through the ages.

Can we still treat this picture as accurate in the photographic sense? Was there really a physician of Cos, Hippocrates, who lived from about 460 to about 360 B.C.? Did he learn his art on his native island, where it was taught him in the purest form by priests in a temple of Aesculapius? Did he practise over many parts of the Greek world with the greatest success, gaining the respect of all men for his character and attainments? Did he write many of the works in the great "Hippocratic Collection"? Has his likeness after the flesh really come down to us in the well-known bust, the features and expression of which seem to suggest a wise and thoughtful man pondering human ills?

In the main the answer to these questions must now be, No. For a generation or more the traditional picture has been undergoing disintegration. Medical historians have naturally sought to preserve an exquisite story, but the plain truth is that advance in knowledge has at last made a revision of the traditional view inevitable. For sheer brevity we set forth the present state of the extremely complex Hippocratic problem in catechismal form. There is no need to treat the answers here given with the respect that are accorded to certain other catechisms. They do represent, however, the sound working probabilities.

A Catechism on the Hippocratic Problem

Was there a physician, Hippocrates of Cos, who flourished about 400 B.C.? Yes, certainly. He is mentioned in two dialogues by his younger contemporary Plato, briefly, but with respect.

Did Hippocrates of Cos write any of the works in the Hippocratic Collection? There is no evidence of value that he wrote any of them. There is some little evidence that he wrote nothing at all.

Are there remains on Cos that can be linked with Hippocrates?—No. The temple of Aesculapius there has nothing to do with Hippocrates. The Aesculapian cult did not reach the island till after the death of Hippocrates. Objects from Cos suggest a rather low civilization there in Hippocratic times. A number of inscriptions at Cos show, however, that a medical school flourished there some 200 years after his death. Perhaps this school was related to the rise of the tradition that the Hippocratic Collection was his work.

When and where was a Hippocratic Collection first linked with the name of Hippocrates?—Probably about 300 B.C., and almost certainly at Alexandria.

Why were the books of the Collection labelled Hippocratic?—A brief answer must over-simplify. The Alexandrian physicians were interested in dietetics. They sought texts on a subject. The great library provided them. Some of the MSS. mentioned Hippocrates as the oldest exponent of dietetic teaching. Thus MSS. bearing his name became specially valuable. Demand created supply. Dealers were naturally not slow to discover MSS. of "genuine works of Hippocrates." Hence the nucleus of the Collection.

Why did the Collection grow further?—Most of our knowledge of ancient medicine comes from Rome in the first century (Celsus, etc.) and second century (Galen, etc.). To writers of Imperial Rome the time of Socrates, Hippocrates, Plato and Aristotle—the fifth and fourth centuries B.C.—was a golden age. Thus the Hippocratic legend launched at Alexandria gathered momentum at Rome.

Have we any idea of how Hippocrates of Cos practised? We can guess by piecing together scraps from our knowledge of Greek life and from those parts of the Hippocratic Collection that are of the fifth or fourth century B.C.

What is the result of such guesses?—The medical man of those centuries was a craftsman. His status was a little higher than the tailor and the shoemaker, and comparable to that of the artist, but well below that of the sophist or soldier. Normally he travelled from place to place, settling for a while where he found practice active. Hence the extreme importance to him of what he calls "Pronoia," which is not quite what we call "prognosis" but is discerning a patient's trouble before he tells you—"spot diagnosis plus prognosis." By the fourth century, or earlier, larger Greek towns had appointed their own resident physicians. Possibly Hippocrates of Cos, having been first a wandering craftsman, settled down as a town physician.

Have we a portrait of Hippocrates of Cos?—Surely not. His day artists hardly attempted what we call portraiture. The famous portrait-bust in the British Museum, often reproduced as of Hippocrates, is very much later and is of the S. Chrysippus (c. 280-206 B.C.).

These, dogmatically expressed, are among the general results of modern research on Hippocrates and on Cos. Some are more reliable than others. Collectively they provide a picture of Hippocrates very different from the traditional. There is at least the consolation that the fighting on Cos is not likely to have destroyed the embodiment of any sacred medical tradition.

C.S.

Correspondence

R.M.B.F. Christmas Gifts

SIR,—It is my custom each autumn, through your column, to invite my medical colleagues to take their part in the Christmas Gifts Fund of the Royal Medical Benevolent Fund. This scheme, so generously supported by many, has become very remarkable, as it has been the means not only of bringing to many old and lonely people a gift of friendship and sympathetic understanding at Christmas time, but it has also given many of your readers an insight into the great work which the Royal Medical Benevolent Fund is doing daily helping medical colleagues, or the widows and children of deceased medical practitioners who are in financial difficulty.

We look upon the Christmas gift of £2 to each beneficiary as something "extra," but I must emphasize that the regular allowances have to be paid throughout the year. New subscribers are very urgently needed for our general funds, surely it is for the present generation of practitioners to take up their share in a work which is a common professional inheritance and tradition. It is not difficult to realize work which brings happiness and comfort. A Christmas gift of £2 brings to an aged doctor, an aged widow, or daughter living alone, possibly suffering from illness or infirmity. We ourselves know the difficulties and discomforts of our own lives caused by the present war. May I appeal, Sir, very earnestly on behalf of those who have suffered so much more than ourselves?

I venture to make this letter a *twofold* appeal: (a) to regular subscribers to send their "extra" for the Christmas Gifts Fund; (b) to all others, to show their practical sympathy.

y becoming subscribers to our general funds. I do not ask for large contributions.

Christmas gifts donations should be marked "Christmas gifts," and all cheques made payable to the Hon. Treasurer, Royal Medical Benevolent Fund, 1, Balliol House, Manor Fields, Putney, S.W.15.—I am, etc.,

THOS. BARLOW,
President.

Books for Prisoners of War

SIR.—Members responding to my appeal at the Annual Representative Meeting should send their cheques to the Hon. Treasurer, Medical War Relief Fund, B.M.A. House, Tavistock Square, London, W.C.1, making them payable to him and enclosing a slip to say that the gift is intended "for medical books for prisoners of war."—I am, etc.,

JOHN W. BONE.

Early Recognition of Cancer

SIR.—I am glad that Mr. Malcolm Donaldson (Sept. 25, p. 402) has drawn attention to the excellent propaganda work already carried out by the British Empire Cancer Campaign in this vital sphere. I am not unaware of such efforts, but a figure of 58,000 addressed in 4 years is perhaps as powerful an argument as I could wish to see brought to show the inadequacy of our achievement so far.

I have before me a copy of the Annual Report of the Campaign for 1942—the total income about £45,000. In such exigent circumstances, all praise to them for their very real achievements. But surely the scale of things needs to be changed when we begin to implement the Cancer Act. Would it not be a sound financial investment, viewed even from the narrow economic angle, to start off not with £45,000 but with £450,000 in a real nation-scale effort to put cancer "on the map"? I would like to see the subject publicized by every modern method and introduced by a talk on the wireless after the Sunday 9 o'clock news by, say, Lord Horder, followed by a regular series of talks; short films at all local cinemas to show that pessimism about cancer is out of date; skilful advertisements in the Press on the lines of the current V.D. campaign; as well as the very necessary patient slogging away in the manner mentioned by Mr. Donaldson. Incidentally, it is pleasing and important to have his testimony about the bugbear of cancer phobia.

Obviously nothing less than a Governmental grant will be adequate for all this. Our plans should match the magnitude of the problem, and the time to begin is now.—I am, etc.,

JOSEPH WALTER,
Assistant Medical Director, Sheffield Radium Centre.

Sterility and Impaired Fertility

SIR.—The official census data do not yield any direct information concerning the frequency of sterility (childlessness) or impaired fertility (small number of children). Nearly all information in this field springs from the general experience and the specific efforts of individual workers—mostly clinicians interested in the treatment of involuntary sterility. The following summary reflects the views formed by British and American investigators.

1. About one-tenth of all marriages remain childless. It has not been suggested that there are class differences which would reveal themselves without specific statistical investigations. Childless marriages among working-class patients are common.

2. Permanent childlessness is rarely deliberate. This conclusion is based on the experience of medical practitioners and on specific investigations. Thus inquiries were made among industrial workers in order to ascertain how many of the married but barren women were deliberately childless. This inquiry was conducted by a doctor who interviewed personally every woman; and the inquiry was appropriate, since the childless women numbered up to 18% of groups (consisting of about 50 women each) questioned. Similarly another investigator inquired into the history of about 70 childless middle-class families who had not applied for advice. It appears that in about 90% of childless couples who have been married for at least five years the absence of children was caused by impaired reproductive power (low fecundity).

3. Furthermore, such inquiries among patients who did not request advice for sterility show that in at least 60% of one-child couples (numbering more than 100) married for more than five years, further conceptions were either desired or not deliberately prevented. Clinical

experience extending to many hundreds of cases and investigations among working- and middle-class women indicate that the small family (two children) is also often due to low fecundity, and that fecundity tends to fall after the first or second confinement.

4. Data collected by individual clinicians and extending to over 4,000 cases and by clinics show that birth control, although applied at times by the great majority of the population, is rarely (in about 5% of young couples) intended to procure permanent barrenness. Furthermore, effective methods of birth control are usually sought among the working class only by women who have had one or more children. One of the statistical expressions of this fact is that in one group (numbering more than 200 women) of regular users of birth control the average number of children was higher than in a comparable group of women using the same methods intermittently. Further investigations show that the contraceptive methods most commonly used by the industrial population are notoriously unreliable (coitus interruptus or soluble pessaries); their seeming success, to which many working-class women attribute the small size of their families—i.e., 3 children in fifteen years of marriage—can be shown to reflect lowered fecundity in at least one-third of the cases (about 100) investigated.

5. Considering all available information it seems that in 60 to 90% of all barren and one-child couples lowered fecundity (involuntary factors) is involved. Lowered fecundity is also often found in couples with two or more children. But its practical significance is less than in the one-child families because the use of effective methods of birth control increases with the size of the family.

6. This widespread infecundity of the population is due in part to low female fecundity, particularly to conditions which tend to develop after confinements or miscarriages. But low reproductive power in men is very common; about 60% of husbands of childless women are either incapable of reproducing offspring or fail to attain a level of fecundity which would make conception easy to achieve (data from about 2,000 cases and American findings). Similarly the husbands in one-child families are often of low fecundity. Examination of about 100 volunteers (medical university students, professional men) confirms the view that average male fecundity is much lower than is commonly assumed. It appears to be definitely impaired in at least one out of five men examined. The subjects examined were mostly men in good general health.

7. Nearly 90% of the middle-aged childless women—i.e., the last generation of married women—of the industrial groups interrogated in inquiries had accepted their fate without seeking specific help from any doctor or clinic. The remaining women sought advice; but in less than 5% was adequate or even relevant advice given. Middle-class women seek advice much more frequently. In the great majority of cases examinations and advice still tend to be limited to the wife: recognition of the common male responsibility is relatively rare.

8. On the other hand the few specialized clinics which at present give advice on sterility are sought out by increasing numbers of women. Of the present generation of potential mothers one Glasgow hospital which maintains a sterility clinic (for women only) admitted 303 cases in 1938 and 505 cases in 1942. A similar increase of attendances has also been seen in others of the few clinics in this country which supply adequate facilities for the diagnosis and treatment of sterility. The interest shown by childless men is of a less active kind, but refusal to undergo examination is rare in childless or child-poor men (under 5% in hospital practice). A consideration of all available data strongly suggests that the barren and the very small family reflect lower fecundity rather than excessive unwillingness to reproduce. This being so, no effort to solve the problem of the decline in the population can be considered satisfactory unless it recognizes the necessity for providing facilities for the skilled diagnosis and treatment of all grades of infecundity.

—We are, etc.,

MARY BARTON,
F. J. BROWNE,
R. CHRISTIE-BROWN,
GLADYS DODDS,
GRETA GRAFF,
A. GREEN,
V. B. GREEN-ARMYtage,
CLARE HARVEY,

M. H. JACKSON,
R. W. JOHNSTONE,
W. C. W. NIXON,
C. LANE-ROBERTS,
A. SHARMAN,
M. MOORE WHITE,
B. P. WIENER,
KENNETH WALKER.

Artificial Respiration

SIR.—It may help Prof. Cordier (*Journal*, Sept. 25) in his quest if I give him some of the results of an experiment suggested by and carried out on Squad. Ldr. E. A. P. This adult of 30 was anaesthetized deeply, an endotracheal tube of large bore passed, and the space between the outside of the tube and the trachea made air-tight by an inflated cuff. By means of a hand-bellows respiratory exchange was exaggerated, CO₂ washed out, and a state of apnoea induced. I would

confirm Water's observation (*Anesth. & Analges.*, 1936, 15, 151) that "an apnoeic patient under deep anaesthesia stimulates the candidate for resuscitation by artificial respiration." The endotracheal tube was connected to a recording tambour by Dr. Stuart Cowan and artificial respiration carried out by Dr. Mushin by many of the recognized methods. It is hoped to publish the full experiment shortly. In this case Eve's rocking stretcher method, with the patient prone, rocked through 90 degrees, gave an exchange of 580 c.cm.; Silvester's method, 400 c.cm.; and Schäfer's, 340 c.cm.—I am, etc.,

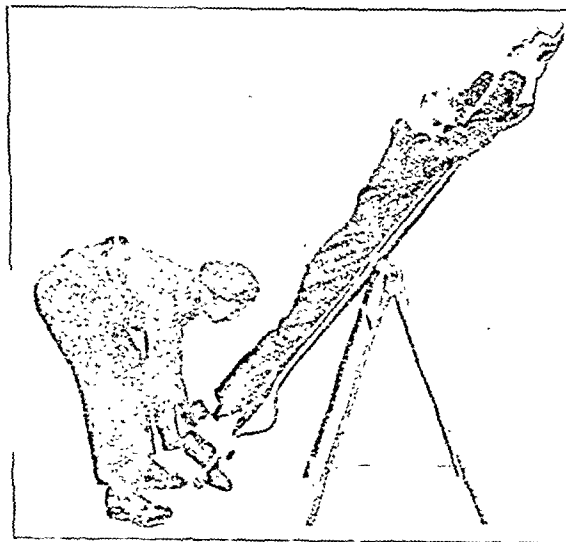
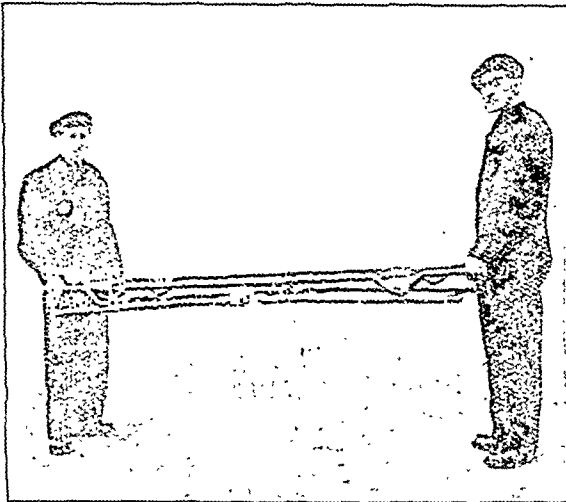
Oxford.

R. R. MACINTOSH.

Folding Trestle for Rocking a Stretcher

SIR.—Eve's method of resuscitation implying restoration of circulation, respiration, and warmth as distinct from our somewhat ineffective methods of artificial respiration led me to ask Mr. Holm, an engineer member of our casualty services, to devise a folding metal trestle which could be attached to an ordinary A.R.P. stretcher.

I enclose photographs of this appliance, which I feel is portable, simple, and therefore effective. The height from the ground is 32 in. As recommended by Surg. Lieut. Gibbins and in *First Aid in the Royal Navy*, B.R.26, it gives that full



range of movement which is so essential in restoring circulation. It can be operated by any onlooker, and I have therefore placed the operator at the feet, thus allowing the trained first-aid worker to direct the operation, to watch for signs of returning consciousness, and to endeavour to maintain warmth by hot-water bottles or other means at his disposal.

Since at any accident to which I have been ever summoned there have been more onlookers than desirable there should

be no question of any one person being fatigued from over exertion since "detailed volunteers" will provide an ample service.

This stretcher-cum-trestle is kept at our first-aid post, complete with blankets and triangular bandages, as a readily portable unit of our equipment, and is therefore easily accessible at all times.—I am, etc.,

Melksham.

D. LEIGH SPENCE,
District Medical Officer.

Psychology and the Common Cold

SIR.—In your issue of Oct 2 (p. 433) Dr. E. W. Braithwaite consulting psychiatrist to the Ministry of Health, ends his letter on the common cold with this sentence: "The specific factor is psychological; the microbic one secondary." You will note he says "is," not "may be." It is remarks such as this which tend to make the mass of medical men in this country distrust the psychiatrist with the homoeopath, the chiropractor, and the osteopath, and view with grave suspicion the power they are gaining in the advisory positions to the Ministry of Health and to the Forces.—I am, etc.,

Stratford, Berkshire.

LEONARD LESLIE, M.D.

Fibrositic Nodule

SIR.—Lieut.-Col. W. S. C. Copeman's article dealing with the aetiology of the fibrositic nodule (*Aug. 28, p. 263*) is a helpful contribution to the subject. The suggestion that not only influenza but many virus diseases are accompanied by pain radiating from small "myalgic" spots fits in well with experience of acute illness of various types. The further suggestion that the pain clears up but the "myalgic" areas do not sound clinical observation. There is a danger, however, that this explanation of one form of myalgia is so straightforward and so easily understood that it will tend to obscure the fact that fibrositis is a tissue reaction to many insults and traumas and that Copeman's article refers to only one aspect of its aetiology. Apart from certain rare syndromes, fibrositis of muscle and fascia is met with clinically under a variety of circumstances, sometimes taking a major part in the illness but as often being incidental, although none the less painful for that. Acute myalgia, the condition to which Copeman refers, is present in many acute illnesses; Dornholm disease is the epidemic variety.

Chronic fibrositis—perhaps better termed "myalgia"—occurs under four main conditions. First, as Copeman suggests, in an individual who has developed "myalgic" spots after acute infection; possibly undulant fever is the best example of this. Inseparable from this group, unless examination of a previous illness has been of assistance, will be the group of recurrent myalgias. This group can be divided clinically into those cases which always have myalgic spots and general nodules and those which are quite free during the summer but fairly regularly develop an attack during the winter. The first of these subgroups is generally regarded as having a toxic-infective basis, and may contain some of Copeman's cases associated with an incompletely resolved infection. The second appears to contain idiopathic cases of unknown origin. If nearly everyone has had an acute illness of an influenzal type during his lifetime, without further investigation it is not possible to say how many of them fall into Copeman's group. It is likely, however, that some of his cases fall into both of these two subgroups, and that owing to his observations they may now be picked out, making the reservation that there is in these cases some additional anomaly which is not present in those cases which recover after their acute infection.

The third group is metabolic in origin; good examples are gout and diabetes.

The last group comprises local manifestations in muscle and fibrous tissue. These cases are usually associated with trauma and local stress and strain, as in osteo-arthritis of the hips and the so-called periarticular fibrositis, most often seen in infective (rheumatoid) arthritis but not confined to that disease.

The question of the radiation of pain from these myalgic areas appears to be more a matter of the anatomical location of the lesion than of its nature.

In a day when extensive laboratory and biochemical investigations are considered an essential preliminary to any contributory

to medical knowledge it is pleasant to see that a physician in the field can by care and accurate observation still make a substantial addition to our knowledge of medicine.—I am, etc.,

London, W.I.

ERNEST FLETCHER.

Treatment of Lupus Vulgaris

SIR.—Your annotation on the treatment of lupus vulgaris (Sept. 18, p. 366) is very timely, and prompts me to comment on what you no doubt are correct in labelling "a national disgrace."

The City of Liverpool can claim exemption from this stigma. Some ten years ago, as dermatologist to the Liverpool Corporation hospitals, I felt that the disease was being treated very haphazardly by out-of-date methods and with miserable results. During a "bus-man's holiday" I visited many skin hospitals in London, and eventually arrived at the London Hospital, where I was given every facility by Dr. O'Donovan. He personally showed me the lupus clinic referred to in the annotation. I gave a verbal account of my experiences and embryo recommendations to our M.O.H., Dr. W. M. Frazer, and his deputy, Dr. C. O. Stallybrass, and they urged me to draw up a detailed report which they would bring to the notice of the City Council. This was done, and I was sent to the London Hospital again, where with the active help of Dr. O'Donovan and his sister-in-charge I learnt all the details. I tried to keep the expense of the proposed clinic in Liverpool to the lowest limits, but the Liverpool City Council insisted that no reasonable adjunct to the successful treatment of lupus should be spared. The result is that there has been in Liverpool for the past nine years a lupus clinic which will bear comparison with any in this country. We were especially fortunate in securing the services of a sister who had been trained by a nurse from the Finsen Institute in Copenhagen. Our Finsen-Lomholtz lamps do not require the whole-time attention of a nurse; with the active co-operation of our electrician they have been made foolproof and entirely automatic when once the patient has been placed in the required position; in fact all our water-cooled lamps have an ingenious arrangement whereby a failure in the water supply immediately cuts off the current, and any movement by the patient whilst under treatment by the Finsen lamp immediately rings a bell and brings a reprimand from the charge nurse.

The results of the treatment, particularly in the early cases, were so excellent that I conducted research in the haematology of the disease during treatment. These results were to be embodied in a chapter of a textbook on lupus edited by Dr. Airey in conjunction with other workers in special fields, but publication has had to be postponed till after the war. Dr. Airey paid a visit to the clinic, and appeared to be very impressed with it: in fact I like to think that his remarks in the *Bulletin of the National Association for the Prevention of Tuberculosis*, to which you refer, had some part, at any rate, of their inspiration from his visit to the City of Liverpool Lupus Clinic at Belmont Emergency Hospital. Although we have not the help of ancillary specialists in the building, nevertheless there is complete access to such help in the service of the Corporation, and it has been freely given.

It should be said that the vast majority of cases have been either cured or sufficiently relieved to perform useful work. As your annotator points out, the treatment is long and expensive, but its success in the absence of active lesions in the chest (11% in our cases) is so probable that it is well worth while. Local authorities in the surrounding areas have made use of the clinic, and it can be said that in this field the Liverpool authorities have shown that they are ready to support the suggestions of their medical advisers when the need is fully explained to them.—I am, etc.,

Liverpool.

F. GLYN-HUGHES.

SIR.—Under the above heading (Sept. 18, p. 366) I find this remark: "The fact that the disease is not treated with all the means which modern science has put at our disposal is a national disgrace. Probably the chief reason for this deplorable state of affairs is financial. Lupus vulgaris is one of the most expensive diseases there is to treat." About twenty years ago the late Drs. Stophord Taylor and McKenna placed cases at my disposal for treatment at the Liverpool Skin Hospital. At the end of three months the worst and most

extensive case was healed up; the patient had been attending the hospital for nine years. Dr. McKenna remarked: "I confess I was an absolute sceptic until I saw your work, but results speak for themselves." He then said: "You must have been considerably out of pocket for tuberculin." I replied: "I had used eighteen pennyworth of P.T.O. for the dozen or so cases treated."

Why will not the scribes and pharisees and high priests of the medical profession condescend to learn the technique for the correct use of such an efficient and cheap remedy? But I suppose it has been ever thus.—I am, etc.,

West Kirby.

ADAM MOSS.

Toxicity of Methyl Acetamide

SIR.—The leading article on stimulation of leucopoiesis (Sept. 18, p. 365) suggests that the work of Zondek and Bromberg on the evocation of leucocytosis by 25% *p*-chloroxylenol in methyl acetamide is worthy of attention. The writer has ignored the evidence of the great toxicity of methyl acetamide. Kuhn (*Chemical Abstracts*, 32, 4200) called attention to the grave and sometimes fatal effects of this substance in small doses in rats; and Weslaw *et al.* (*Chemical Abstracts*, 32, 8580) confirm this. In the fear that somebody will lightly use 50 c.c.m. of this substance over a period of three days I call your attention to the need for warning the readers of the leading article.

Incidentally, it would be interesting to learn what evidence there is for supposing that pentose nucleotides cause only redistribution and mobilization of preformed leucocytes.—I am, etc.,

London, W.I.

A. PNEY.

Precision Method of Cephalometry and Pelvimetry

SIR.—Dr. Paul Cave (Sept. 18, p. 375) has replied to my criticism of his article on cephalometry and pelvimetry with such patience and competence that it is ungracious not to be satisfied, but I would be grateful for the opportunity of making some final comments on the subject.

The claims originally made for the application of his method in depth localization generally are abandoned in the reply, I am glad to note, and the only merits claimed are in the field of obstetrics. So far as the technical side is concerned, the original article described a tube-shift in the vertical direction from 30 to 60 in., which is modified in the reply to a shift from 30 to 40 in., and this avoids several of my criticisms, but, of course, also reduces the image-shift and makes accurate measurement more difficult. The actual error introduced with these new distances is, as Dr. Cave calculates, only a small fraction of an inch, which is probably not at all serious by itself, but it is surely unwise to advise the use of a method that starts off with even a small inherent error, which is certain to become multiplied by slight inaccuracies in technique and calculation, when other methods are not so handicapped and are, in theory at least, exact.

Comparison of the vertical and lateral tube-shifts does not uphold his claims; calculations may be made of pelvic or foetal measurements by a single formula in either case, and a lateral tube-shift can usually be made with very great accuracy, as most x-ray plants are provided with a slide clamp on the tube stand to enable a definite shift to be made without making measurements or scale readings, which are, of course, needed in a vertical shift. His example of the disastrous effects of an error of some inches in a lateral shift is misleading, as the only possible error in moving the tube between fixed stops would be a minute fraction of an inch, while the accuracy of vertical movements depends on personal observation of scale marks, with the possibility of errors from parallax and obliquity as well as from human failings. Actually, with a lateral tube-shift, it is not necessary to know the tube-film distance, as the calculation in pelvimetry is one of simple proportion involving horizontal distances only.

I am sorry to impose on your space further, but I believe that the science of radiology should not be encumbered with doubtful methods of producing results which can be achieved by well-tried and accurate procedures, and I consider that in this case nothing is to be gained by advocating any departure from orthodox practice.—I am, etc.,

Hove.

E. MILLINGTON, D.M.R.

Artificial Insemination

SIR.—The correspondence arising from Dr. Mary Barton's letter (Sept. 4, p. 312) has dealt only with the sterile husband. There is another aspect—that of the man whose desire to fulfil his function of fatherhood is thwarted by the infertility of his wife from disease local or general. Advice to adopt a child is not an answer to this problem.

The letter of Dr. Anne McCandless (Oct. 2, p. 414) raises an important question. The position of the professional woman, highly intelligent and physically fit, denied the opportunity of transmitting her abilities to future generations is indeed tragic both for herself and for the State. Whatever method were adopted the Church would no doubt oppose, and be supported by those medical men who so readily state that continence is harmless but never supply any scientific proof of this *ex cathedra* statement.—I am, etc.,
London, W.1.

PEARSE WILLIAMS.

Unity in the Profession

SIR.—Criticism is a healthy sign of interest, but it is unfortunately often ill directed and based upon ignorance. Mr. Donald Watson stated in his letter (Sept. 25, p. 405) that "Dr. Buchan was chosen to serve on the Representative Committee. Do you desire men of his outlook—control and regimentation—to be elected to the Negotiations Committee?" The obvious inference from his letter is that Dr. Buchan was elected by some part of the B.M.A.. If Mr. Watson will take the trouble to look at the *Journal* for March 20 last (p. 359), he will find that Dr. G. F. Buchan was one of the two Representatives of the Society of Medical Officers of Health, and was not chosen by the B.M.A.. He presumably represents the views of the Society of Medical Officers of Health. The Representative Committee is not a committee elected by the B.M.A., though its composition was approved at the Special Representative Meeting held on March 31, 1943. The Royal Colleges, the Society of Medical Officers of Health, and the Medical Women's Federation elected representatives to serve on this committee.

In the medical profession there are many interests—general practitioners, consultants, teachers, women doctors, medical officers of health, the staffs of municipal hospitals, etc. It was thought, and I submit, very wisely thought, by the Council of the B.M.A. that for a satisfactory solution of the immediate problem of planning a comprehensive medical service, or considering any Government plan, it would be better that all the varied sections of the profession should get together and present a united front. There was a movement by the Royal Colleges to represent the consultants, but they gave way for the common good and agreed to work through the Representative Committee. Many consultants feel that the Colleges might have looked after their particular interests better, but in doing this the general practitioners might have been let down. Similarly, the medical officers of health have been let down. Health, and might from a sectional point of view have done better by playing their own game. Had this anarchy in the profession developed the Government, in face of a divided profession, could have made what plans it wished with no effective opposition.

Mr. Watson will therefore find various sections and even conflicting views represented on the Representative Committee. Not a certain amount of give and take is required. We shall not oppose whole-time salaried M.O.H.s. and they presumably will let the G.P.s settle what they want: in any case the M.O.H.s. form a small minority. Dr. Buchan has proved of outstanding service to the Representative Committee: his knowledge of central administration and his exposure of the confusion and overlapping in the various Government Departments have been of inestimable benefit. It is to be hoped that in future criticism of the Representative Committee the critics will at least have troubled to study its composition and method of formation. It is, of course, open to any member to criticize the Council for joining this team instead of taking part in a "free-for-all" scramble, but I feel that on consideration Mr. Watson would not approve of the latter course.—I am, etc.,
H. J. McCURRICHI.

H. J. McCURRICHI.

Medicine under State Control

SIR.—Dr. J. N. P. Davies's letter (April 17, p. 490) dealing with the relationship of the patient with the State in any comprehensive health service has been read with great interest and relief by a small number of Service doctors stationed far away and therefore unable to follow events at home as soon as they would wish.

It does seem that many of us who have now had four years' experience of Service medicine, and not from the viewpoint of the regular Service medical officer, are now well qualified to submit our views on the very important aspect of the patient's point of view of Service medicine, which, after all, is closely parallel to any comprehensive health service for civilians after the war. For instance, the methods available in the Services for the detection and prevention of those "socially dangerous diseases" which Dr. Davies cites are only one example of the fundamental difference between Service medicine and the ordinary system of voluntary organization for the treatment of disease.

It follows, as Dr. Davies so clearly points out, that an reorganization of the medical profession and the health service will affect the great democratic public. Are they, the patients, aware of the sense of freedom they are going to lose? The possible penalties they may incur if they refuse treatment? The certain loss of a portion of their cherished right and privilege of professional secrecy, when the doctor has his "quarterly returns" to fill in? The criminal view that must be taken by the State of neglect and failure to carry out treatment calculated to restore the patient to health in the shortest possible time in order that he may return to work? And also the slightly lowered prestige of the family doctor if he becomes completely a servant of the State, thereby losing some of his independence, which has been treasured in the past as much by his patients as by the doctor himself? Let the legislators take care that they, and the vast number of individuals they represent, are aware of all the implications that the phrase "comprehensive health service" means.

Finally, as a practical suggestion, would it not be possible to co-opt on the Representative Committee two members from each of the three Services, chosen from officers who have served abroad and are at present stationed at home and likely to remain there for the next year? Apart from their own views they would come with those of their present patients—the men and women in the Services—who have their ideas about a State Medical Service.—I am, etc.,
J. B. W. HAYWARD, M.B., Ch.B.

The Classics in Medical Education

SIR.—It is a truism to say that both the medical and pre-medical curricula are overcrowded. Even so, I feel sure there are many doctors (and I am of their number) who echo Dr. Clark-Kennedy's plea for the incorporation (through the study of English translations) of the historical and philosophic content of the classics. On the other hand, I doubt if many are anxious to do it by making compulsory the study of Latin itself.

The immediate difficulty is that for the schoolboy on the modern side such Latin literary masterpieces as form his studies are not employed for this purpose at all, but are used as a method of learning Latin grammar. As one scholar has it: "The Commentaries usually serve not as military history, but as a whetstone for gerund grinders." This, no doubt, is a good way of learning Latin, but is a slow and poor way of learning how the Romans thought and acted. About six years of study has left me to-day with the ability to translate the less idiomatic Latin quotations found in scientific papers—which, by conversations on this point with them, is not below the average of my medical contemporaries. When I have protested to schoolmasters in conversation that for a surgeon this is rather slight return for six years' reasonably assiduous work at a formative period, I am usually met with the following arguments:

1. That, being difficult to acquire, "Latin is mental discipline." The best answer to this is the remark of a bored schoolmaster at a Head Masters' Conference: "It doesn't matter what you teach a boy so long as he doesn't like it." Dr. Norwood at Harrow, following this thesis, made German an alternative to Latin.

2. "Latin is a guide to the etymology of scientific terms." As learnt more of the etymology of anatomical terms in ten minutes' study of the glossary in Buchanan's *Anatomy* than in six years' Latin schooling, I find this argument unconvincing.

In 1641 John Amos Comenius, the Czech educational reformer, visited England and revolutionized the lot of schoolchildren by insisting that they be taught not in Latin but in the mother tongue. Is there any hope that in this generation the process may be brought to its logical conclusion, and that of scientific occupations the content rather than the language of the classics be taught? I doubt it.

The trouble is that too many schoolmasters can still teach nothing else, and that for them a knowledge of the language of the classics and sound scholarship are synonymous. Their position is that of Dr. Arnold of Rugby, so aptly described by Lytton Strachey:

"Dr. Arnold felt that the Greek and Latin languages seemed even for the purpose of forming the human mind in youth . . . there was something providential about this, both from the point of view of the teacher as well as the taught. If Greek and Latin had not been 'given' in that convenient manner Dr. Arnold, who had spent his life in acquiring these languages, might have despaired that he had acquired them in vain."

—I am, etc.,

Leeds.

JOHN FOSTER.

Obituary

E. N. NASON, M.D.

We regret to record the death on Sept. 18 at Nuneaton of Dr. E. N. Nason, a well-known practitioner in the Birmingham district, and for a number of years a member of the Council of the B.M.A.

Edward Noel Nason, son of Dr. Richard Nason of Nuneaton, was born in 1862. He was educated at Shrewsbury School and won a scholarship at Downing College, Cambridge. After obtaining his B.A. degree with honours in 1885, he completed his clinical studies at the London Hospital and took the Conjoint Diploma in 1886, subsequently proceeding to the Cambridge M.B. in 1887 and M.D. in 1897. After acting as house-surgeon at the London Hospital and at the Norfolk and Norwich Hospital, he was appointed resident surgeon at the General Hospital, Birmingham. Though equipped by nature and training to embark on the career of a consulting surgeon, it was ordained that he should join his father and younger brother in the family practice. The name of Nason thus became associated with a practice in Nuneaton for nearly one hundred years. On embarking in practice Nason was not content until he succeeded in obtaining a hospital to serve the needs of the populous industrial district in which he practised. He became the mainspring in the work of the hospital, and from small beginnings lived to see the institution he had fathered steadily grow into a prosperous and well-equipped hospital of over a hundred beds, complete with nurses' home and maternity wing. For many years he continued to carry out the bulk of the surgical work himself, and was a tower of strength in all matters connected with the administration and running of the establishment. Always a keen man in any matter affecting the profession, he was in turn president of the Birmingham Branch and for two periods a member of the Council of the B.M.A. He rarely missed a meeting either in Birmingham or of his own Nuneaton and Tamworth Division. He also took a keen interest in all local affairs, particularly in their bearing on the public's health, and was for a time a member of the Warwickshire County Council. He leaves a widow and two sons—one of whom is serving as a chaplain in the Royal Navy, the other in the Army—and two daughters.

As a former colleague I would like to add a few words of personal tribute to a man who served his profession and the neighbourhood in which he lived so faithfully and so well. Nason was a man of strong convictions, and he would never allow his own self-interest to swerve him from a course he considered to be right. Thus, a strong opponent of the National Health Insurance Act at its inception, he and his brother refused for many years to join the panel, even though the financial benefit to be derived from doing so would have been considerable. He held very high ideals of professional conduct and abhorred above all else the commercializing of the profession. Of a naturally reserved disposition, he possessed a quiet but keen sense of humour, and was one of the kindest men one could meet. He was always ready to help a colleague either with a difficult case or with advice in the knotty problems which arise in practice, and such advice he was particularly well equipped to give; of a deeply sympathetic nature it was yet entirely foreign

to him at any time to be gushing. He was never happier than when he was in the garden he loved and tended so well. I have vivid recollections on many occasions of seeking him out there and not seeing him at first, finally discovering him hidden in one of his apple trees busy with the pruning knife. He thoroughly enjoyed a day out with gun or rod. He was a staunch churchman, and served for years as churchwarden of St. Mary's, close to his home. His knowledge in professional matters was profound, and he kept it up to date by diligent reading of the *B.M.J.* He was always surprising one by the depth of his knowledge of pathology.

Nason was a doctor of the very best type, one of those who by the example of his own daily life wielded an unconscious influence over those around him. If the apprenticeship system should ever return, one could wish for nothing better than that the embryonic practitioner should serve his term with a man such as he.

C. J. G. T.

RALPH BODKIN MAHON, M.D., M.Ch., F.R.C.S.

With the death of Emeritus Professor R. B. Mahon there has passed an outstanding figure from the medical profession in Galway, who for a long period took an active part in the local and central work of the British Medical Association in Connaught, in Dublin, and in London.

Ralph Bodkin Mahon, son of Nicholas Mahon, a Galway practitioner, was born in April, 1862, and had a brilliant student career in Galway and Dublin. In 1885 he graduated M.D. and M.Ch. of the old Royal University of Ireland, with first place in the first-class honours list, after winning a junior scholarship and an exhibition at Queen's College, Galway, and a senior scholarship in anatomy and physiology. He continued his studies in London, Berlin, Munich, and Berne, and on returning to Ireland became demonstrator of and assistant lecturer on anatomy at Queen's College, Galway, and then demonstrator of anatomy and assistant to the professor of physiology at Queen's College, Cork. In 1896 he obtained the F.R.C.S. Eng., and after holding a clinical post at the Eye, Ear, and Throat Hospital at Cork went back to Galway, where he was elected visiting surgeon to the Central Hospital. Some time later he succeeded to the chair of the practice of medicine at University College, Galway, which had become in 1903 a constituent college of the National University of Ireland. He held a temporary commission in the R.A.M.C. during the last war as surgical specialist to the Southern Military Hospital, Darford.

Prof. Mahon joined the B.M.A. 54 years ago, and his colleagues made him president of the Connaught Branch in 1923-4; he served for three periods (five years in all) on the Central Council, and was a member of the Irish Committee of the Association in 1923-5. He wrote a number of papers for the *British Medical Journal*, and kept up his acquaintance with professional life in London and Dublin by remaining a Fellow of the Royal Society of Medicine and of the Royal Academy of Medicine in Ireland. He had travelled widely in South America, Canada, the United States, and Norway, and was devoted to shooting, fishing, and golf.

Dr. HAROLD ERNEST GAMLEN died towards the end of July at North Cheriton, near Templecombe, Somerset, at the age of 72. He studied medicine at Newcastle-upon-Tyne and won the Gibb Scholarship in Pathology in 1892; in the following year he graduated M.B., B.S. of Durham University and took the D.P.H. in 1895. Dr. Gamlen specialized in x-ray work and was for many years radiologist to the Sunderland Royal Infirmary and physician to the x-ray, electrical, and massage departments of the Royal Victoria Infirmary, Newcastle. He was also roentgen surgeon to the Cameron Hospital and the Hartlepool Hospital. During the last war he served with the rank of major, R.A.M.C., at No. 11 General Hospital, B.E.F., and was consulting radiologist to the Indian Expeditionary Force. On retiring from practice he made his home at North Cheriton.

Dr. JAMES MURDOCH MCGILL died on Aug. 23 at the age of 78 at Bonnyrigg, Midlothian. His father, Dr. John Finlay McGill, was a general practitioner at Coylton, Ayrshire, and between them father and son for nearly a hundred years attended to the medical needs of the people of Coylton, Stair, and Annbank. After education at the Ayr Academy and at Edinburgh University James McGill graduated M.A. in 1885 and M.B. in 1889, and practised in his native town until 1931. When he gave up active work Dr. McGill had a public presentation contributed to by over 800 homes in the parish and far beyond; this testified to the respect and esteem in which he was held in the neighbourhood. The Right Hon. James Brown, in making the presentation, said that Dr. McGill was their neigh-

bour and their friend in every sense of the word, and everyone present would like him to know how much they respected and loved him and how much they grieved at the parting.

Dr. FRANCIS DIXON, who had practised at Eastwood, Notts, for nearly half a century, died recently in his 88th year. Born at Langley in 1855 he studied medicine in Edinburgh and Glasgow, and qualified as L.R.C.P., L.R.C.S.Ed. in 1878, and took the L.S.A. a year later. Dr. Dixon was medical officer of health to the Eastwood Urban District Council for many years up to the time of his retirement from active work in 1926. A fine all-round cricketer in his younger days, he was invited to serve on the committee of the Notts County C.C., and did good work in that capacity for over 40 years. He joined the British Medical Association as long ago as 1882.

We regret to announce the death on Aug. 28 of Mr. GEORGE AUBREY JELLY, who practised as an ophthalmologist at Lytham, Lancs, for many years. Born at Middleton, Lancs, on July 2, 1872, son of the Rev. James Jelly, he studied medicine at Edinburgh and Manchester and qualified in 1894, after which he served as house-surgeon at the Royal Eye Hospital, Southwark. He took the F.R.C.S.Ed. in 1899, and was for some time assistant surgeon at the British Ophthalmic Hospital, Jerusalem. Returning to this country he was appointed honorary ophthalmic surgeon to the Bury Infirmary and to St. John's Hospital for Diseases of the Ear and Eye in Manchester. During the last war Aubrey Jelly served with the rank of temporary captain in the R.A.M.C. as ophthalmic surgeon to the 3rd Western General Hospital, Cardiff; later he became oculist to the Cheshire County Council. He joined the B.M.A. in 1902 and held office as chairman of the Blackpool Division in 1927-8.

News has reached this country from America of the death of Mr. CLIFFORD WHITTINGHAM BEERS, whose name is well known as that of a reformer in regard to the treatment of the insane, not only in the United States but all over the world. Clifford Beers had liaison with over 50 countries through the association he formed in the U.S.A.—the National Committee for Mental Hygiene. An ex-patient himself, he wrote in 1907 the book *A Mind that Found Itself*, which has gone through many editions and reprintings. Through this autobiography and by other means he enlisted the interest and help of many distinguished people, medical and other, in supporting the work of his society, notably Prof. William James in America and Sir Maurice Craig in England. William James wrote to the author: "You have handled a difficult theme with great skill and produced a narrative of absorbing interest to the scientist as well as layman. It reads like fiction, but it is not fiction . . ." *A Mind that Found Itself* is indeed a remarkable book and its effect has been far-reaching; it made a profound impression upon the medical profession as well as upon the general public. Its logical outcome was the founding of the National Committee for Mental Hygiene in 1909 and the establishment in 1917 of the quarterly journal *Mental Hygiene*. The movement spread from the United States to Canada and to Europe. In this country Sir Maurice Craig was a founder of the National Council for Mental Hygiene, which is now forming part of the Provisional Council for Mental Health, with a view to possible further amalgamation after the war with the Child Guidance Council and the Central Association for Mental Welfare.

Universities and Colleges

UNIVERSITY OF SHEFFIELD

following candidates have been approved at the examinations stated:

—R. B. Knowles
M.B., Ch.B.—Parts II and III. J. W. Greaves, A. Pickin, Winifred M.

UNIVERSITY OF ABERDEEN

a graduation ceremony on Sept. 29 the following medical degrees were conferred:

M.B., Ch.B.—I. W. Burnett, R. N. Johnstone, M. R. Milne, J. R. Anderson, R. J. Anderson, E. C. Baird, Sheila M. Baker, J. B. Bittner, H. Brebner, G. W. D. Campbell, Mary E. Chalmers, G. C. Chessor, C. Clark, Catherine M. Coull, I. C. Cowan, M. M. Craig, Thelma C. Cruickshank, Sheila R. Dalrymple, W. J. Dawson, R. C. MacD. Dingwall, G. A. Findlay, D. A. Forbes, A. G. Fraser, I. A. Fraser, J. Gardiner, Helen E. Gordon, J. B. Gordon-Russell, C. Grant, Mona Griffin, F. W. Henderson, Valentine M. Husband, J. D. Innes, Kathleen M. Knox, Nancy Laing, P. Leslie, P. G. McEyle, D. J. McConihe, Mary G. McDonald, Margaret J. McHardy, A. E. Macintosh, D. G. Mackay, N. R. Mackay, D. N. MacKinnon, A. I. Maclean, W. F. Macleod, Antoinette M. H. MacMahon, Isabel M. Macrae, J. L. A. McVicker, D. W. Mathieson, Elizabeth H. Milne, C. G. R. More, R. E. P. Nutter, R. A. Peat, H. McE. Ralston, Sheila T. Ritchie, Marguerite McD. Scott, W. G. Shach, R. G. Simpson, W. D. Sinclair, J. A. McC. Smith, A. L. Speers, A. J. Spence, Laura B. C. Thompson, I. G. Thomson, W. G. Todd, D. E. Walker.

† First-class honours. ‡ Second-class honours.

The Services.

CASUALTIES IN THE MEDICAL SERVICES

Surg. Lieut. W. L. MACKENZIE KING, R.C.N.V.R., nephew of the Canadian Prime Minister, is stated by Reuter to be one of the nine officers missing from the *St. Croix*.

Missing, believed killed at sea.—Lieut.-Col. H. Foxton, M.C., R.A.M.C., Major C. Ryan, R.A.M.C.

Missing, presumed killed.—Prob. Temp. Surg. Lieut. C. M. Davies, R.N.V.R., Temp. Surg. Lieut. G. C. Glennie, R.N.V.R.

Died on Active Service.—Major R. S. Gibson, M.C., R.A.M.C.

Killed.—Capt. L. Herbert, R.A.M.C.

Previously reported missing, now presumed killed in action.—Capt. H. B. Thomson, R.A.M.C.

Prisoners of War.—Lieut.-Col. J. C. Collins, R.A.M.C., Surg. Lieut. J. P. Corcoran, R.N., War Subs. Capt. J. A. Mark, E. H. Markby, T. B. Smiley, and R. B. Wallace, D.S.O., M.C., and Lieut. E. C. Vardy, R.A.M.C.

Medical Notes in Parliament

Mass Radiography

Mr. BROWN, replying on Sept. 23 to Mr. Ness Edwards, said he was not aware of any substantial disagreement with the recommendation of the M.R.C. Committee on Tuberculosis in Wartime, which reported in September last year in favour of the controlled use of mass radiography as a means of detecting tuberculosis at an earlier and more controllable stage of the disease. It had never been suggested that mass radiography could replace clinical examination: its function was to indicate the cases in which clinical examination was desirable.

Alien Doctors and Dentists

Mr. BEVIN stated on Sept. 23 that from a detailed scrutiny of the registration cards of 5,000 German and Austrian men in this country it was found that a large proportion with high professional and technical qualifications were employed in their normal occupations. Of 184 physicians and surgeons all but 9 were employed in the medical profession; of 55 dentists all but 2 were employed as dentists; all dental mechanics were engaged in their trade.

Local Authorities' Powers of Milk Inspection

Mr. KENDALL asked the Minister of Health on Sept. 23 if it was intended that powers for safeguarding the quality of milk at present vested in local authorities should be transferred to the Minister of Agriculture. Mr. ERNEST BROWN replied that the scope of the powers proposed in the recent White Paper to be transferred to the Minister of Agriculture was at present the subject of discussions. The object was to make the Minister of Agriculture responsible for conditions under which milk was produced at the farm, but the existing powers of local authorities in respect of milk infected with disease or adulterated milk would not be affected.

Slum Conditions in Industrial Premises.—On Sept. 21 Miss HORSBRUGH informed Mr. Craven-Elis that the Ministry of Health had no up-to-date records of the extent of slum conditions in commercial buildings, warehouses, works, and factories. The conditions in buildings of the type mentioned were not the responsibility of the Ministry of Health. Under Section 25 (1) of the Housing Act, 1936, however, a local authority might include in a clearance area buildings other than houses which, for the same reasons as justified the condemnation of the houses, were dangerous or injurious to the health of the inhabitants of the area.

Sun-ray Lamps in Factories.—On Sept. 21 Mr. HANNAH asked the Minister of Health why some firms and not others were permitted to purchase sun-ray lamps for the benefit of their workers employed on night shifts, although medical men urged their use in all cases where they could be employed, and the Ministry of Labour was insisting on the maximum effort for welfare work. Miss HORSBRUGH replied that the Ministry of Health acted as adviser to the Board of Trade on applications by factories for licence to acquire sun-ray lamps. In respect of certain types of apparatus the Ministry's medical advisers had to consider whether adequate medical and nursing staff were available at the premises to ensure that treatment was given under proper supervision. If these conditions were fulfilled it was usual to recommend approval to acquire the apparatus provided alternative facilities for the treatment were not readily available.

Inoculation in the Services.—Answering Mr. Leach on Sept. 22, Mr. CHURCHILL said inoculation was voluntary in all three Services and this was well known. In the Navy, however, in the interests of the health of ships' companies it was necessary to refuse to those who had not been inoculated permission to land in ports where there might be danger of contracting any of the diseases against which this treatment was aimed.

No. 38

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept. 25.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	49	6	10	—	2	70	5	13	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Diphtheria	757	39	167	103	25	807	43	209	64	23
Deaths	—	2	—	3	—	21	—	4	3	—
Dysentery	270	42	71	1	—	237	13	41	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	4	—	—	—	—	2	—	—	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	63	6	2	—	—	56	8	1
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	—	—	—	—	—	—	—	—	—	—
Deaths	61	10	16	140	30	70	10	15	89	6
Measles	466	36	31	9	3	3,356	271	170	15	10
Deaths	—	—	—	—	—	—	—	—	—	—
Ophthalmia neonatorum	70	2	12	—	—	112	3	18	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	14	2	1	—	—	13	1	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza*	354	14	3	1	1	459	32	10	—	—
Deaths (from influenza)	5	1	3	—	—	6	—	—	—	1
Pneumonia, primary	—	—	135	11	5	—	125	11	3	6
Deaths	15	—	—	—	—	—	—	—	—	—
Polio-encephalitis, acute	2	—	—	—	—	7	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	8	—	—	3	—	32	1	—	24	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	—	15	—	—	2	2	11	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	149	10	5	1	2	159	7	15	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	2,772	260	337	50	69	1,963	135	394	54	41
Deaths	—	—	1	—	—	—	—	—	—	—
Small-pox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	3	—	2	11	3	9	—	6	12	6‡
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	1,583	105	167	49	9	938	77	21	56	3
Deaths	13	1	4	—	—	13	2	1	—	—
Deaths (0-1 year)	313	45	55	61	14	315	21	70	36	23
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	3,658	534	543	192	99	3,549	461	523	164	114
Annual death rate (per 1,000 persons living)	—	—	12.2	12.6	5	—	11.5	10.9	5	—
Live births	6,219	709	868	435	269	5,901	673	809	346	258
Annual rate per 1,000 persons living	—	—	17.7	23.6	5	—	16.7	23.1	5	—
Stillbirths	197	23	30	—	—	233	23	27	—	—
Rate per 1,000 total births (including stillbirths)	—	—	—	33	—	—	—	32	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Includes paratyphoid A and B.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales the trend of the infectious diseases of childhood remained unchanged. Notifications of scarlet fever and diphtheria rose by 133 and 34, and those of whooping-cough and measles fell by 51 and 25 respectively.

The only noteworthy local variations were an increase of scarlet fever in Lancashire by 40, and a fall in whooping-cough in Yorks West Riding by 50 cases.

The notifications of dysentery were 2 more than the high level of the preceding week. New outbreaks occurred in Wiltshire, Swindon M.B. 20, and in Norfolk, St. Faith and Aylsham R.D. 12. Only one case was recorded in Cumberland, compared with 54 in the preceding week. The largest of the existing centres of infection were: London 42; Kent 36; Gravesend M.B. 10, Rochester M.B. 16; Devonshire 16, Exeter M.B. 16; Gloucestershire 16, Bristol M.B. 15; Yorks West Riding 16, Harrogate M.B. 10; Lancashire 15; Middlesex 14; Hertfordshire 14; Warwickshire 9.

In Scotland a fall was recorded in the incidence of most infectious diseases. The largest decreases were for whooping-cough 54, pneumonia 32, and dysentery 17 cases.

In Eire the rise in diphtheria was general throughout the country. Of the 140 cases of diarrhoea and enteritis, 127 were recorded in Dublin C.B.

Quarterly Returns for England and Wales

The birth rate during the second quarter of 1943 was 17.5, compared with an average for the five preceding second quarters of 15.7, and the rate was the highest recorded in any June quarter since 1926. Infant mortality was 46 per 1,000 live births, the lowest rate ever recorded for a second quarter, and it was 9 below the average of the 10 preceding June quarters. Stillbirths were 3.0% of the total births registered. The general death rate was 11.0 per 1,000, compared with 11.3 for the second quarter of 1942, and 12.0 for the average of five years before 1942. The natural increase, excess of births over deaths, was 67,457, compared with 50,685, 7,228, and 46,980 for the second quarters of the three preceding years. Persons who married numbered 37,610 fewer than during the June quarter of 1942, and 38,668 fewer than the average for the five second quarters before 1942. The marriage rate, 15.9 per 1,000, is lower than that in the second quarters of the years preceding the war.

Quarterly Returns for Northern Ireland

A birth rate of 26.7 per 1,000 was recorded during the second quarter of 1943. This rate was 4.4 above the average for the second quarters of the five years 1938-42. Infant mortality was 74 per 1,000 registered births, and was 2 above the five-year average. The general death rate was 13.3, and was 1.1 below the average of the five preceding second quarters. Of deaths of children under 2 years, 105 were attributed to diarrhoea and enteritis, compared with the five-year average of 70. Deaths from pulmonary tuberculosis numbered 220 and from other forms 92, the former being 21 below the average of the June quarters of 1938-42, while the latter was 14 above. The marriage rate was 8.1 per 1,000; this was 1.8 below the rate for the corresponding quarter of 1942, but 0.3 above the average of the second quarters for 1938-42.

The Week Ending October 2

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,956, whooping-cough 1,583, diphtheria 724, measles 465, acute pneumonia 407, cerebrospinal fever 30, dysentery 337, paratyphoid 7, typhoid 7.

Daube (*Klin. Wschr.*, 1942, 21, 679) describes four cases of "pervin psychoses" observed at the Hamburg Psychiatric Clinic. In the first case it seems that ambition and increased demands on the capacity of the addict, together with general asthenia, provoked the choice of pervin. The second patient was attracted mainly by the euphoric action of the drug. In the third physical injuries and strains (severe x-ray burns, amputations, plastic operations) were the main factors; and in the fourth case abnormal tendencies were already present in the direction of a hyperthymic impulsiveness, affective unbalance, and increased "impatience drive." Besides the increased physical efficiency hoped for from the drug, it was also used as a sexual stimulant. None of the four cases had any previous history of psychosis, and in none of the cases could a hereditary defect be ascertained. Addiction developed very rapidly. The psychotic disturbances themselves showed many common features. At first there developed a pronounced anxiety state occasionally coloured by irritability. Combined with this a wealth of assertive and paranoid ideas were expressed with illusions and hallucinations. The psychosis disappeared fairly

Medical News

The Royal Sanitary Institute has arranged a sessional meeting in the Pump Room, Bath, on Saturday, Nov. 6, at 10.15 a.m., when there will be discussions on food standards and on the post-war housing problem.

A meeting of the Clinical Society of the Royal Eye Hospital will be held at the hospital, St. George's Circus, Southwark, S.E., on Friday, Nov. 5, at 4.30 p.m., when a talk will be given by Mr. Harvey Jackson, F.R.C.S., on orbital tumours.

The British Institute of Philosophy announces a lecture entitled "Community Purpose and the Lessons of Nazism," to be delivered at University Hall, 14, Gordon Square, W.C.1, on Friday next, Oct. 22, at 4.30 p.m., by Prof. J. W. Harvey of Leeds University. Cards of admission may be had free of charge from the Director of Studies at University Hall.

The Nutrition Society has arranged a whole-day conference on "Post-war Nutritional Relief" at the London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C., on Saturday, Nov. 6. The chair will be taken by Lord Horder, and papers will be read by Prof. J. R. Marrack ("Past Experience and Present Position"), Dr. J. Hammond, F.R.S. ("Problems of Production in Relation to Post-war Nutritional Relief"), Miss E. M. M. Hume ("Opportunities for Nutritional Research in the Work of Relief"), and others. Further details of this meeting, and of the Nutrition Society, can be obtained from the hon. secretary, Dr. Leslie J. Harris, Nutritional Laboratory, Milton Road, Cambridge.

A conference on Mental Health will be held in Caxton Hall, Westminster, on Friday, Oct. 29, under the auspices of the Provisional National Council for Mental Health (39, Queen Anne Street, W.1). The conference will be opened at 10.30 a.m. by the Minister of Health, and at the morning session Sir Otto Niemeyer will speak on the development and extension of voluntary mental health services, Dr. Thomas Beaton and Mr. E. R. Davies on mental health work of local authorities, and Mr. J. Duncan on the residential school and its place in the education of defective and subnormal children. At the afternoon session, with Sir Farquhar Buzzard in the chair, Dr. J. S. I. Skottowe will speak on the effect of war conditions on the mental health of the community, and Miss L. G. Fildes, Ph.D., on selection and classification of homes and hostels in relation to the needs of the individual child.

The Socialist Medical Association will hold a conference on National Service for Health on Sunday, Oct. 17, at 3 p.m., in the Conway Hall, Red Lion Square, W.C., with Dr. H. Joules in the chair. The speakers are Mr. Hector McNeil, M.P., and Mr. Somerville Hastings, F.R.C.S.

The North Kent Section of the British Dental Association will hold a meeting at the Star Hotel, Maidstone, on Friday, Oct. 29, at 6.45 p.m., when Dr. Wilfred Fish will speak on the mechanism of systemic response to infected foci.

Through the generosity of some leading firms in the country a medical rehabilitation centre is being established in Sussex, at Roffey Park, Horsham, with accommodation for 120 patients. The Ministry of Labour and other Government Departments are collaborating, and the chairman of the organizing committee is Lord Horder. Among the functions of the centre will be instruction in industrial health for doctors, social workers, and nurses; and facilities will be provided for research on social and industrial medicine.

The British War Relief Society of the United States has decided to give £30,000 to the Queen Victoria Cottage Hospital, East Sussex, which specializes in plastic facial surgery. The gift will be a memorial of the society's work in this country during the last four years. In 1942 alone the society shipped to Britain 7,900 tons of material, and it has given 312 ambulances and motor vehicles and 1,000 mobile kitchens; it also equipped the American hospital at Oxford.

The Insignia of the Fourth Class of the Order of El Istiqlal has been conferred upon Dr. S. A. Jones, medical officer in the Arab Legion, in recognition of valuable services rendered by him.

Dr E. A. Knappett has been commended for brave conduct when an aircraft crashed and caught fire.

A Swiss Society of Psychology has recently been founded on the initiative of Prof. Piaget of Geneva, Prof. C. G. Jung of Einsiedeln, Dr. O. Forel of Prangins, and Dr. Morgenthaler of Muris.

Institute for typhus research, named after Emil von Behring, has been opened at Lemberg, and a special typhus institute in Dresden for the wholesale preparation of typhus

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be sent to the Secretary.

TELEPHONE NO.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES.—EDITOR, *Aitiology Westcent*, London; SECRETARY, *Medisecra Westcent*, London.

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Kraurosis Vulvae

Q.—In some recent correspondence about the use of oestrogens it has been stated that the dosage should not exceed 1 mg. Cases of menopausal kraurosis vulvae appear to need much larger doses for their resolution, and still more so the case occurring in a younger woman after oophorectomy. Could you give some guidance on this point?

A.—In the course of the correspondence referred to it is stated (*Journal* p. 244) that "symptoms in women of menopausal age which do not respond to less than 1 mg.—other than such late sequelae as atrophic vaginitis—are not due to ovarian deficiency." A considerable portion of the letter in question was devoted to pointing out that the threshold of sensitivity to oestrogen varies greatly at different phases of the female life span. During the "menopausal age," when the woman is actually undergoing gradual oestrogen deprivation, she is relatively sensitive to oestrogen, and therefore quite small doses (i.e., less than 0.5 mg.) are effective in relieving hot flushes, etc. Kraurosis vulvae is a post-menopausal condition resulting from relatively long-continued oestrogen deprivation and therefore requires higher dosage. The severity of the condition depends primarily on the length of time the tissues have been deprived of oestrogen and not on whether the menopause was physiological or resulting from surgical removal of the ovaries. Dosage depends, of course, on the severity of the condition. A course lasting not longer than 2 months and preferably not more than 3 or 4 weeks of 5 mg. of stilboestrol or natural oestrogen daily usually relieves the kraurosis for a period of a year to eighteen months. An alternate method of administration is to implant a 50-mg. pellet of oestrogen subcutaneously and remove the remnant after 1 to 2 months. Uterine haemorrhage may occur during such high-dosage therapy.

Tuberculosis in Children

Q.—It is stated that pulmonary tuberculosis is rare below the age of 7, although glandular tuberculosis is common. Yet T.B. infection—as determined by the Mantoux test—in children from birth to 5 years is five times greater in children who are contacts with sputum-positive cases than in those who are non-contacts. What tissue or organ does the human type of tubercle bacillus invade in the Mantoux-positive contact child?

A.—Tuberculous infection in the first five years of life is a much more fatal disease than it is in later childhood. Blacklock (M.R.C. Spec. Rep. Ser., No. 172, London, 1932) found that over 95% of children up to 3 years of age in whom tuberculosis was present at necropsy died as a result of that infection. About four-fifths of the fatal cases of tuberculosis in childhood are due to infection with the human type of tubercle bacillus. Intimate child contacts of cases of "open" tuberculosis are most often infected by inhalation. The primary lesion is usually a localized patch of bronchopneumonia (the Ghon focus) with secondary infection of the tracheo-bronchial (hilar) glands. The primary lung lesion does not caseate as a rule, but with advancing age of the child shows instead an increasing tendency to heal, fibrose, and calcify. Other children, particularly at the crawling stage, acquire an abdominal tuberculosis by swallowing infected dust and dirt—the infection de touche à tout of French authors—while others, again, develop surgical tuberculosis—infection of glands, bones, and joints.

About half of these surgical infections are due to the human type of bacillus; they are not, as is too often believed, preponderantly due to the drinking of tuberculous milk. Thus, surviving children infected by intimate contact with cases of open tuberculosis have a variety of tuberculous lesions which may or may not be accompanied by clinical or radiological evidence of infection. The adult type of pulmonary tuberculosis with caseation and cavitation is seldom seen in childhood, because it represents a type of lesion occurring in an individual already "tuberculized."

LETTERS, NOTES, AND ANSWERS

OCT. 16, 1943

Feeling the Cold

Q.—Some people complain that they feel the cold to a much greater degree than does the normal person, although otherwise they appear to be in good general health. Even the wearing of thicker woollen clothing does little to obviate the trouble. This is a very real problem for these people in days of fuel economy, etc. Is there any real treatment for such cases, such as the daily administration of halibut-liver oil? Or must their reaction to cold be considered "normal" for them?

A.—"Feeling the cold" depends upon at least three factors—psychological, vascular, and endocrine. Probably the first is the most important. Many people have been taught from their earliest years to regard being cold as a serious hardship. This is particularly true of well-to-do people brought up in large towns. It is possible to train oneself to neglect all but the most serious degrees of cold.

Although the vascular response to cold has been studied in great detail, very little work has been done on individual differences in reaction. Sir Thomas Lewis has postulated a condition in which the normal peripheral vasoconstriction which occurs when the body is chilled fails to pass off with normal speed. He ascribes chilblains to this cause.

The most important endocrine glands involved are the adrenal medullae and the thyroid. The first reaction to chilling of the body is a discharge of adrenaline and consequent peripheral vasoconstriction. Of more "chronic" importance is the control by the thyroid of the degree of intracellular oxidation, and hence of heat production. The hypothyroid individual feels the cold acutely because his temperature is normally low and is easily made lower. He always has cold hands and feet because his heat-regulating mechanism is attempting to conserve his body heat by cutting off the heat loss from the extremities. He often wears an astonishing amount of clothing and cannot sleep without a hot-water bottle. A case has been recorded of a man who in the height of summer could only travel in a closed and heated car, wearing a heavy overcoat.

Treatment should be conducted along the lines indicated by these facts. The prescription of small doses of thyroid (1 gr. a day, working up gradually and watching for signs of intolerance) works dramatically in genuinely hypothyroid cases. As hypothyroidism may not be clinically obvious, it is worth while trying thyroid provided that the patient can be kept under careful observation while the dose is being determined. Halibut-liver oil is quite useless. Nicotinic acid might be worthy of trial provided that it is borne in mind that the cold feet may be a beneficial reaction to a low blood temperature and that in some circumstances it may be inadvisable to interfere.

Arthritis at Menopause

Q.—A woman at the age of the menopause has painful swelling of the small joints of the hands of a month's duration. She is edentulate, the throat and nose are normal in appearance. She does not suffer from dyspepsia, and the urine is sterile. Her general appearance does not suggest thyroid dysfunction. What is the treatment? What are the prospects of cure?

A.—Fuller details are necessary for a definite opinion in this case, especially the erythrocyte sedimentation rate as an indication of an infective process. It is not stated which of the small joints of the hands are affected. It is a point of importance in diagnosis that infective or rheumatoid arthritis rarely if ever shows itself first in the terminal phalangeal joints, whereas Heberden's nodes, a form of osteo-arthritis, always appear there; the opposite is the case for the proximal joints except the carpal joints of the thumbs. It seems most probable that the condition is one of endocrine origin, and small doses of stilboestrol are often effective in giving relief. Locally, contrast baths for the hands will be found beneficial.

Irritation of Ear in Pregnancy

Q.—A young woman has symptoms of marked irritation in the left ear. She is six months pregnant and has had this condition for the last two months. After syringing a little wax out of the ear, the external auditory meatus was seen to be slightly red and scaly in parts; no discharge of any sort was present; the drum was quite normal in structure apart from slight congestion. Is it possible that gentian violet relieves the irritation temporarily? Is otitis externa? In view of the relief afforded in kraurosis vulvae by oestrogen therapy, I wondered (1) whether there would be any danger in applying an oestrogen ointment to this girl's external auditory meatus; (2) whether, if there is no danger, any improvement is likely to ensue; (3) what type of ointment would be best?

A.—Kraurosis vulvae is essentially an atrophic lesion associated with oestrogen deprivation; oestrogen therapy is therefore reasonable and beneficial. During pregnancy the organism is flooded with oestrogen, and even though a large proportion is in a biologically inactive state, there is certainly no evidence of oestrogen

deficiency. Oestrogens have been used for various skin lesions, both in pregnant and non-pregnant women, but their value is not proven except perhaps in cases of acne at puberty or the menopause, when there may be some oestrogen deficiency. In the case quoted there is little if any scientific basis for oestrogen therapy and a good response is unlikely. In my opinion it would be more satisfactory to approach the case from an aural or dermatological, rather than an endocrinological, standpoint. If, however, the inquirer would like to try an oestrogen ointment, it could not be harmful in any way. Oestrone and oestradiol benzoate ointments are supplied by most of the firms specializing in endocrine products and are available in tubes. A little (e.g., 0.5 g. of ointment) could be rubbed into the previously cleansed affected area once or twice daily.

A Buttock Wound

Q.—I was recently discussing with a colleague what might be the ideal treatment for a rather difficult wound which I encountered. I thought you might be able to give some information in your "Any Questions" section. The wound was made by a small shell-fragment which traversed the buttock from above downwards, about 6 inches long, and about 3 inches deep from the skin in its centre. The entrance and exit wounds were very small, and the wound was recent. Complete excision seemed unjustifiably mutilating, yet anything short of this might lead to a very severe buttock infection.

A.—There seems to be no doubt that the cult of excision of wounds has been too enthusiastically accepted, often to the exclusion of common sense. And so it comes about that sometimes more mutilation is done by excision than could ever have occurred from the wound itself, even if some infection supervened. A gunshot wound, if at all deep, is a very complicated cavity; so that even the most extensive excision may fail to remove all devitalized tissues, some of which move away for considerable distances by retraction of contractile and elastic structures and by change in posture after infliction of the wound. Thus the theoretical ideal is not achieved, while extra damage may have been done to important structures in the attempt. This criticism is substantiated by many cases seen in the present war. Further, the local application of the sulphoamides, together with their internal administration, has so affected the question that we feel it is time the whole subject was reviewed. In several cases seen earlier in the war and comparable with that described in the question, a very limited opening of the wounds of entrance and exit, removal of any foreign material, and the instillation of a sulphonamide powder through the track, produced very satisfactory results.

Stilboestrol for Prostatic Cancer

Q.—A patient aged 84 has had his prostate removed. It turned out to be malignant, and he is being treated by deep x-ray therapy. When this course is concluded would it be advisable to put him through a course of stilboestrol? If so, what doses would you recommend, by mouth or intramuscularly, and for how long a period? If intramuscular, would it be preferable to use stilboestrol dipropionate?

A.—There are two ways of proceeding, either scientifically or empirically. If the former course is chosen, the acid serum phosphatase should be estimated, and stilboestrol or hexoestrol given until the acid serum phosphatase is reduced to normal limits. Sufficient dosage should be maintained to keep it to the normal figure. There is no need to give it subcutaneously, as both compounds are completely absorbed through the alimentary tract. Dosage is an empirical matter, starting usually with 1 mg. three times a day and increasing this to 2 to 3 mg. until the acid serum phosphatase is down to the normal figure. As little as 1 mg. a day may control the patient. If there is no access to a laboratory, then 1 mg. three times a day may be increased. The danger of side-effects is very slight indeed, and a large number of cases have been observed which have shown no development whatsoever of side-effects of an unpleasant nature—enlargement of the nipple, etc.

Paget's Disease of Bone

Q.—A male patient aged 65 has been x-rayed, and the diagnosis of Paget's disease of the bones was given. He says very severe pain, especially in the femur and pelvis. (1) What is the prognosis? (2) What treatment can be given? (3) Does aluminium acetate help? If so, what dose should be given? (4) Should the patient be allowed to walk about?

A.—In the examination of many radiographs of patients suffering from other conditions it is frequent to detect Paget's disease of the pelvis and upper end of the femur. The majority of these are without symptoms; therefore one has to be sure that there is not some other condition present responsible for the pain, apart from Paget's disease. One should, of course, be perfectly certain that the radiographic appearances are those of Paget's disease and not, in the case mentioned, secondary deposits of prostatic carcinoma. Where the bones of the hip are involved by true osteitis deformans

the pain is not infrequently due to osteo-arthritis of the hip-joint, the treatment of which is the same as when it is not associated with Paget's disease. Immobilization of the joint for a period is well worth while. In intractable cases operative treatment is occasionally indicated. Before the latter is done, however, there is in the osteo-arthritis associated with Paget's disease a real possibility of relief by radiotherapy. It is by no means certain, but the present writer has seen good results. The rationale of aluminium acetate therapy is not very clear in osteitis deformans. Again this has been used by the present writer and certain of the patients have recorded benefit. The dosage used is that recommended by Helfet (*Brit. J. Surg.*, 1940, 27, 651)—namely, one-third of a drachm given three times a day with syrup and large quantities of milk.

In conclusion, I believe that it is unlikely that the Paget's disease by itself is the whole cause of the patient's symptoms.

A Symptomless Bursa

Q.—Some years ago a patient was diagnosed as having a ruptured internal cartilage of the knee. Two or three years after this, owing to limited movement of the joint through adhesions, the knee was manipulated under anaesthesia and the range of movement restored. There is now, nine years after the manipulation, a fair-sized bursa over the inner tuberosity of the femur. This gives rise to no pain or disability. The patient is not anxious to have an operation, and I should be glad to know if there is any indication for surgical intervention.

A.—It is very difficult to decide from the description given what the exact diagnosis is in this case. However, the commonest bursa on the medial side of the knee-joint is a semimembranous bursa. This is situated postero-medially, and is more prominent with the knee-joint in full extension. The only symptoms it causes as a rule are inconveniences due to its size, or pain due to tension within it. In either of these circumstances an operation should be performed to remove it. In the absence of symptoms, however, as in this case, there is no indication for operation, especially as the patient does not wish it. I cannot see any particular connexion between this bursa and the previous medical history. Both conditions are very common, and therefore quite likely to be coincidental.

The Tobacco Habit

Q.—Is there any drug or chemical which, when administered, gives a distaste for smoking, and, if so, can it safely be given to a smoker? One sees constant advertisements about this in the Press, and I am asked about it from time to time.

Q.—Can any suggestions be offered for the cure of two patients (a male of 55 and a female of 53) who for years have smoked excessively? Both desire to be cured of the habit, but neither has the strength of will to give up the weed. The man smokes a pipe and cigarettes, and the woman cigarettes only. Which is the lesser evil? Could a psychologist help in such cases?

A.—There is no drug or chemical which can be relied upon to give a distaste for smoking. Various preparations which induce nausea may have this effect, and stramonium given in sufficient dosage to cause dryness of the mouth may also act as a deterrent. The most effective method of tackling the problem in those who are anxious to be cured is the application of hypnotic suggestion.

Cockroaches

Q.—What is the best way to combat the beetle pest?

A.—Repeated applications of powder are the only measures that can be used against cockroaches (misnamed "beetles" or "black-beetles"). Of the powders available for civilian use, sodium fluoride is the best, but may be considered too dangerous to be used in kitchens without careful supervision. Boric acid or borax are the best alternatives: they must be very finely ground to be effective.

The powders are blown into crevices or dusted round the corners of the floor where the roaches are believed to be hiding.

Prescribing a Scheduled Poison

Q.—I am asked by a local colliery to furnish a prescription for sulphacetamide 10% or 30% to be used as eye-drops by their unsupervised ambulance-room attendant. As this is a scheduled poison, am I in order in issuing such a prescription, and, if so, to whom should it be addressed?

A.—The Poisons Regulations provide for the purchase by a firm of poisons to be used in the course of their business, but, in the view of the Pharmaceutical Society, this does not apply to poisons required for medical purposes in the treatment of members of the staff. An employee treated in an ambulance room is in the same position as any member of the public, and any prescriptions to which the Poisons Regulations apply should be made out in the name of the patient. The alternative is for the doctor to order the eye-drops to be supplied to him for use in his practice just as though he were stocking his own dispensary. He will then be responsible for the use to which the eye-drops are put afterwards.

Keeping Dentures Clean

Q.—I would like to know the recipe for removing from dentures persisting brown deposit. I have tried dilute HCl without effect, and keep them in water containing a few drops of Milton.

A.—The brown deposit on the dentures is probably tartar which has become saturated with nicotine. This can be removed only by scraping with an old scalpel until the surface of the denture is reached. Better still, let the dental surgeon have them for a hour, as he has facilities for cleaning and polishing. The proper way to keep a denture clean is to scrub it night and morning with soap, using a stiff nail-brush or tooth-brush. Chemical cleansers are in the long run harmful to the base material and should not be used as a routine. Ordinary whitening is excellent for keeping a high polish on the surface, and is best applied with the brush after the soap has been washed away. Some mouths deposit tartar and stain more readily than others, and this hard scrubbing may be necessary after every meal.

Campden Method of Preserving Fruit

Q.—What happens if Campden solution tablets, containing 48 SO₂, are used for preserving fruit, and, later on, the whole boiled before use? Is the SO₂ the active thing in the tablet, and is the SO₂ driven off by the boiling, or what exactly happens?

A.—Campden tablets are made from sodium metabisulphite. The compound reacts with the acids in the fruit juice and SO₂ is formed. If the vessel containing the fruit is tightly stoppered, most of the SO₂ remains in solution at room temperature, and it is this SO₂ in solution which prevents bacterial growth. One part in 1,000 is effective, and if the tablets are used according to the prescription this strength is attained. When the vessel is opened and the fruit is boiled, as it should be before use, the SO₂ is driven off, and the sodium salts of the acids in the fruit juice remain behind. Incidentally, therefore, Campden tablets, while acting as a preservative, also tend to neutralize the acidity of the fruit, so that it may be stewed with less sugar.

LETTERS, NOTES, ETC.

Diathermy in Eye Disease

Mr. FRANK W. LAW, F.R.C.S. (London, W.1), writes: May I be permitted to say that I think the opinion expressed in the reply to the inquiry for reliable information about the use of diathermy in eye disease (Oct. 2, p. 442) was unjustifiably lukewarm? Further, your few notes hardly answer the question asked. Your correspondent might find some answer to his query in the following references: Law, *Trans. Ophthalm. Soc. U.K.*, 1933, 53, 474; Law, *Brit. phys. Med.*, Dec., 1936; Law, *ibid.*, July, 1940, p. 122; Lloyd, *Trans. Ophthalm. Soc. U.K.*, 1939, 59, 181; Phillips, *ibid.*, p. 193. It is obvious that I cannot express an opinion on the reliability of the information contained in most of these!

Proof of Negligence

Mr. WALTER SIMPSON (Bristol) writes: The "conventional course suggested by your correspondent (Aug. 7, p. 183) is not now permitted. Recently the Court of Appeal ruled that counsel cannot (1) submit there is no case to answer and (2) subsequently call witnesses if the judge rules to the contrary. If defendant relies on 1 submission that no case has been made out he cannot subsequently call witnesses to disprove the charge. My authority is Mr. Justice Hilbery, King's Bench Division, *Stacey v. Clarke*, Col., July, 1942.

Transparent Disinfectants

Dr. J. E. J. PALSER (Theydon Bois) writes: In the paper by Lieut. Col. R. K. Debenham on war surgery in the Middle East (*Journal*, Aug. 21, p. 223) I was interested to read his warning against putting dentures into a preparation in which they are out of sight and may be lost. This warning would apply also to the immersion of surgical instruments in a similar preparation. I may point out, however, that Iysantol, an effective non-irritant disinfectant, with a Rideal-Walker coefficient of about 4, will bear dilution with as much as 15 parts of tap water without producing more than a slight opacity and if diluted with distilled water in any proportion forms a perfectly transparent solution.

Hyperidrotic Axillae

Dr. D. M. MACDONALD (Arnside) writes: Should the treatment suggested under the above heading in the *Journal* of Oct. 2 (p. 44) fail, an almost certain remedy will be found in the use of the constant current (20 milliamperes) twice a week for from ten to twenty minutes. The negative pole is applied to the affected area.

Disclaimer

Dr. K. I. E. McLEOD (Dingwall), whose letter, printed in the *Journal* of Sept. 25, was quoted by several of the national newspapers, wishes to disclaim any knowledge of how this quotation was made. He expresses alarm at the frequency with which letters to scientific journals are quoted in this manner without the knowledge or permission of the writer.

A. GREY CLARKE AND F. PRESCOTT: STUDIES IN VITAMIN B DEFICIENCY



FIG. 1.—Case II, before treatment. Showing angular stomatitis and red, sore, fissured tongue.



FIG. 3.—Case III, before treatment. Showing scaly pellagroid dermatitis of back of neck.



FIG. 4.—Case III, after several weeks' treatment with vitamin B complex. Dermatitis and roughening of skin largely disappeared.

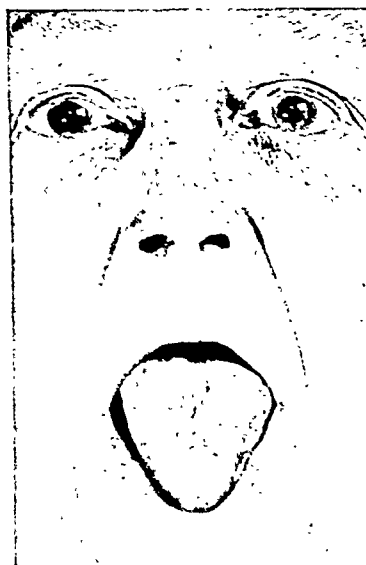


FIG. 2.—Case II, after treatment with vitamin B complex. The angular stomatitis disappeared in 14 days and the glossitis after 28 days.



FIG. 5.—Case III, before treatment. Showing oedema and pigmentation of tissues around eyes, scaly reddish-brown dermatitis on face and neck, and red sore lips. Patient crying and very depressed.

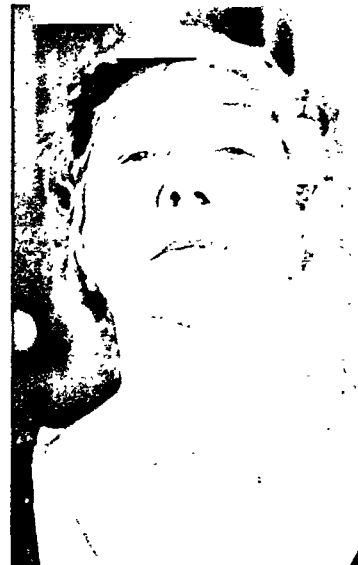


FIG. 6.—Case III, after several weeks' treatment with vitamin B complex. Dermatitis has disappeared from face and neck. Swelling round eyes has gone. Great improvement in mood: no longer anxious and depressed.

H. L. HEIMANN AND M. M. POSEL: CONGENITAL DILATATION OF PULMONARY ARTERY

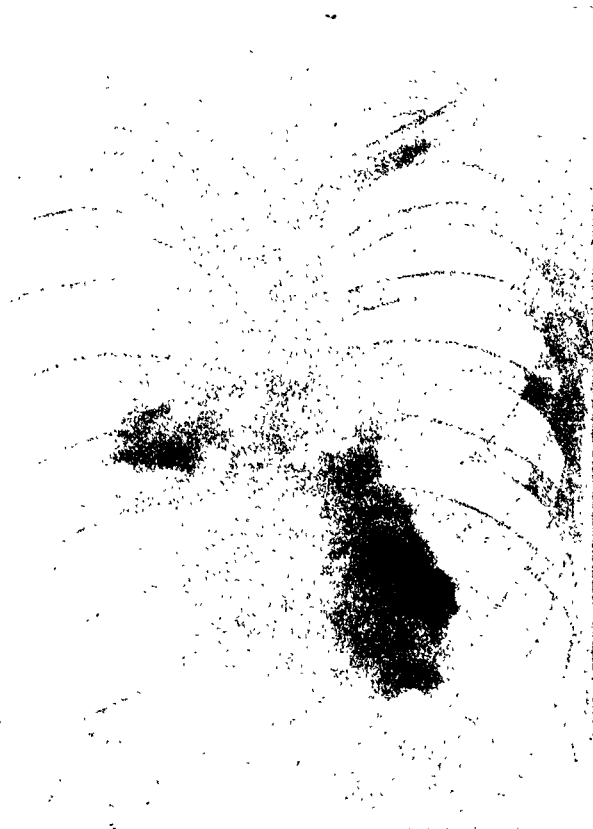


FIG. 1.—Large pulmonary artery with comma-shaped branch.



FIG. 2.—Oblique view after barium swallow, showing Impression on oesophagus by right pulmonary artery.

M. GAINES: TRAUMATIC VENTRICULAR PNEUMOCEPHALUS



FIG. 1.—Lateral radiograph of skull, June 3, 1943.



FIG. 2.—Antero-posterior radiograph, June 3, 1943.

LONDON SATURDAY OCTOBER 23 1943

STUDIES IN VITAMIN B DEFICIENCY WITH SPECIAL REFERENCE TO MENTAL AND ORAL MANIFESTATIONS

BY

A. GREY CLARKE, B.Sc., M.B., D.P.M.

Medical Registrar, West End Hospital for Nervous Diseases, London

AND

F. PRESCOTT, M.Sc., Ph.D., A.I.C., M.R.C.S.

Wellcome Research Institution, London

(WITH PHOTOGRAPHURE PLATE)

Clinical descriptions of the results of a deficiency of members of the vitamin B complex are common in American published work but scanty in the medical literature of this country. Cheilosis due to riboflavin (vitamin B₂, lactoflavin) deficiency has been described in England by Wilson (1942) and Duckworth (1942); and Deeny (1942) has reported on 16 cases of pellagra in Northern Ireland, where, he says, mild forms of the disease are relatively common and usually pass unrecognized, the patient being diagnosed as suffering from neurasthenia, dyspepsia, or eczema. Studies of pellagra in England between 1934 and 1939 were made by Davies and McGregor (1939), who reviewed 16 cases. Since submitting this paper for publication Hardwick (1943) has described pellagra associated with chronic psychosis in 10 patients in an English mental hospital. Egaña *et al.* (1942) and Johnson *et al.* (1942) have described the effects on human volunteers of experimental diets deficient in the vitamin B complex. These include easy fatigue, loss of ambition and efficiency, poor appetite, insomnia, constipation, muscle pains, and slight anaemia in persons in sedentary occupations. The literature on the clinical manifestations resulting from a deficiency of the B group of vitamins has been reviewed by Bicknell and Prescott (1942).

Psychoneurosis and Dietary Deficiency

We have recently seen 17 cases of vitamin B complex deficiency in patients treated primarily for nervous disorders. This represents 2% of the patients seen by us in the outpatient department of the West End Hospital for Nervous Diseases. Originally they were mostly classified as suffering from functional nervous disorder, and with one exception were women. The parallelism between the manifestations of a deficiency of the vitamin B complex and those of psychoneurosis is seen from the following list. All are likely to be met with in the psychoneurotic; those in italics may result from a deficiency of the vitamin B complex.

General: *Fatigue, anorexia, indigestion, constipation, diarrhoea, dizziness*

Circulatory: *Tachycardia, palpitation, shortness of breath*

Vasomotor: *Pallor, blushing, sweating*

Nervous system: *Headache, backache, insomnia, photophobia, hyperacusis, noises in the head, vertigo, hyperaesthesia, paraesthesia*

Mental symptoms: *Inability to concentrate, self-consciousness, depression, phobias, anxieties*

So close is the parallelism that early cases of pellagra—which is a multiple deficiency disease—are often diagnosed as “functional” by those unacquainted with the early manifestations.

A patient may suffer from a general dietary deficiency and exhibit only the manifestations of a deficiency of the vitamin B complex in the early stages. This is partly because these manifestations are the first to show. The results of a deficiency in vitamin A, C, D, or K are not so obvious clinically: special laboratory tests must be employed for their detection unless gross deficiency is present. The B vitamins, being water-soluble, are not stored in the body to any extent, and diet poor in these vitamins give rise to deficiency symptoms in three months or less (Vedder, 1940). Although it is convenient to split up the B vitamins for purposes of classification, an uncomplicated deficiency of one of them does not exist clinically, because they occur together in Nature and no selected combination of foods is entirely lacking in any one of them. There is no such thing as pure vitamin B₁ deficiency unless induced experimentally, because if the diet is deficient in vitamin B₁, it will also be deficient in the other B vitamins such as riboflavin, nicotinic acid, pyridoxine, pantothenic acid, etc.

In our cases certain features were common to all. All the patients gave a history of a poor diet, or lack of appetite due to mental or physical causes, or a condition necessitating dieting (peptic ulcer, hypertension) or interfering with absorption (vomiting, typhoid). Many of the patients lived alone, or had grown-up families out at work all day, so that they did not prepare proper meals. Others had no appetite and subsisted on occasional snacks, which consisted largely of refined carbohydrate foods. A vicious circle was thus created because these foods contain little of the vitamin B complex, and an increased consumption of carbohydrate increases the need for B vitamins; and lack of the latter produces further loss of appetite. Many of the patients did not eat meat, and few included adequate milk or cheese—all rich in the vitamin B complex—in their diet. A general preference was expressed for white bread which is a poor source of the vitamin B complex, much of the vitamin B₁ and riboflavin being removed in the milling.

All the patients showed some of the signs and symptoms of functional nervous disorder—most commonly depression, headache, insomnia, and loss of appetite. Other symptoms were lack of energy, fatigue on slight exertion, breathlessness, inability to concentrate, and nervous dyspepsia. There was only one case of psychosis in the series, probably because such cases more commonly go to observation wards in the London area.

All our cases showed a marked improvement in their “psychoneurotic” symptoms, and the majority a complete disappearance of these symptoms, after treatment with the vitamin B complex. Except in the one case admitted, the environment was unchanged. We think that in most of these cases the condition was determined to some extent by the wartime marginal diet but actually precipitated only when mental or

physical factors led to loss of appetite or impaired absorption. Case I, which was treated as an acute emergency, illustrates the need for a mental ward in general hospitals. Two cases at a later stage reported from a mental hospital by Parfitt (1936) failed to make a complete recovery on treatment with the B vitamins, although their improvement was dramatic.

Oral Lesions

All the patients showed signs and symptoms of nicotinic acid deficiency (glossitis, and depression or other mental symptoms), and nearly all showed one of the signs originally considered specific for riboflavin deficiency (angular stomatitis or cheilosis). The value of cheilosis as a specific sign of riboflavin deficiency has, however, recently been questioned, and it appears that this may occur independently of a nutritional deficiency. It may result from other causes, such as poorly fitting dentures, which result in malocclusion (Ellenberg and Pollack, 1942), and even from sensitivity to lipstick or chewing-gum (Miller, 1941; Hecht *et al.*, 1939). We have also observed cheilosis in a patient with post-encephalitic parkinsonism, in which the condition was presumably due to the dribbling of saliva and not to a nutritional deficiency: the diet was adequate and there were no other manifestations of nutritional disease. A number of cases of cheilosis described in America failed to respond to riboflavin, but did to other members of the vitamin B complex, such as nicotinic acid, pyridoxine, or yeast (Machella, 1942; Machella and McDonald, 1943). Some, however, failed to yield to vitamin therapy of any type. The cheilosis in two of our cases did not respond to treatment with riboflavin and the vitamin B complex.

Signs and symptoms of peripheral neuritis, which are generally considered to be the result of vitamin B₁ deficiency, were present in only four cases.

Treatment

The patients were treated with supplements of vitamin B₁, 3 to 9 mg. daily, riboflavin 3 to 9 mg. daily, and nicotinic acid 100 to 500 mg. daily. The patients were also instructed to take as much meat, milk, cheese, and whole grain in their diet as possible and to take proprietary wheat-germ or yeast preparations when obtainable. American workers (Sydenstricker, 1941) have pointed out that intensive treatment with one factor of the vitamin B complex may provoke symptoms of deficiency in another factor. It is therefore advisable when giving intensive therapy with one factor to give supplements of wheat germ or yeast. All the patients except two responded to treatment. One suffered from mental retardation due to depression, and it was difficult to obtain co-operation. Three of the patients relapsed after periods of from two to five months without treatment and presumably on return to their deficient diet. Two of these responded to further treatment.

Seven selected case records are given below. They were chosen for their severity or long duration. The average age of the patients was 53, the youngest being 28. Most of them were women over 50. Photographs before and after treatment were taken of five patients, but on account of lack of space only two sets are reproduced on the Plate.

Case I

Female aged 63. Psychosis, polyneuritis, glossitis, microcytic anaemia. On March 30, 1942, she complained of depression, gradually increasing during the past four months, and for the past week had shown marked psychomotor retardation, with delusions of guilt, disease, and poverty, and impairment of memory, especially for recent events. Tongue red and dry, with flattening of papillae along lateral margins. Knee- and ankle-jerks, and vibration sense in legs, absent. Incontinence of urine on admission. Heart slightly enlarged. B.P. 170/110. Hb 64%; R.B.C. 3,500,000, and slightly microcytic. Relative lymphocytosis (37%). Blood urea and kidney function were normal.

Nicotinic acid up to 300 mg. daily, vitamin B₁ 10 mg. daily, vitamin C 50 mg. daily, and ferrous sulphate 3 gr. b.d., were given with dramatic improvement in her mental condition in the first 48 hours. While in hospital she developed mild diarrhoea (no pathogenic organisms found), which was probably due to increased bowel motility after administration of nicotinic acid and vitamin B₁. Later she developed tonsillitis, submaxillary adenitis, and an erysipeloid condition of the face. Treatment with sulphanilamide was successful.

On April 22, 1942, she was discharged feeling very well. When seen three months later she had no symptoms. There was a partial return of one knee-jerk, but ankle-jerks were still absent. Hb 80%, R.B.C. 4,750,000.

Comment.—This case presented the symptoms of an acute depression together with acute organic mental symptoms and peripheral neuritis. The history obtained from the patient and her sister revealed that she had had two previous attacks of depression, five years and one year previously. Her diet for nine months before admission did not include meat. She ate white bread. Her sister, on the same diet, remained well. It is likely that the condition was precipitated in this patient on a borderline diet by a cyclothymic depression with loss of appetite. A vicious circle was set up, the poor appetite leading to diminished intake of food and hence of the B vitamins, lack of which resulted in the onset of the deficiency symptoms—glossitis, polyneuritis, acute psychosis, and possibly anaemia.

Case II

Female aged 73 (Plate, Figs. 1 and 2). In 1936 she was treated for rheumatoid arthritis, obesity and hypertension, and varicose veins. B.P. 180/80. Breathlessness on exertion. She was given potassium bromide and iodide and sodium salicylate, and told to omit meat from her diet on account of hypertension. Her main article of food was bread-and-butter (margarine?). She had had no meat for three years. She also dieted for her obesity. Brachial neuritis was present early in 1942.

We saw her on June 15, 1942. There was then severe angular stomatitis with considerable crusting at corners of mouth. The tongue was sore, particularly on eating and swallowing, and felt as if scalded. On examination the tongue was very red and fissured (Fig. 1), the skin of the arms and neck was pigmented and coarse, and there was an erythematous rash with denudation and pruritus of the skin around the vulva and on the skin from the vulva to the knees. She was given 9 mg. of riboflavin daily.

In one week the lesions at the corners of the mouth were considerably improved and within a fortnight they had healed, but the pigmentation of the skin and the glossitis were unchanged. In addition to riboflavin 10 mg. daily, 400 mg. of nicotinic acid in divided doses and 6 mg. of vitamin B₁ were now given, and the patient was instructed to eat a full diet, including yeast and wheat-germ preparations. Within a fortnight the pigmentation over the neck, arms, vulva, and legs had almost disappeared, and the tongue no longer felt hot and as if scalded. The dosage of nicotinic acid was reduced to 250 mg. daily. After five weeks all the lesions had healed and the patient looked and felt much better. She no longer complained of breathlessness, sore tongue, or pruritus. After ten weeks' treatment the tongue was more normal in colour and many of the fissures had healed (Fig. 2). The patient was kept under observation for a total period of three months. Improvement was maintained, and at the end of this time she was discharged.

Comment.—In this case the lesions of the lips healed with riboflavin, which had no effect on the glossitis. This responded only to nicotinic acid. One very noticeable result of the treatment was the improvement in mood.

Case III

Female aged 70 (Figs. 3 to 6). Presenting complaints: depression, insomnia, memory impairment, glossitis, irritation, and rash on neck and lower extremities. Noted for six months. Before being seen by us she had been treated unsuccessfully for eczema for six months. Examination showed B.P. 185/95, a red smooth tongue, and shiny red, cracked lips. There was a scaly pigmented dermatitis on the exposed situations, particularly the neck, face, elbows, vulva, arms, thighs, and flexures (Figs. 3 and 5), with a seborrhoeic dermatitis of scalp and ears. The face was oedematous and pigmented, particularly around the eyes. The heart was enlarged, with a mitral systolic murmur; pulse 56; frequent extrasystoles, photophobia, and lacrimation. The patient had a very poor dietary history: she lived alone and had no appetite.

Sept. 16, 1942.—Treated with 400 to 500 mg. nicotinic acid, 9 mg. vitamin B₁, and 3 mg. riboflavin daily, and a yeast concentrate. Much improvement within a week. Marked improvement after 14 days.

Sept. 30.—Patient more active and less depressed. Swelling of face and eyes reduced. Pigmentation and dermatitis around neck, face, and elbows disappearing. Tongue not so red and sore. No photophobia or lacrimation.

Oct. 14.—Tongue no longer sore, and dermatitis almost disappeared, except on scalp and behind ears (Figs. 4 and 6). This was of the seborrhoeic type and unlike that on the face, neck, and arms.

Oct. 28.—Appetite better; considerable subjective improvement. Vitamin C and thyroid 1/2 gr. daily included in treatment. No stomatitis or glossitis, patient no longer depressed. Improvement continued for a further two months with vitamin treatment, but seborrhoeic dermatitis of scalp and behind ears still persisted, although responded later to local treatment.

Comment.—This case, which we consider to be one of mild lagra (dermatitis, depression), was complicated by a dermatitis of seborrhoeic type, on the scalp and ears, which, unlike the dermatitis elsewhere, failed to respond to treatment with the vitamin B complex, but did so to local applications.

Case IV

Female aged 56. Presenting symptoms: insomnia, fatigue, headaches, forgetfulness, inability to settle down, and angular stomatitis. Poor appetite. Diet consisted of much bread and potatoes, meat or cheese, and a little milk with tea. History of typhoid fever. Diagnosed in 1931 as psychasthenic. Stomatitis treated successfully for eleven years with local applications. Nervous symptoms treated with phenobarbitone, and bromide and strychnine.

Oct. 14, 1942.—First seen by us. Crusted lesions at corner of mouth (angular stomatitis). Feeling of grit in the eyes and some degree of photophobia. Coarse, greasy, seborrhoeic skin of face, particularly over nose, naso-labial folds, and chin. Sore tongue, with peppery feeling when eating or sucking. Denudation of skin at lower lip. Tongue very red, clean, raw, and swollen. Mild degree of anaemia (Hb 88%, R.B.C. 4,790,000). Treated with riboflavin 3 mg. t.d.s., nicotinic acid 300 to 400 mg. daily, vitamin B₁ 3 mg. t.d.s., and wheat germ.

Oct. 28.—Mouth lesions and sore tongue considerably improved. Photophobia and gritty feeling in eyes gone. Diet improved.

Nov. 11.—Improvement maintained; eating well, facial skin not greasy and coarse. Angular stomatitis gone. Dosage of vitamins reduced to riboflavin 2 mg. t.d.s., nicotinic acid 300 mg. daily, and vitamin B₁ 3 mg. b.d.

Dec. 9.—Tongue no longer sore. Appetite good. Much improved mentally. Sleeping well. Tiredness and headaches gone.

Comment.—The "psychoneurotic" symptoms, seborrhoea, glossitis, and angular stomatitis had been present for 11 years and resisted general treatment. After two months' treatment with vitamin B complex and improvement of the diet local and mental symptoms disappeared.

Case V

Female aged 63. In 1938 diagnosis of glossitis, psychoneurosis, and hypertension made. Poor appetite, indigestion, pallor, dry skin, scanty hair, oedema of feet. B.P. 230/115. Once a patient at a mental hospital. Treated with bromide, valerian, and thyroid. The glossitis subsequently treated with chromic acid, zinc sulphate ointment, and finally vaseline, without success. Diagnosis of chronic treptococcal tongue made by clinician of another hospital.

Seen by us on Nov. 2, 1942. Angular stomatitis present. Tongue very red, raw, and atrophic. Lips smooth, very red, and denuded of epithelium. Scaly pellagroid dermatitis on face. Questioning revealed poor dietary history. The patient ate only little meat and milk. Did not cook for herself. R.B.C. 5,000,000; Hb 78%. Treatment with riboflavin 5 mg. t.d.s., vitamin B₁ 3 mg. t.d.s., and nicotinic acid 400 mg. daily; advised to improve diet. A week after the tongue and lips were not sore and inflamed. After another 14 days the facial dermatitis had gone and the angular stomatitis had almost disappeared. Although the tongue had improved subjectively, it was still red and fissured. Dosage of vitamins reduced. On Dec. 9 there were no signs of angular stomatitis, and the mouth and tongue were no longer sore and dry. The tongue was less fissured and more normal in colour.

By June 7, 1943, after five months without treatment owing to inability to attend the hospital, the patient had relapsed and her symptoms were as bad as ever. On June 21, after 14 days' treatment as described above, her condition had improved considerably.

Comment.—This was the first improvement in the mouth and lips for four years. The patient had also improved mentally; she was less tired and more cheerful. On stopping treatment with the vitamin B complex for five months the soreness of the tongue and mouth returned. This responded to treatment again.

Case VI

Female aged 70, seen by us on Dec. 30, 1942. She was anxious and depressed, had had pins-and-needles in hands and feet for five months, and dyspepsia. B.P. 165/85. Examination showed a flat, smooth, swollen, very red tongue denuded of papillae, cracks at corners of mouth with crusting, vertical fissuring of lips, and

pale mucous membranes. Noted for six months. No meat, eggs, cheese, and only a little milk in diet. Much bread and potatoes. R.B.C. 3,760,000; Hb 78%.

Treated with ferrous sulphate, riboflavin 6 mg. daily, nicotinic acid 200 mg. daily, and vitamin B₁ 9 mg. daily, with instructions to eat a full mixed diet, including wheat germ and yeast. Angular stomatitis healed in two weeks, and tongue nearly normal in colour. No dyspepsia; eating better, and no depression. After a month's treatment anxiety had gone; the patient was eating much better and looking better. Mouth and tongue lesions had disappeared, although the tongue still appeared smooth and flat. Papillae of tongue reappeared after five months' treatment. Paraesthesiae disappeared. Relapsed after two months without treatment. Admitted as an in-patient to a general hospital suffering from psychotic depression and delusions. Discharged well after four weeks' treatment.

Case VII

Female aged 56, nurse from a South Coast hospital, seen May 6, 1943. Complained of sore fissured tongue with peppery feeling of one year's duration, depression, dry cough, dyspnoea on exertion, difficulty in maintaining balance. Not previously "nervous"; went through air raids as night sister. Very poor dietary history—denatured cereals, white bread, and no meat. On examination tongue very red and deeply fissured; upper lip cracked at mucocutaneous margins; no Rombergism, but marked diminution of vibration sense in both legs. B.P. 150/100; moist sounds on inspiration at bases of both lungs; hypochromic anaemia. No dermatitis, subcutaneous oedema, or demonstrable cardiac abnormality. Unwilling to enter hospital or to co-operate in further investigations. Treatment as in former cases with riboflavin, nicotinic acid, vitamin B₁, and in addition ferrous sulphate for anaemia. On May 20 she was much less depressed, the tongue was a dull red and no longer sore, and there was no ataxia. By July 1 objective signs had disappeared except for residual fissures on the tongue. The patient remained at work during treatment.

Summary

Seventeen cases of a deficiency of the vitamin B complex, associated with oral lesions and mental symptoms, are reported. One was an acute psychosis, and a few had polyneuritis.

Although in most of these cases the condition appears to have been determined to some extent by the wartime marginal diet, it was actually precipitated only when mental or physical factors led to loss of appetite or impaired absorption. These factors included adherence to special diets (e.g., for peptic ulcer, obesity, and hypertension) and conditions interfering with the absorption of food (vomiting and gastro-intestinal diseases).

The striking features were the regular occurrence of the oral lesions, which were attributed to nicotinic acid and riboflavin deficiency, and the invariable presence of symptoms usually regarded as psychoneurotic, but which cleared up with vitamin B therapy without alteration of the environment or special psychological treatment.

A parallelism is drawn between some of the manifestations of the psychoneurotic syndromes and those of a deficiency of the factors of the vitamin B complex.

We wish to thank Dr. C. Worster-Drought, clinical director of the West End Hospital for Nervous Diseases, for his encouragement to publish these cases, and also Dr. Peter Tresise, R.M.O., for his help and enthusiasm with Case I. We are also indebted to Dr. Carnegie Dickson for the pathological work.

REFERENCES

- Bicknell, F., and Prescott, F. (1942). *The Vitamins in Medicine*, Chap. III-V, London.
 Davies, J. H. T., and McGregor, H. G. (1939). *Brit. J. Derm. Syph.*, 51, 51.
 Deeny, J. (1942). *British Medical Journal*, 1, 157.
 Duckworth, G. (1942). *Ibid.*, 1, 582.
 Eskin, E. (1942). *Amer. J. Physiol.*, 137, 731.
 Ellenberg, M., and Bulluck, H. (1942). *J. Amer. med. Ass.*, 119, 790.
 Hardwick, S. W. (1943). *Lancet*, 1, 43.
 Hecht, R. (1939). *J. Amer. med. Ass.*, 113, 2410.
 Johnson, R. E., et al. (1942). *J. Nutr.*, 24, 585.
 Macbelle, T. E. (1942). *Amer. J. med. Sci.*, 223, 114.
 and McDonald, P. R. (1943). *Ibid.*, 225, 214.
 Miller, J. (1941). *J. Amer. med. Ass.*, 116, 131.
 Parfitt, D. N. (1936). *J. ment. Sci.*, 82, 150.
 Svedenstrom, V. P. (1941). *Acta intern. Med.*, 14, 1499.
 Veldner, E. B. (1940). *Amer. J. trop. Med.*, 20, 625.
 Wilson, D. C. (1942). *Lancet*, 2, 692.

B. Rao and C. V. Natarajan (*Ind. med. Gaz.*, 1943, 78, 297) record an outbreak of smallpox in the Kolar Gold Fields in the late autumn and winter of 1942. The case mortality was high, being 33%. All the patients were given sulphanilamide by mouth without any effect on the course of the disease or the mortality.

ENDEMIC TYPHUS FEVER IN DIEGO SUAREZ, MADAGASCAR

BY

C. G. BAKER, M.D.

Major, R.A.M.C.; Medical Specialist

G. T. L. ARCHER, M.B.

Major, R.A.M.C.; Pathologist

AND

G. B. MITCHELL-HEGGS, M.D.

Lieut.-Col., R.A.M.C.; in Charge of Medical Division

The map showing the recent distribution of the fevers of the typhus group in the Epidemiological Report of the Health Section of the League of Nations, 1936, suggests that these have not been recorded in Madagascar, and the local French public health report, 1940, states that this group of diseases does not occur on the island. It is therefore felt that the following series of cases among Service units, though small, justifies a special record.

The general hospital was functioning with limited equipment in Madagascar for several months after May, 1942. There

were a considerable number of cases with pyrexia of uncertain origin, with and without a rash, to which an accurate label could not be attached, as no agglutinable suspensions were available. Soon after the arrival of the suspensions a patient was admitted to hospital suffering from severe headache, drowsiness, backache, pains in chest, and a productive cough. This case was first diagnosed as bronchopneumonia, but sulphapyridine had no effect, for his fever continued and he remained seriously ill. For this reason, and despite negative blood films, it was thought that he might have malaria, but well, and so was given quinine. On the seventh day a macular rash developed, and his bloated appearance with suffused face taken in conjunction with the course of his illness, led to a suspicion that the case was one of typhus (C. G. Baker). This was confirmed by the Weil-Felix test (G. T. L. Archer). Patients in the hospital with indefinite fever—in some cases with a rash and severe malaise, in others only slightly ill, all from the same unit and area—were immediately examined again, and blood agglutination performed.

The early results of Weil-Felix examination were as follows:

- Case 1: OX19, OX2, OXK, 1/100 on 11th day
 „ 2: OX19 1/400, OX2=0, OXK=0, on 12th day
 „ 3: OX19 1/800, OX2 1/200, OXK 1/100, on 18th day
 „ 4: OX19 1/100, OX2 1/100, OXK 1/20, on 12th day

TABLE I.—Summary and Analysis of Cases

(On grounds of economy detailed notes of these cases are not included in the report, but are available on request)

	Case 1 Severe Illness	Case 2 Mild Illness	Case 3 Moderate Illness	Case 4 Moderate Illness	Case 5 Moderate Illness	Case 6 Moderate Illness	Case 7 (Complicated) (a) Malaria; (b) Tonsillitis Severe Illness	Case 8 (Complicated) Malaria at Onset Moderate Illness	Case 9 Mild Illness	Case 10 (Complicated) Malaria M.T. Severe Illness
1. Incubation period (days) ..	?	? 16	?	?	7 to 10	? 2 1/2	?	?	?	28
2. Prodromal period (days) ..	0	3	2	2	0	2	1	?	4 or 5	0
3. Onset ..	Sudden	Gradual; insomnia	Gradual	Gradual	Sudden	Sudden	Gradual; lassitude	Sudden	Gradual	Sudden
Invasion symptom ..	Pain in chest; bronchopneumonia	Limb pain	Insomnia; vertigo	Backache; pain behind eyes	Headache	Inflammation of old abrasion; headache; backache	Limb and stomach pain	Sweats; headache	Lassitude	Aching sweat
4. Rigor or shivering ..	0	+	+	+	+	0	+	+	0	+
5. Vomiting ..	0	0	0	0	+	0	0	0	0	0
6. Headache ..	0	+	+	+	+	+	+	+	+	+
7. Days of remittent ..	12	5	12	3	11	10	9	8	? 4	13
Fever sustained over 102° ..		17								
Total days over 99° ..	17	intermittent 10 remittent	14	1/0	16	12	21	11	< 6	18
8. Onset of rash (day) ..	5th	0	0	0	5th or 6th	< 5th	4th	< 9th	0	5th
Duration in days ..	10	0	0	0	6 approx.	< 5	7	< 3	0	Maculo- papular
9. Type ..	Maculo- papular; red fol- lowed by brown stains	0	0	0	Maculo- papular; followed by staining	Maculo- papular; subarticular staining	Maculo- papular	Maculo- papular; subarticular staining	0	Maculo- papular
10. Distribution ..	Generalized; chest, limbs, palm, and soles	0	0	0	Chest and limbs; not face	Generalized	Generalized	Chest and limbs	0	Chest; very faint
11. Blotchy face ..	+	0	0	+	+	+	+	—	0	+
12. Shivering rigors ..	+	+	0	+	+	+	+	—	+	+
13. Sweating; musty smell ..	+	0	+	+	+	+	+	+	+	+
14. Epistaxis ..	+	0	+	+	+	+	+	+	+	+
15. Conjunctival congestion ..	+	0	0	+	+	+	+	+	0	0
16. Photophobia ..	+	0	0	+	+	+	+	—	0	0
17. Pain on moving eyes ..	+	—	0	—	+	+	+	+	0	+
18. Fatigue; inability to protrude tongue ..	+	+	0	+	—	0	+	+	+	+
19. Frontal headache ..	Attempt painful	+	+	+	+	+	+	+	+	+
20. Occipital headache ..	+	+	+	+	+	+	+	+	+	+
21. Backache ..	+	0	+	+	+	+	+	+	+	+
22. Limb pains ..	+	+	+	+	+	+	+	+	+	+
23. Insomnia ..	+	+	+	+	+	+	+	+	0	0
24. Uncooperative ..	+	0	0	0	0	0	0	0	0	0
25. Amnesia ..	+	0	0	0	0	0	0	0	0	0
26. Drowsiness ..	+	+	0	0	0	0	0	+	0	0
27. Bronchitis ..	0	+	0	0	0	0	0	+	0	+
28. Bronchopneumonia ..	+	0	+	+	+	+	+	0	0	+
29. Cervical adenitis ..	+	+	+	+	+	+	+	+	+	+
30. Axillary adenitis ..	+	0	+	+	+	+	0	0	0	+
31. Splenomegaly ..	+	0	+	+	+	+	+	+	+	0 Tender
32. Constipation ..	—	—	+	+	+	+	—	+	+	0
33. Anaemia ..	+	0	0	0	0	0	0	+	0	0
34. Albuminuria ..	+	0	0	0	0	0	0	+	0	+
35. Malaria ..	0	0	0	0	0	0	M.T.	+ M.T.	0	+ M.T.
36. Weil-Felix (see Table II) ..										

— = No record.

The question of a vector arose. Nothing definite could be deduced from the patients' histories, but within the limited means at our disposal as a stationary hospital some investigations were made, and it was found that:

1. *Lice*.—None of the patients were louse-infested, but all had been bitten, of course, by insects recently.
2. *Fleas*.—Fleas of two puppies which had frequented the location, as from rats found in the native huts which were at one time used as sleeping quarters by a few of the men for a short period, and fleas from rats living in an ammunition dump which had been guarded in turn by most of the patients were possible vectors. *Ctenopsylla cheopis* and *X. braziliensis* were found on rats caught in the neighbourhood.
3. *Mosquitoes*.—Three cases developed malignant tertian malaria while in hospital.
4. *Ticks*.—Ticks infested almost every dog in the district.
5. An unknown vector remained a possibility.

All respective observations, investigations, and treatment were controlled by medical specialist, pathologist, and officer in charge of the medical division of the unit. The pathologist had only a very limited supply of agglutinable suspensions, so as to choose the time of taking the specimen with considerable care. These three officers are convinced that a fever with definite clinical picture similar to that seen in cases of the typhus group found elsewhere, supported by appropriate pathological tests, has occurred among people living in the region of Col's Hill (near Diego Suarez), Sakaramy, and Orangea. In spite of the official views expressed in the first paragraph it may well occur elsewhere on the island.

Incubation Period

This could not be fixed accurately, as most of the patients reached the main site, Col's Hill, on May 31 but developed their illness at different times (Table I). The dates of insect bites were noted where possible; the incubation period appeared to be 10 days in Case 5, 16 days in Case 2, possibly 1 month in Case 3 (who stated he had not been bitten for that period), and 2 months in Case 6 (who also stated that he had not been bitten recently but had sustained an infected abrasion two months before the onset of the illness). Subtertian malaria infection occurred at the onset of the illnesses in Cases 8 and 9, but towards the end in Case 7. A patient from his site who attended the skin department on account of bites on the thigh and waist region of the abdominal wall, such as most of these patients had had, was admitted and kept under observation to see whether an incubation period between his bite and the fever could be ascertained, but his Weil-Felix reaction never rose above OX19 1/40, OX2 1/20, OXK 1/40.

The prodromal period appeared to be about 2 days. It was not present in all cases, being absent in Cases 1, 5, and 10. It was of 1 day's duration in Case 7, 2 days in Cases 3, 4, and 5, 3 days in Case 2, and 4 or 5 days in Case 9. The symptoms during this time were unusual lassitude, fatigue, and sleepiness very early at night, and a headache early in the morning, which gradually passed off during the day but returned in the evening.

Onset of Fever and Illness

This was gradual in half the cases and sudden in the remainder. The invasion symptoms included headache, pains in the chest and epigastrium, severe backache, dizziness and falling to the ground, and rigors or shivering attacks. Severe headache was the most common symptom, starting in the frontal region, then being noted in the occipital region, and finally in the whole head.

The main features of the established illness appeared to be a continuous high fever for about 14 days, temperature varying between 100° and 104° F., and pulse between 80 and 100. Sweating was marked throughout the febrile period and was notable for a characteristic heavy musty odour (quite different from that of patients in hospital at the time suffering from malaria, paratyphoid A, dengue, fevers, etc.). The patients were drowsy, lethargic, and uncooperative; it was an effort to protrude the tongue for inspection. There was puffiness around the orbits, with conjunctival suffusion, blotchy bloated appearance, and sleepy expression. The main ocular symptoms were heaviness of the upper eyelids, pains behind the eyes, pain on moving the eyes to the right or left, and photophobia.

Headaches were very similar, usually starting in the frontal region, spreading to the occipital region and later to the whole head. They were compared with a heavy weight pressing on the head, and were not associated with a marked throbbing or bursting sensation. Early in the morning they were most severe, diminishing during the day but increasing late in the evening, and often keeping the patient awake. Backache was usually in the lumbar muscles, but did not occur between the shoulders. The limb pains were in some ways like those met with in dengue—frequent in the shins and knees and muscles of the upper limbs, biceps and supinator longus being picked out particularly in Case 8. A common finding was a dry mouth and tongue, but sordes was present only in the most severe cases.

A rash appeared in more than half the cases on or about the fifth day. It was noticed on the chest and flanks at first. The full distribution in some included face, limbs, palms, and soles. The rash consisted of small red pinhead-size papules and red macules varying from 1 to 3 mm. in diameter. At first these faded on pressure with a central red point in a few, but after a few days darkened, and on diascopic examination most showed a residual brown pigmentation. The darkening process continued until the lesions were dark brown, and then gradually faded away. Lesions of different colour were present at the same time, and fading ones gave a clear

TABLE II.—Showing Results of Serological Examination

Case		1st Test	2nd Test	3rd Test	4th Test
	Day:	11th	15th	37th	56th
1	OX19 OX2 OXK	1/100 1/100 1/100	1/400 1/400 1/100	1/800 1/800 1/40	1/200 1/200 <1/40
	Day:	12th	14th	38th	56th
2	OX19 OX2 OXK	1/400 0 0	1/400 1/40 tr. 1/100	1/800 <1/40 1/40	1/200 <1/40 <1/40
	Day:	18th	40th		
3	OX19 OX2 OXK	1/800 1/200 1/100 tr.	1/800 1/100 1/40		
	Day:	11th	33rd		
4	OX19 OX2 OXK	1/100 1/100 1/20	1/400 1/200 1/20		
	Day:	7th	27th	47th	
5	OX19 OX2 OXK	1/100 1/20 1/20	1/800 1/40 1/20	1/200 1/40 <1/40	
	Day:	5th	26th	46th	
6	OX19 OX2 OXK	<1/100 0 0	1/800 1/100 1/20	1/800 1/40 <1/40	
	Day:	22nd			
7	OX19 OX2 OXK	1/800 1/200 1/20			
	Day:	12th	19th		
8	OX19 OX2 OXK	— 1/40 —	1/400 1/200 1/40		
	Day:	17th	39th		
9	OX19 OX2 OXK	1/200 1/40 1/200	1/100 0 <1/100		
	Day:	7th	16th	26th	
10	OX19 OX2 OXK	0 0 1/20	1/800 1/400 1/20	1/1600 1/400 <1/40	

impression of subcuticular mottling. The average duration corresponded with the period of high fever, 102° and above, lasting from 7 to 14 days. It was associated with a lineal conjunctival congestion, especially between the cornea and the outer canthus. Epistaxis occurred in 4 cases during the early stages of the fever, and vomiting occurred in 2, but there was no haematemesis.

Chest symptoms and signs were a pronounced feature. Case 1 was first diagnosed as a simple bronchopneumonia. Case 10 had a bronchopneumonia with blood-stained sputum, and in the remaining cases productive cough with signs of bronchial involvement of greater or lesser degree occurred. Involvement of the central nervous system was not marked. Headache and insomnia were common, and the most seriously ill were irrational and uncooperative, with subsequent partial amnesia; but apart from loss of abdominal reflexes and only sluggish tendon reflexes no clinical signs were found. The spleen was palpable in 4 cases in the first week and tender in 1. The lymphatic glands of the neck and axillae were slightly enlarged to the size of a pea in 4 cases and to a greater degree, and particularly in the tonsillar group of cervical glands, in the 2 cases in which there was an associated pharyngitis. Tenderness was absent in most instances, Case 1 being the exception.

Treatment was systematic; morphine was effective.

Pathological findings were as follows. Albuminuria in the severe cases, with red blood corpuscles or casts in deposits, and a secondary anaemia in two cases: Case 3—R.B.C. 3,300,000; W.B.C. 7,200 (polymorphs 60%, lymphocytes 36%, monocytes 4%); Case 4—R.B.C. 3,300,000, W.B.C. 5,200 (polymorphs 68%, lymphocytes 26%, monocytes 5%, eosinophils 1%).

Notes on Table II

The technique used was that of Felix, agglutination in round-bottom tubes at 37° C. The method of reading, however, was modified, after a preliminary examination, by shaking the tubes and observing the end-point of granularity. This was done in view of the fact that many of the tubes in use were not hemispherical at the bottom. Dreyer's technique was not employed, as Dreyer's tubes were not available. On receipt of a few Dreyer's tubes, however, two pairs of tests were carried out in parallel, using the two methods. The results were identical.

The + sign after the titre shown indicates that though the test was not carried further the result on the last tube suggested that the limit of agglutination had not been reached. 0=less than 1/20, the lowest dilution used.

The results, showing comparatively low titres for OX19, with in most cases marked coagglutination for OX2, and, in some, lesser coagglutination for OXK, would appear to indicate a group reaction. They differ from those to be expected in epidemic or endemic (murine) typhus or in mite typhus, while in South African tick typhus the OXK agglutination usually predominates. The results, however, appear to resemble those which occur in the "OX19 Group" of Indian cases (Boyd), 1935.

Vector and Possible Animal Reservoir.—No laboratory investigation was possible on these points, as there were no guinea-pigs available for inoculation experiments with preparations from possible vectors, and the continued shortage of agglutinable suspensions made it impossible to do serological tests on animals.

We wish to thank Lieut.-Gen. Sir A. Hood, Director-General, Army Medical Services, Major-Gen. A. G. Biggan, the Consulting Physician, and Col. J. F. W. Sandison, Officer Commanding the unit, for permission to publish this record.

TWO CASES OF ANURIA DUE TO SULPHAPYRIDINE CALCULI SUCCESSFULLY TREATED BY URETERIC CATHETERIZATION

BY

H. BURT-WHITE, M.D., F.R.C.S.

Major, R.A.M.C.

AND

A. G. JOHNSON, M.R.C.S.

Major, R.A.M.C.

The seriousness of haematuria and anuria complicating sulphapyridine therapy is well recognized, and a number of cases have been reported both in America and in Great Britain. The renal complications of sulphapyridine therapy were well reviewed by Laird (1941) when reporting five cases of haematuria and one of anuria. More recently the literature has been reviewed by Carson and Smith (1942) and by Benson and Percival (1942), who reported respectively the necropsy findings in a fatal case and a case treated successfully by ureteric catheterization.

In the two cases described below relatively small doses of sulphapyridine—9 and 13 g. respectively—were administered and in both cases haematuria followed by anuria resulted. Both cases were in hospital before haematuria developed, at first were ambulatory. A high fluid intake was encouraged but the volume was not measured. Both patients were a males of good physique, admitted to hospital on account of uncomplicated gonococcal urethritis.

Case I

A man aged 28 was admitted on Nov. 17, 1941. He was given 4 g. of sulphapyridine daily for two days, and on the morning of the third day received 1 g. Soon after the last dose he passed deeply blood-stained urine. Later in the day vomiting and severe renal pain were noted and no more urine was passed. As the patient persisted he was transferred to the surgical department and a cystoscopy was performed after 24 hours' anuria.

The bladder contained a small amount of blood-stained urine. The bladder wall appeared normal except for a well-marked ureteric orifice on both sides; that on the left side made the passage of a ureteric catheter impossible. A catheter was passed on the right side and the renal pelvis was washed out. On his return to ward an intravenous drip saline was started, this being continued for two days. A few drops of blood-stained urine drained through the catheter, and 24 hours later he was cystoscoped again. Two ureteroceles were more pronounced, and further attempts to catheterize the left ureter failed; but on catheterizing the right ureter blood and sulphapyridine crystals were seen to escape into the bladder, urine drained through the catheter, and in the subsequent 24 hours he passed 100 oz. of urine through the catheter and urethram. The catheter was removed after 18 hours. His symptoms rapidly abated, and on discharge from hospital two weeks later his urine was normal. The highest blood urea was recorded on the day of the second cystoscopy, being 72 mg. per 100 c.cm.

Case II

A man aged 27 was admitted on Oct. 14, 1942. He was treated with sulphapyridine, and received a total of 13 g. between admission and 6 a.m. on Oct. 17. At 6.30 a.m. on Oct. 17 he started passing blood-stained urine, 5 oz. being passed between that time and 11 a.m. He then complained of severe pain in both loins and persistently vomited stomach contents containing changed blood. At 7 p.m. his condition had deteriorated, and as he had not passed urine since 11 a.m. he was transferred to the surgical department where a cystoscopy was performed. The bladder contained about 1/2 oz. of practically pure blood together with a large amount of sulphapyridine crystals, there were small petechial haemorrhages in the bladder mucosa, both ureteric orifices were congested, and a pencil of sulphapyridine crystals was seen protruding through the left ureteric orifice. On passing a catheter up the left ureter crystals, debris, and blood were seen to escape. A catheter was then passed up the right ureter for only about 2.5 cm. On removal from the theatre he was started on intravenous drip saline, which was continued for three days till the vomiting ceased. Five oz. of blood-stained urine loaded with sulphapyridine crystals drained from the left ureter and none from the right in six hours, after which the left catheter became blocked.

At 10 a.m. on Oct. 18 both catheters were removed and found to be blocked with blood and crystals. Fresh catheters were now passed up both ureters, and both ureteric orifices were observed to be more congested. Attempts were made to wash out the renal pelvis with normal saline, but although 5 c.cm. was injected through each catheter no fluid could be withdrawn, presumably owing to oedematous mucosa being sucked into and blocking the catheter orifices. During the next six hours 8 oz. of blood-stained urine drained through the catheters and a further considerable amount leaked around the catheters into the bed. On Oct. 19 5 oz. of slightly blood-stained urine was passed. On Oct. 20 vomiting ceased, and 110 oz. of clear urine was passed. Subsequently the patient recovered rapidly, and on discharge three weeks later had no symptoms and his urine was normal.

The highest blood urea recorded was 96 mg. per 100 c.cm. on Oct. 21, after which the figure gradually returned to normal.

Discussion

Incidence.—During the last six years one of us has treated the sulphonamide group of drugs, and particularly sulphapyridine, in about 4,000 cases. With the exception of the cases here reported all cases of haematuria have resolved on confinement to bed, cessation of the drug, large quantities of fluid by mouth, and enemata. The incidence is low, but likely to rise if the less-soluble sulphathiazole replaces sulphapyridine. According to Macartney *et al.* (1942) the rel

olubilities of acetyl sulphapyridine and acetyl sulphathiazole re 32.6 and 5.8 at pH 5.5, and 36.5 and 25.1 at pH 7.5.

Dosage.—In these two cases both the daily dose of 4 g. and the total amounts administered—9 and 13 g. respectively—are now to have brought about anuria, and suggest a personal diosynasy to the drug. The case reported by Laird had 1 g. four-hourly, with a total of 11 g.; the fatal case reported by Larson and Smith received 1 g. four-hourly, with a total of 2 g.; and the successful case reported by Benson and Percival received 21 g. in 3 days. These and other cases make it clear that without an adequate fluid intake anuria may occur with any therapeutically efficient dosage of sulphapyridine and alphanthiazole.

Diagnosis and Treatment.—The diagnosis is obvious, the early symptoms being haematuria, diminished secretion of urine, and pain in the loin which may radiate down to the groin, associated with persistent vomiting. If conservative treatment such as intravenous salines and large quantities of fluid by mouth does not relieve the symptoms quickly—say within six hours—it could seem wise to catheterize the ureters without delay. Such early treatment would appear to give the best chance of recovery and prevent permanent renal damage.

The cystoscopic appearances in Case II are similar to the necropsy findings reported by Carson and Smith, who also found the ureters blocked by crystalline debris. It seems probable in this case that when renal secretion was re-established secondary ureteric obstruction was avoided by the presence of ureteric catheters *in situ*. Having regard to the general condition of the patient, we have little doubt that in the absence of ureteric catheterization this case would have ended fatally.

Attention is drawn to two causes which may make the passage of ureteric catheters difficult or impossible—namely, crystals of the drug in the ureter, and the presence of a ureterocele. Case I demonstrated how rapidly ureterocele may progress, and seems likely that had the operation been delayed longer the passage of a ureteric catheter on either side would have been impossible.

Addendum

Since writing this paper one of us (A. G. J.) has had another case which supports the contention that early catheterization is the proper treatment of this condition—to secure drainage and to provide a method of washing out the renal pelvis, so as to prevent subsequent ureteric obstruction from blood and debris.

Briefly, the case history is that of a man aged 26 admitted to hospital with an acute epididymo-orchitis. A centrifuge deposit of urine showed pus cells in moderate number and a few organisms. Culture gave a growth of *B. coli*. He was nursed in bed, fluid intake was approximately six pints daily, and sulphapyridine 5 g. daily was given. On the third day, when a total of 15 g. of sulphapyridine had been taken, he passed deeply blood-stained urine, and complained of severe pain in and abdominal pain, with vomiting. Six hours later, as no urine had been passed, he was catheterized under a general anaesthetic, and intravenous fluids were started. The bladder was empty at otherwise normal, and catheters were passed easily up both ureters. Almost at once heavily blood-stained urine, containing crystals of sulphapyridine, was recovered from the left side. As there was no secretion from the right side 5 c.cm. of normal saline was injected into the renal pelvis, and secretion from this side was established some two hours later. Urine was passed round the catheters the next morning and they were removed. Subsequent progress was satisfactory, the urine being clear of blood on the fourth day.

Acknowledgments are due to the commanding officers of the military hospitals in which these patients were treated; also to Dr. Laurie, medical superintendent of Shroo Green Hospital, for permission to publish the third case.

REFERENCES

- Benson, R. C. S., and Percival, R. C. (1942). *Lancet*, 2, 360.
Carson, J., and Smith, G. S. (1942). *Ibid.*, 2, 359.
Laird, S. M. (1941). *Ibid.*, 2, 272.
Macartney, D. W., et al. (1942). *Ibid.*, 1, 639.

IMMOBILIZATION AND TRANSPORTATION OF THE FRACTURED FEMUR IN WAR

BY

R. WOOD POWER, M.B., F.R.C.S.I.

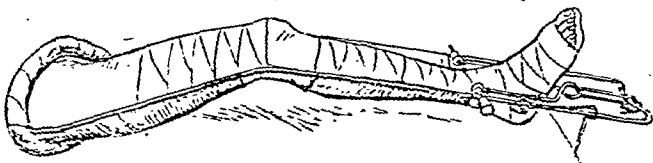
Lieut.-Col., R.A.M.C.

The ideal method of transporting compound fractures of the femur from forward areas in warfare is undoubtedly the spica plaster. Trueta, following his experiences in the Spanish Civil War, has strongly advocated it. He and Böhler have pointed out the great importance of rest, not only for fractured bone but even more so for the lacerated muscles. They both agree that the most efficient splintage is the unpadded plaster spica. Trueta's method is undoubtedly ideal where distances are short, roads good, train transport luxurious and rapid, and the number of casualties small. In North Africa, however, where work at the field ambulances and C.C.S. has been heavy and quick evacuation imperative, where the roads are bad, and where single-track railways make evacuation slow, the spica plaster has not been found satisfactory. Here there are no ambulance trains *de luxe*, and patients evacuated to the base travel a distance of 400 miles or more on stretchers, on which the spica does not lie snugly. Bad roads or badly sprung railway trucks cause considerable shaking, resulting in friction sores on the buttocks, chest, or back. Similar conditions occur in sea transport: for the spica does not fit the cot, and the roll of the ship makes retention difficult and friction sores develop.

From the field ambulance or C.C.S. the wounded man is sent back to a forward hospital. Should complications arise or other wounds require treatment, he is retained there until fit to travel to the base hospital. This may be a period of many weeks, so the importance of correct fixation and alignment of the fracture is obvious.

Fractures of the femur have been evacuated to the base hospitals in North Africa by what is known as the "Tobruk" method, a description of which is as follows: When the toilet of the wound is completed a strapping extension is applied to each side of the limb, but circular strapping is not used for fear of subsequent swelling. A long plaster slab extending from the top of the thigh to the extremity of the toes is retained in position with circular plaster bandages. The tapes of the strapping emerge from the plaster above the ankle on either side, the plaster being cut around the points of exit. The plaster is split down the anterior aspect over a piece of rubber tubing which has previously been placed on the limb. A Thomas splint is fitted and the tapes protruding from the plaster are fastened to the end. Further circular plaster bandages from the thigh to the lower third of the leg keep the limb steady on the splint.

The "Tobruk" method is good for a short period, inasmuch as the patient travels in comparative comfort. Shortening, however, invariably occurs. This method is permissible for



the journey from a C.C.S. to a forward hospital, but if retained after a period of four or five days muscle spasm must be overcome by some means or other before full length can be obtained. The "Tobruk" method is mechanically unsound, for the plaster around the knee will counteract the pull of the strapping extension. Another cause of shortening is the failure to apply a perfectly fitting Thomas splint. The art of doing so appears to be dying out, especially among the younger generation of surgeons.

The ideal method of fixing these fractures (a) must ensure adequate fixation over a period of some weeks, (b) must entail the minimum of attention, and (c) must be easily transportable.

Method of Fixation

I have tried out a method in a forward hospital in North Africa which would appear to fulfil these requirements. It is

essentially the principle devised by Thomas and still practised by the Liverpool school. I have simply substituted an all-metal line of extension for the strapping. The latter requires constant daily attention, which it is impossible to give during transportation. Should the case be complicated by flesh wounds of the lower leg, strapping extension is altogether impossible.

The diagram of this method is self-explanatory. The pin and stirrup should be fitted under aseptic precautions before the surgeon deals with the wound. On completion of the operation, a thick posterior plaster slab is applied from below the knee to the extremity of the toes and retained in place with cotton bandage. The Thomas splint is applied, the surgeon seeing that it fits snugly round the thigh. While an assistant exerts traction on the stirrup the surgeon fastens it to the end of the splint by means of a piece of box wire, the ends of which should be left long.

The success of the method depends on the accurate fitting of the Thomas splint. If the ring is too small pressure will be borne on the upper thigh, leading to interference with the venous return. If the ring is too large pressure will occur on the anterior superior iliac spine, leading to an early pressure-sore, or else the ring will pass up into the folds of the buttock, interfering with defaecation or micturition. If the ring is too large it can be made to fit by padding the outer third with felt. If it is too small it can be divided on the posterior and inner aspect. It is important to bend the splint to an angle of 165 degrees at the knee-joint. If a straight splint is used the knee remains in full extension, which is uncomfortable and predisposes to backward bowing of the femur. Should full length of the limb not be obtained at the first fixation a lapse of four or five days will result in loss of muscle spasm, when the shortening can be overcome by application of a fresh wire. The ideal time for the application of this form of fixation is at the primary operation before muscle spasm has appeared. If extension is applied early there is no difficulty in procuring full length of the limb; the tendency would rather be to over-distract the fragments. This can be rectified later by slackening off the wire.

This mode of traction is ideal for fractures of the lower three-fourths of the femur and should produce perfect alignment. It is of course not suitable for fractures of the upper fourth where abduction of the proximal fragment occurs. It will, however, retain full length of the limb until the patient reaches the base hospital, where abduction treatment is facilitated.

Shortening of the limb must never be permitted in compound fractures, for it may lead to dire consequences. The first is mobility of the bone fragments. If this is allowed, muscle cells are repeatedly torn and die, thereby affording nourishment to the ever-lurking organism, which not only delays union and healing of the wound but may upset the delicate balance existing between the invading microbe and the natural resistances of the body. The second is the mobility allowed to the muscles. Lacerated muscles which are not kept at rest weep profusely, thereby causing loss of fluid from the body. The intermuscular septa open up when muscles are lax and form pockets in which pus will readily collect and track up the thigh. If the muscles are taut the intermuscular septa are closed and form a barrier to the extension of infection. The criterion of good surgery is the amount of discharge from the wound. If the wound has been well and properly saucerized, if bone fragments are in good position, and if muscles are taut and motionless, discharge will be at a minimum. If, on the other hand, the discharge is profuse we know that either the surgery or the fixation is at fault.

Advantages of the Method

The advantages of this form of immobilization over the "Tobruk" method are: (1) The whole limb is on view, so that gas gangrene or other infections can be detected early. (2) Re-dressing of the wound, if necessary, is simple. (3) Re-operation, if required, can be done with the splint *in situ*. (4) It is pre-eminently suitable if there are soft-tissue wounds of the leg. (5) Further manipulation and fixations are unnecessary, as shortening of the limb cannot occur. (6) There is no possibility of plaster sores or interference with the circulation. (7) Patients can be transported any distance, even by sea, with strict immobilization and the minimum of attention.

LOCAL CHEMOTHERAPY IN CHRONIC (NON-RHEUMATOID) RHEUMATISM

BY

G. LAUGHTON SCOTT, M.R.C.S.

Consultant in Rheumatic Diseases to the Almeric Paget Institute, Islington

Local chemotherapy denotes the therapeutic action of chemical substances so applied that immediate effect is confined to the area treated. It also suggests, if not implies, local bacteriostatic or bactericidal influence, which raises the objection that the existence of organisms in the rheumatic lesion is far from being proved. This is indeed a link missing in the chain of argument, but facts accumulate which seem to demand that hypothesis to explain them. At any rate, this sort of rationale is proposed for the present treatment.

Preliminary Diagnostic Investigation

It will be seen that a system founded upon the vital importance of the local rheumatic lesion requires the lesion to be defined with the greatest exactitude. Considerations of space prevent more than one example of how this need is met. In rheumatic sciatica diagnosis only begins with the discovery of signs, with errors of posture, and with the elimination of possibly non-rheumatic causes. It is when such matters have been finished with that location starts. The patient's pain may give direction if it is increased by coughing, sneezing, walking, sitting, bending the neck, or inclining the trunk towards or away from the affected side. Rectal examination will reveal tenderness of sacral roots or spasm of pyriformis; while the whole area must be searched for altered skin sensation. Guttman's (1940) colorimetric investigation of sweat secretion gives useful aid; but most important is the exploratory massage of lumbar, sacral, and gluteal regions, which discloses the various muscular lesions which may play their part in the syndrome. There is nothing new in such mapping of rheumatic geography except its thoroughness; and, indeed, ordinary physical treatment does not demand the same meticulous definition.

Composition of Injection and Method of Use

The trial of numerous essential oils over many years has not revealed the special power of any unusual medicament. The use of oil of niouli in osteo-arthritis was described (Scott 1938), and an oily suspension of streptococcal substance was successful (Scott, 1936a, 1936b); but no advance has been made upon a 10% solution of benzyl salicylate in oil. This is the mixture administered in the series described below.

Points of attack determined, the operator plans his dosage. Idiosyncrasy to the oil-soluble salicylate does not occur, though tolerance will vary. It will soon be seen that previous workers have failed of significant success because in fibrositis their dose was far too small, but in the treatment of joints much too large. In the former 20 c.cm., rising to 50 or 60 c.cm., is usually well tolerated; whereas with joints 0.1 c.cm. to 0.2 c.cm. must not be exceeded. Large injections are followed by malaise and pyrexia, but the effects soon pass. It is curious how closely the rules for vaccine administration govern the treatment—weekly spacing, rising doses, negative phase, and improving tolerance.

Results

Since 1932 about 1,500 patients have been dealt with, but some of earlier date are not now traceable, and, indeed, belong to a period when many problems of technique were fluid. A series of 96 recent and consecutive cases is therefore presented. All were treated over the past three years in a provincial town and have the corroboration of their doctor. A rigid standard of success has been applied, for "good result" is not claimed unless function, recovered on discharge, remains complete 1 date. Milder cases were rejected, as also all new cases of the rheumatoid type and osteo-arthritis of the hip, which do no benefit. Out of the 96 cases, 76 results are returned as good, 14 as fair, and 6 as failures. Twelve cases, the most severe are described below in some detail; with these contact has been maintained so that points of interest may be verified.

LOCAL CHEMOTHERAPY IN CHRONIC RHEUMATISM

Illustrative Cases

Case 1, Fibrositis.—Masseuse aged 47; 15 years' fibrositis neck, shoulders, back, buttocks—much physiotherapy; feared retirement. Six treatments—severe reactions. Two months later little signs left; confirmed by another masseuse; "better than for years." July 20, 1943 (9 months after): full practice; well. Result: (a) function normal; (b) pain trifling.

Case 2, Fibrositis.—Architect aged 58; brother, father, grandfather, and great-grandfather disabled from walking at 55. Last named lifted into coach by crane! No gout; blood uric acid twice low; radiographs showed no changes. Fibrositis of plantares marked—lower os calcis acutely tender—short extensors fibrositic; impaired movement toes; tendo Achillis thickened; fibrositis in soleus, peronei. Symptoms in 1932: for year walking 5 miles, multiple injections over 4 weeks. In six weeks walking 5 miles, painless; day's shooting. Well 9 months later. Result: (a) function normal; (b) pain nil.

Case 3, Fibrositis.—Broker aged 59, once first-class tennis player. April 12, 1943, reported 3½ years' disablement—neck, shoulders, knees, feet; "can't climb stile or lift hoe." Rheumatologist had not helped. Cold swollen hands, staggering walk, rheumatoid appearance. Three examinations, with masseur; found fibrositis in neck, sacro-iliac, sciatic notch; crippled state did not seem accounted for. One treatment; 120 c.cm. standard mixture. Left 11th day, walking freely. May 15, 1943: nothing abnormal; hardest labour on farm. Well since. Such quick recovery rare; needed location of all lesions—seldom made at outset. Result: (a) function normal; (b) pain nil.

Case 4, Osteo-arthritis of Spine, etc.; Fibrositis.—Solicitor aged 68, seen Sept. 11, 1940; imprisoned in heavy steel jacket since 1922. X-ray report (1929): "Marked osteo-arthritis of spine, chiefly D 8 to 12; all lumbar vertebrae affected; osteo-arthritis of knees and great toes; severe sacro-iliac arthritis." Yearly visits to Aix-les-Bains 6 times. Cervical, lumbar, gluteal, and sacro-iliac fibrositis, which was attacked; after 8 treatments pain absent. Soon laborious work in garden, sometimes walked 5 miles. With vious of entirely discarding jacket, but year later had done so. Provides example that rare single treatments, well in all respects. Provides example that severe spinal osteo-arthritis may cease to disable if accompanying fibrositis is successfully treated. Result: (a) function normal for age; (b) pain rare.

Case 5, Osteo-arthritis of Knees, Wrists.—Clerk aged 66; arthritis of knees for years. Gross bony changes; any walking impossible; despair at losing work. Both knees hot, very swollen: flexion of R. knee limited. Progress slow, minimal dosage. After six weeks walked a mile—soon two miles. Returned to work 8 weeks after starting treatment. Later, wrists treated. X-ray report (Schwartzman): "In P.A. position, blurring of metacarpal bones; marked lipping seen in lateral position—marked hypertrophic osteo-arthritis." After 7 treatments heat and swelling gone. Function much improved. Result: (a) function normal, (b) pain slight; nil; wrists—(a) function much improved, (b) pain slight.

Case 6, Osteo-arthritis of Knees.—Married woman aged 66, "incapacitated in knees" 2 years before. Noted orthopaedist July 30, 1941: "X rays show marked degree of osteo-arthritis in both knees—proliferation round joint margins—elongation of tibial spines; further treatment was useless." Walked little and painfully for 18 months. Result: (a) function normal; (b) pain nil.

Case 7, Osteo-arthritis of Knees.—Ex-Army man aged 73; "many accidents to knees earlier"; 10 years' poor walking; 1 year hardly walked at all. Knees hot, tender, swollen. X-ray report, Oct. 5, 1940 (Shanks): "Gross chronic osteo-arthritis changes in both knees—large osteophytes; some detached and may be loose in knee." 11 injections after 1941; painless function; several miles daily. Further injections to ascertain whether changes seen by x rays could be modified. Not the case. Interest lies in recovery of function after almost maximal disorganization. Remains well. Result: (a) function normal for age; (b) pain nil.

Case 8, Osteo-arthritis of Knee.—Theatrical producer aged 42; injury to foot as boy—amputation of toe; cartilage removed. For years pain on exercise; recently splinted, confined bed, where examined July 27, 1942. X-ray report (Schwartzman): "Tubercle of L. knee enlarged; joint space narrowed; border of patella pointed; some lipping lower femur." Head of fibula enlarged by osteophytes; operation suggested. Moderate walking in 4 weeks; since then, with few single treatments, walks without limitation. Result: (a) function normal; (b) pain rare and slight.

Case 9, Polyarthritis.—Sawyer aged 62, Jan. 5, 1943: Active process in wrists, elbows, shoulders, knees, ankles; symptoms for years; employer anxious lest he must be retired. No radiographs. Soon improvement despite heavy labour. 7 sessions; pain slight. March 1: no abnormality except wrists; puffy, not painful.

Employer writes: "Sings instead of cries on way home." Well since. Result: (a) function normal; (b) pain greatly reduced.

Case 10, Rheumatic Sciatica.—Stonemason aged 37; sciatica years before; recurrence 9 months ago—long hospital treatment—advised permanent light work—incapacitated. April 23, 1941: Lasègue +; wasted L. buttock; A.-J.s equal; sensory loss outer leg, sole. Per rectum, pyriformis spasm; tender sacral roots. Six treatments—no better. June 17, 1941: only pain over S 1, 2; now left A.-J. depressed. Posterior sacral foramina 1, 2, 3 injected—benefit; reinjected—pain gone. Heavy work soon after; active to date. Result: (a) function normal; (b) pain nil.

Case 11, "Sciatica."—Typist aged 20; acute symptoms 20 weeks; 6 weeks bed, then bath-chair. Consultations at local hospital indecisive. Sept. 7, 1942: contralateral scoliosis; Lasègue +; A.-J.s equal; sensory loss sole; per rectum, nil; tender over S 2, nowhere else. Involvement of S 2 diagnosed in spite of equal A.-J.s. Injection posterior sacral foramina—pain gone. A few gluteal injections; Well and active since Oct. 30, 1942. Result: (a) function normal; (b) pain nil.

Case 12, Rheumatic Sciatica.—Surgeon aged 48, seen Dec. 10, 1942, 3 years previously treated for months in London home by 5 physicians; one, expert in injections, gave 20 treatments. Unimproved; eventually to work, but even with analgesics uncomfortable. Nov. 1942: acute recurrence; Lasègue and Mennell +; gluteal atrophy; per rectum, S 2, 3 tender; pyriformis spasm. Sensory loss indicated L 5, S 1, 2, 3. No A.-J. Treatment for 5 weeks; 7th week, symptomless, walking freely, A.-J. still absent. Well since; recent fracture of pelvis caused no relapse. Result: (a) function normal; (b) pain nil.

Claim of Innovation

The common criticism of all new work is that it is not new at all. Certainly the chemical substances used by me are not new, and in oil-soluble form they are not untried. Claim to novelty fails if there is no more in it than this. But there is more; there is the contention that when they are properly applied the oily salicylates are specific in chronic rheumatism; furthermore, it is maintained that this fact has escaped previous workers because their dosage was wrong and their technique imperfect. If items of intra-articular recorded spell the difference between success and failure, then technical improvement constitutes innovation. In many respects this can be shown to be true. The literature of Forestier's chemotherapy, for example, hardly exists except for Forestier's scanty notes, yet the need for extremely minute doses can be shown to be so obvious that it must have been recorded if observed. With correct dosage the prognosis of the rheumatic joint is transformed. When first, in 1932, I attempted intra-articular injection a doubtful result after much reactional pain was the rule. Now there is no pain—not even interruption of normal activity—and results are remarkable.

But optimal dosage has proved simpler to work out than many essential details of technique. In neuritis local injection will not do much if it has no more than anatomy to guide it. This is particularly true of brachial neuritis, which is often cured in one or two sessions when injection is made over the intervertebral foramina. In rheumatic sciatica six areas need to be explored as possibly contributing to that composite entity. Such details are few among many that deserve, but have yet to receive, description. Nor is there mention of the systemic benefit which often follows local chemotherapy. That local treatment should profoundly affect the general health requires proof and modification of accepted theories. But such considerations are outside the practical issues here put forward.

Summary

It is suggested that local chemotherapy has notable possibilities in the treatment of chronic rheumatism. Emphasis is laid on the need for extreme accuracy in locating the rheumatic lesion before it is attacked; some account of the application of the method is given. The results obtained in a series of 96 consecutive and fully corroborated cases are assessed; 12 of these are briefly described. The claim to innovation rests upon matters of dosage and technique, the past neglect of which has obscured the value of local chemotherapy in chronic rheumatism.

REFERENCES

- Guttmann, L. (1940). *J. Neurol. Psychiat.*, n.s., 3, 197.
Scott, G. Laughton (1936a). *Med. Pr.*, 192, 33.
(1936b). *British Medical Journal*, 1, 502.
(1938). *Practitioner*, 140, 307.

A CASE OF CONGENITAL DILATATION OF THE PULMONARY ARTERY

BY

H. L. HEIMANN, M.D., M.R.C.P.

Lieut.-Col., S.A.M.C.

AND

M. M. POSEL, M.D., M.R.C.P.

Major, S.A.M.C.

(From Oribi Military Hospital, Pietermaritzburg, Natal)

(WITH PHOTOGRAPHURE PLATE)

According to Bedford, Paff, and Parkinson (1941) congenital dilatation of the pulmonary artery is a rarity, while septal defect is the commonest congenital malformation of the heart. Those authors stress the great dilatation of the pulmonary artery and its branches that accompanies atrial septal defect, and, while attempting to differentiate between these two conditions, confess that differential diagnosis may be impossible. Other authors, notably Assmann (1928), describe this congenital dilatation as a primary condition due to asymmetrical divisions of the truncus arteriosus communis.

Jennes (1936) points out that dilatation of the pulmonary artery is as rare as dilatation of the aorta is common. In a total of 38,000 necropsies done at various English-speaking hospitals no case was discovered up to 1936. In all, 122 cases have been recognized, and, with the exception of 12, all at necropsy. From the descriptions of some of these cases they were probably of the type described by Bedford, Paff, and Parkinson. Master (1939) states that in atrial septal defect large auricles result, with enormous P waves. The opinion expressed by Bedford, Paff, and Parkinson (1941) is contrary to this statement: except in a certain proportion of cases, the right auricle was grossly enlarged, but not the left.

Assmann's classification of congenital dilatation of the pulmonary artery appears to be of value, and is as follows:

A. Acquired :

- (1) Aneurysm of the pulmonary artery
- (2) Perforation of aneurysm of aorta into pulmonary artery
- (3) Pulmonary insufficiency from endocarditis
- (4) Stasis in pulmonary circulation, as in mitral stenosis

B. Congenital :

- (1) Solitary single anomaly (asymmetrical division of truncus arteriosus communis)
- (2) Open ductus botalli
- (3) Pulmonary stenosis (very exceptional)
- (4) Defect of auricular septum
- (5) Defect of ventricular septum

Radiology plays an important part in the diagnosis of this condition, and the criteria of x-ray diagnosis seem to be as follows:

- (1) Increase of pulmonary bow
- (2) Small aortic knuckle
- (3) Broadening of hilar shadows
- (4) Enlargement of the pulmonary arterial tree. The oblique positions, together with the barium swallow, will show the characteristic picture of the enlarged pulmonary artery.

In view of the rarity of the condition, we are adding a description of a case which conforms, radiologically and otherwise, to those already described.

Clinical History

The patient, a man aged 23, was admitted to hospital because of "feverishness" and pains in the joints. Influenza was diagnosed, but routine examination revealed certain peculiar features. He was 6 ft. 5½ in. in height, and had clubbed fingers and a very blue tinge on his lips. At the age of 10 he had been told that he had "something wrong" with his heart, but this had not precluded him from having a fairly normal adolescence. He had played games at school, but could not run fast. He had had no illnesses and had lost no schooling. Three years previously he had coughed up a cupful of blood, but his doctor told him it was due to "lung strain." He had had no chest pains, cough, or expectoration. Neither had he had any sore throats, joint pains, or any kind of body rash.

The family history was not relevant, except that his father was a very tall man of 6 ft. 5 in., and his sister was also over 6 ft. The head and neck showed no abnormality. The apex beat was well out, five inches from the mid-sternal line. There was a palpable thrill, diastolic in time, over the præcordium—not like the systolic thrill of mitral stenosis, but sharp and abrupt. On auscultation there was a mid-diastolic murmur, heard at the apex and conducted out. There were no moist sounds in the lungs. The pulmonary and aortic areas were clear. The liver was not palpable. The blood pressure was 140/70. The Wassermann reaction was negative, and the blood count showed 7,500,000 red cells, Hb 64% (Sahli), and a white cell count of 13,000.

The electrocardiogram did not show a right axis deviation measurement on the Einthoven triangle. There were inverted waves of the coronary type, with depression of the S-T segment below the isoelectric line, in both arm and leg apex leads taken in the conventional manner. The three limb leads showed diaphanous QRS complexes suggestive of congenital heart disease as described by Katz.

X-ray examination demonstrated a huge pulmonary artery in a comma-shaped branch, also greatly enlarged in the antero-posterior position (Plate, Fig. 1). After a barium swallow a very large impression made by the right pulmonary artery in the right oblique position was a striking feature (Fig. 2).

We conclude that the above is a case of congenital dilatation of the pulmonary artery and its branches. Atrial septal defect might be present, but this is uncertain, as the right auricle was not grossly enlarged.

BIBLIOGRAPHY

- Assmann, H. (1928). *Die klinische Röntgendiagnostik der inneren Erkrankungen*. Leipzig.
Bedford, D. E., Paff, C., and Parkinson, J. (1941). *Brit. Heart J.* 3, 36.
Jennes, S. W. (1936). *Johns Hopk. Hosp. Bull.*, 59, 133.
Master, A. M. (1939). *The Electrocardiographic and X-ray Configuration of the Heart*. Philadelphia.
Smith, Lester, et al. (1936). *Radiology*, 17, 141.

Medical Memoranda

A Case of Traumatic Ventricular Pneumocephalus

(WITH PHOTOGRAPHURE PLATE)

Cases of traumatic ventricular pneumocephalus reported in the literature are few in number, and Davies (1943), who described one case of his own, could find only about twelve in the British literature. It may therefore be of value to put on record another instance of this rare condition.

HISTORY OF CASE

A man aged 33 was found lying alongside a road late at night and was admitted to the Staffordshire General Infirmary on May 1943, in a deeply comatose condition. The exact nature of the accident could not be ascertained, but from the time factors it was judged that he had been lying out in the cold at least one hour. On examination a small puncture wound, quarter of an inch in diameter, was found over the left eye, fairly large abrasions of the forehead and just below the canthus of the left eye. The eyelids on both sides were very swollen and could be opened only with difficulty, but enough to show subconjunctival haemorrhage in the left eye. There was no bleeding from ears or nose, nor was any other injury found. His temperature was subnormal, but the pulse was fairly strong, with a rate of 60 a minute. Fracture of the skull was diagnosed; the patient was admitted and treated for shock. Because of his general condition surgical toilet was not performed.

By the following morning he had passed into a state of cerebral irritation, and this irritation alternated with long periods of coma. Dehydration treatment was begun, using a 50% solution of sodium sulphate, 4 oz. six-hourly, per rectum. By the next day he was completely conscious, and complained of pain in the occipital region. This pain later shifted to the left temporal area, and during his stay in hospital he had repeated attacks of pain in this region.

On the fourth day after admission the patient complained of stiffness of his neck. Examination showed physical signs of meningitis, although temperature and pulse were normal. Lumbar puncture the cerebrospinal fluid was found to be of normal pressure and fairly heavily blood-stained. This fluid contained no coagulum, and the supernatant fluid was faintly yellow. Numerous red blood cells were present, but there was no incursion of leucocytes, and films showed only Gram-positive bacilli. On culture, only aerial contaminants were found. The dehydration treatment was stopped and the patient put on a course of salicylates, and the meningitic symptoms passed off in a few days.

Apart from the continued headaches, for which phenobarbital was given, the patient made good progress until June 2, when

veloped a left-sided supranuclear facial paralysis. The following day the patient was radiographed for the first time, when a massive comminuted fracture extending nearly round the calvarium was found. There was no involvement of the base of the skull, but the x-ray film showed perfect outlines of the third and lateral ventricles due to the air in them (see Figs. 1 and 2 on Plate). Another radiograph was taken on June 19; this showed that the air had been absorbed.

About June 25 the patient developed diplopia of the left eye with ectropion of the lower eyelid. The ectropion was due to carrying of an abrasion below the lid; and scarring inside the orbit affecting the external rectus would account for the diplopia, since no injury to the sixth cranial nerve could be found.

The patient made good progress and was discharged after seven weeks in hospital. When seen on July 21 he was complaining of complete deafness in the left ear. The facial paralysis was beginning to pass off, and cutaneous sensation was present on the left side of the face. A radiograph taken in Towne's position showed a fracture extending into the petrous portion of the temporal bone, which would account for the seventh and eighth cranial nerves being affected. The probable route of entry of the air was through either the frontal wound or the ear and then by a dural tear into the subarachnoid space. The air would then rise in the ventricular system to the third and lateral ventricles.

My thanks are due to Mr. G. I. Wilson for his encouragement and advice, and for permission to publish this case.

M. GANES, L.R.C.P.S. Ed.,
House-surgeon, Staffordshire General Infirmary.

REFERENCE

Davies, D. O. (1943). *Brit. J. Surg.*, 30, 237.

Generalized Sensitivity to Sulphonamides

The recent article by Major Park (*Journal*, July 17, p. 69) has drawn attention to a condition of increasing incidence which is at present by no means always recognized. I am therefore prompted to quote the following case of cutaneous hypersensitivity to sulphanilamide powder applied to an extremely minute lesion. This was to the site of a small penile wart which had been cauterized.

CASE HISTORY

The patient was a soldier, aged 23, of 3½ years' service; previous occupation, plumber. He had been in hospital for 4 to 5 days a year ago with a rash the details of which I have been unable to obtain. He had never previously taken any sulphonamides.

In March, 1943, he had two small penile warts removed by cauterization, and sulphanilamide powder was applied. He attended a week later, and, as the warts had not disappeared, the process of cautery and powder was repeated, as it was also on the occasion of his next visit, a week after this. He powdered the wart sites three times daily at his unit during this period. The two areas in question were only about 2 to 3 mm. square. At his next attendance, a week later, the warts had gone but the small sites were still unhealed. More powder was given, as was done under similar circumstances at the end of the fourth week. After applying sulphanilamide powder thus for one month to this almost insignificant lesion, his penis swelled up, and he developed a rash on that organ, extensor surface of arms, and face. This was not seen personally, as he was treated at his unit. The rash subsided in a few days with calamine lotion to face and arms and vaseline to the penis. The wart site healed, and he went on leave to arrange for his forthcoming marriage.

Two weeks later the wart, however, recurred and he attended hospital again on May 8. He saw a different medical officer, and volunteered no information concerning his skin trouble. The wart was treated as before with cautery and sulphanilamide powder, and he was detained in hospital to settle finally with it. On May 10 there was some oedema of the prepuce with commencing eczematization. The condition was recognized and saline washes were given. On May 11 he also had dermatitis on face, both forearms, and hands, with an erythematous eruption on chest and legs. This settled well by May 18, and his contumacious wart was once more treated—this time by lig. epispasticus and starch and boric powder—and he was discharged from hospital on May 25. He was seen again on June 2, and on June 9 was detained for a patch test. This test was done on lint moistened in axillary sweat, pieces of which, powdered with sulphapyridine, sulphathiazole, sulphadiazine, sulphamethazine, sulphanyl-mandelate, and sulphanilamide respectively, were strapped to the unbroken skin on the back for 24 hours. No action occurred from any of these.

I was tempted to carry out scratch tests and to give him tablets by mouth to see the reaction, but as at long last he was in a fit state to be married after some trying weeks of frustration, he was discharged.

CONCLUSIONS

Obviously sulphanilamide powder should not be applied to even insignificant lesions for such a lengthy period as above. The fact that a lesion is not healed under sulphanilamide powder within a week should be evidence that it does not suit and that a local or a generalized dermatitis is likely.

R. R. WILCOX, M.B.,

A/MSR, R.A.M.C.; Specialist in Venereology.

Reviews

CHAOS IN THE MEDICAL SERVICES

The Future of Medicine. By D. Stark Murray, B.Sc., M.B., Ch.B. (pp. 125. 9d.) West Drayton: Penguin Books Ltd.

This addition to the "Penguin Specials" can be cordially recommended. It is packed with interesting information clearly presented. Some of the chapters—e.g., 6 and 7, "Could Medicine Do More?" and "The Chaos which is Medicine To-day"—I found particularly stimulating. The patchwork nature of the medical services of this country has long been a byword among those who have studied it, and Dr. Stark Murray manages to deal not only concisely but vividly with a subject which might have been thought threadbare. The ingenious diagram on page 76, showing "how a family gets its medical service to-day," may be regarded by the reader as either a comedy (of errors!) or a tragedy—depending on one's mood. But though I approve Dr. Murray's diagnosis, I cannot agree with his suggested treatment. While we are all in favour of making it as easy as possible for everybody to get the medical services he requires, it is evident that there is room for honest difference of opinion as to how this is to be done. Dr. Murray is an out-and-out supporter of a whole-time salaried service. For this there is a good case if one is content to adopt the somewhat inhuman attitude of the convinced Socialist, who seems to ignore the individual in his concern for the "community." This is well illustrated by the author's approval of a scornful reference to the "wastefulness" of the visits of several doctors to patients in the same street. This may be called "wasteful" if we ignore the legitimate desires of the average man and woman, but some of us have not yet attained this attitude of superiority to human weakness. I would advise Dr. Murray to try on some of his Socialist friends, ordinary common people, say in Lancashire or Yorkshire, his dislike of this form of "wastefulness"; or perhaps he might vary it by suggesting that it is "wasteful" for a woman to prefer to spread her purchases over various shops, according to her fancies, instead of buying everything at one store. I must confess to a strong dislike for the prospect of a world in which everything, including human nature, is to be planned and managed and levelled out.

There are a few points of detail to which attention may be called. The only factual error I have detected is on page 63, where the author says "there is no longer any restriction of any kind on the sale of patent and proprietary remedies." This overlooks the Pharmacy and Medicines Act of 1941, which puts many restrictions on their sale, and insists, for example, on the publication of their formulae. It was rather surprising to find on page 42 that Dr. Murray says that the patient in a public hospital is "more likely to be treated as a human being than in a voluntary hospital." I should very much doubt this. In his chapter on "The Specialist," which I can heartily commend, Dr. Murray says that it is difficult to define a "consultant." Surely a real "consultant" is one whose opinion is valued by his peers. On page 78 the author says that the "panel patient's wife in a very large proportion of cases calls in her own private doctor, a quite different person." This does not agree with what I have been told by many general practitioners.

I hope this little book will have a wide circulation; that its diagnosis of the chaotic position of the medical services of this country will be pondered by many who have not thought about it; but that its prescription for the cure of the disease may be very carefully measured by a reference to what the reader would desire for himself. Men and women have little use for the "community" when they are sick, and the main use of medical services for most of us must continue for a long time to be when we are sick. Whatever changes we make—and Dr. Murray convincingly shows that many are overdue—we must not mechanize and dehumanize the relations between patient and doctor.

ALFRED COX.

ANATOMY OF THE FEMALE PELVIS

The Anatomy of the Female Pelvis: Including a Description of the Placenta and its Formation and the Foetal Circulation. By C. F. V. Smout, M.B., Ch.B. With sections, in Part I, on the Histology of the Female Reproductive Tract and a chapter on Ovarian Endocrine Function by F. Jacoby, M.D. Foreword by Sir Beckwith Whitehouse, F.R.C.S., F.R.C.O.G. (Pp. 190. 35s.) London: Edward Arnold and Co.

Dr. Smout has compiled a neat but comprehensive monograph on the anatomy of the female pelvis. By his handling of the subject and by the inclusion of sections written by Dr. F. Jacoby on the histology of the female reproductive tract and ovarian endocrine function he has done more than write an anatomical study: he has written a volume of great interest to the clinician as well as to the preclinical student. The expressed wish that portions of the book may be useful in the training of midwives is a reasonable one, and it is to be hoped that those responsible for their teaching will not overlook its merits. If one admits that histology should be taught with anatomy (and we do), then the book is arranged on orthodox lines. The study is developed from an osteological basis, with chapters dealing with the bones, the joints, the walls, the fascia, and the contents of the female pelvis. The last few pages are devoted to the foetal circulation and placenta formation.

The work has been most carefully prepared and is beautifully illustrated, but none the less there is something not quite satisfying about it so far as its clinical applications are concerned. The anatomy of the pelvis is of the greatest interest and significance to the obstetrical and gynaecological operator, and if a monograph on the subject is to be of much practical use to him it must be accurate and it should give some reference to the more serious variations of the normal with which he will have to deal. It might also be argued with reason that the anatomy of the more important surgical approaches could be discussed. For example, the ureter is for the gynaecologist one of the most important structures in the pelvis, and he must be acquainted with its whereabouts when he operates both per abdomen and per vaginam. Yet the ureter is discussed in a few lines: nothing is said of its anatomical variations, of its displacement by tumours or prolapse, and little space is devoted to the detailed anatomy of its relation to the vaginal vault, cervix, and uterine vessels. Knowledge of these points is essential to the safe performance of a radical hysterectomy, but the operator would find little in this monograph to help him in this respect. The uterine artery is described as arising from the internal iliac, and an excellent illustration is given of this; but no reference is made to its origin from the unobliterated part of the obliterated hypogastric vessel, though it would be fair to say that this is more often its origin than the one described. Proof of this fact, which is known to any experienced operator in the pelvis, can be found in the excellent records given by Bonney of his numerous pelvic dissections in his series of Wertheim operations. These are the points on which the value of a monograph such as this must ultimately be judged if it is to be accepted as a guide to sound practice.

SURGERY FOR THE SERVICE M.O.

A Pocket Surgery. By Philip H. Mitchiner, C.B.E., M.S., F.R.C.S., and A. Hedley Whyte, M.B., M.S., F.R.C.S. (Pp. 272. 10s. 6d.) London: J. and A. Churchill, 1943.

The authors' declared object is the production of a concise account of the diagnosis and treatment of injuries and surgical diseases with which medical officers in the Services are constantly in contact. The results of treatment are not discussed. Beginning with a section on the principles of war surgery, they then deal by systems with injuries and diseases of various organs, and in this respect acknowledge that the plan of the book follows the larger textbook on the *Science and Practice of Surgery* by Romanis and Mitchiner. The book is dedicated to H.R.H. the Princess Royal. A great deal is compressed into its small size, and it is inevitable, therefore, that detail suffers to a certain extent in consequence, and some statements are consequently not very helpful and may even be misleading—e.g., p. 104: "Measurement of fluid pressure is of value in cases of spinal tumour (the basis of Queckenstedt's test)." It is the shape of the wave produced by jugular compression that constitutes this test and not any primary measurement of cerebrospinal fluid pressure. Despite the well-known views of one of the authors, we are glad to note that they

advise radical amputation for carcinoma of the breast, but we would question the advisability of treating duct papilloma with x rays or radium needles applied around the nipple (p. 175). We do not agree with the advice given for finger amputation (p. 100)—"metacarpal" in this paragraph is obviously a misprint for "phalangeal." Whether Service medical officers are likely to be in constant contact with Hirschsprung's disease (p. 205) and haematocolpos (p. 252), to take only a couple of the many conditions in the wide field over which the author skims, is perhaps questionable, but the book should prove a useful little manual for a general revision course, even more perhaps, to the elderly Regular officer than the more recent qualified younger man. There are no illustrations except a stylized plate showing amputation sites and abdominal incisions; but the printing is good and the type easily read, and an index adds to the value of a manual which will fit comfortably in the tunic pocket.

Notes on Books

Dr. WILFRID SHELTON has undertaken an extensive revision of a popular textbook *Diseases of Infancy and Childhood* for a new edition and it remains one of the soundest and most comprehensive volumes for its size on this increasingly important subject. Some more extensive sections on the psychological problems of childhood would improve its usefulness, for there is little indication for the management of the various behaviour problems that are likely to be brought to a practitioner for help. Many of the recent advances in medicine have a direct usefulness in paediatrics, and Dr. Sheldon shows by his footnotes that he keeps well in touch with modern developments. No doubt he will in a future edition modify his statements on the pathology of catarrhal jaundice, for which he still favours the theory of ascending cholangitis. The volume is well illustrated and attractively set out. Its popularity is shown by the appearance of a fourth edition within nine years of the first, and this revision will undoubtedly gain many fresh readers. The publishers are J. and A. Churchill and the price is 28s.

The valuable pamphlet entitled *Diabetes in Wartime*, prepared for patients attending the Diabetic Clinic at University College Hospital, London, has now been republished in a second edition by H. K. Lewis and Co., at 1s. The instructions on the diets and their alternations are as clear as before, and the dietaries are fitted to wartime conditions.

William Heinemann (Medical Books) Ltd. will be issuing December at 30s. *The Inner Ear*, by J. Fischer and L. E. Wolf (Grune and Stratton, New York), which was reviewed in our issue of Oct. 2.

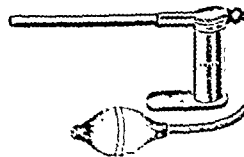
Preparations and Appliances

A SULPHONAMIDE POWDER SPRAY

Air Commodore STANFORD CADE, F.R.C.S., writes:

The local application of sulphonamides to wounds creates a demand for an instrument more accurate than the pepper-sprayer. The usual insufflators were found to be unsuitable as the powder either clogged or was delivered in largish quantities. In 1941, the insufflator here illustrated was made for me by Donald Rose. Its special points are as follows:

It is made entirely of metal; there are no rubber washers; the metal base is heavy, so that the instrument does not wobble; the nozzle is detachable. The powder passes up inside the container along a hollow narrow metal tube into a flat box fitted into the upper compartment, which is the lid of the insufflator. The floor of this box is provided with a hole bigger in diameter than the tube along which the powder is ejected. Gentle pressure on the rubber bulb gives a fine intermittent spray of powder so that thin frosting of wound is obtained, the bulk of the powder returning to the container through the hole in the floor of the box. The length of the nozzle enables the depths of the wound to be reached. The metal part is easily sterilized by dry heat in an autoclave. This insufflator has been supplied to all R.A.F. hospitals and station sick quarters, both at home and overseas. It proved very useful, and the past two years' experience well encourages me to publish this note. It can be obtained from Donald Rose, 36, George Street, W.1.



BRITISH MEDICAL JOURNAL

LONDON

SATURDAY OCTOBER 23 1943

INDUSTRIAL LEAD POISONING

The outstanding feature in the history of the campaign against lead poisoning in this country is its successful outcome. Though cases of lead poisoning do still occur—there was one fatal case of lead encephalopathy in the ship-breaking industry in 1942—their incidence has shown a steady fall during the last three decades. The number of cases notified in 1913, for example (not including those that occurred in the painting of buildings), was 535; in 1942 the number was 66. Cases from painting of buildings became notifiable only in 1927: in that year the incidence was 98; in 1942 it was 6. It was in 1927 that the controversy on the prohibition of the use of white lead for painting the interior of buildings ended in the passing of the Lead Paint (Protection against Poisoning) Act, which forbade dry rubbing down for the removal of old paint. There can be no doubt that this prohibition has been one of the most effective measures of control of the lead hazard, since the most important single factor in lead poisoning is the inhalation of dust or fume containing lead. Classes of industry in which this hazard predominantly occurs are ship-breaking, where fumes are given off from the lead-painted plates under the blow-pipe flame, and dust and fume from the chipping and burning of lead paint; and the manufacture of red and white lead. A peak in the incidence curve in 1924 (486 cases notified) was chiefly due to the post-war increase in ship-breaking. Another, in 1934 (157 cases notified), was associated with an increase in the manufacture of electrical accumulators, where dust and fume arise during many stages of the process. But in this industry, as in other processes of high potential risk, such as the pottery industry, smelting of metals, plumbing and soldering, vitreous enamelling, shipbuilding, etc., the number of cases of lead poisoning has shown a steady decline.

This improvement can be attributed first to protective measures, such as the suppression of dust, under the prohibition by the Lead Paint Regulations of 1927 of the use of lead paint in the form of spray in interior painting; the damping or wetting of floors and material, as required by the Regulations for Smelting of Materials containing Lead; the removal of dust by locally applied exhaust ventilation, etc. A second factor is the improved personal hygiene of the worker, and exclusion of women and children from specially dangerous processes. Thirdly, there has been earlier recognition of the disease, helped by compulsory periodical medical examination of the workers and by improved methods of diagnosis. Those who use the most recent aids to diagnosis, however, involving scientific procedures of a high level of accuracy, stress the fact that either singly or in combination they are aids only, and must be considered strictly in relation to the clinical signs and symptoms of lead poisoning. The measurement of lead exposure by analysis of the lead content of the atmosphere, for instance, can and does determine whether the threshold generally considered¹ that of dangerous exposure to lead—1.5 mg. of lead per 10 cu. m. of air—is being exceeded, but it cannot determine the amount of disability in a case of lead poisoning or estab-

lish the diagnosis in a particular individual. Similarly, analyses of the lead content of the blood, urine, and faeces of exposed persons must take into consideration many other factors, including the variability of these figures in normal or unexposed individuals. The "normal" average concentrations are 0.03 mg. per 100 g. of blood, 0.027 mg. per litre of urine, and 0.27 mg. per 24-hour faecal sample.² A series of investigations on workers exposed to lead has revealed a definite trend towards a rise in these concentrations as the severity of exposure increases. The urinary and blood findings are more constant than the faecal, and provide a better criterion, especially under conditions of exposure to fume. A marked rise in the faecal lead is usually found only in industries associated with lead dust, which finds its way chiefly into the faeces. Typical figures for a group of operatives engaged, with known severe exposure, in the manufacture of white lead are: blood, 0.086 per 100 g.; urine, 0.336 mg. per litre; faeces, 7.6 mg. per 24-hour sample. But, as in the case of air analyses, these figures should be used as an indication of the severity and character of the exposure rather than as a diagnostic criterion of lead poisoning.

With regard to the oldest diagnostic aid, punctate basophilia, the early hopes of its specificity as a sign of either lead intoxication or lead absorption have faded, especially as to a quantitative correlation between numbers of stippled cells, amount of lead absorbed, and severity of exposure. Stippled cells occur not only in blood dyscrasias from causes other than lead but also in healthy persons without occupational exposure to lead. Conversely, the frequency of stippled cells in the blood of a group of workmen with a proved lead exposure and with significant quantities of lead in the urine has been found³ to be no greater than that of a "normal" group. Nor is the size of the basophilic granules to be regarded as strictly related to the stimulus of lead itself, but to the large numbers of cells produced by any stimulus. Positive results are diagnostic in the individual in high numbers only—more than 9,000 stippled cells per million. Average group findings in excess of 1,000 per million, in the absence of other known causes, suggest increased lead absorption.

The clinical picture of lead poisoning still retains its classical outline, but with the distinction between lead poisoning and lead absorption more sharply drawn. The most serious manifestation of acute lead poisoning is, of course, lead encephalopathy, which differs in no way in the adult from any other form of cerebral irritation, and the diagnosis of which needs all the help of laboratory methods and occupational history. A less acute form, characterized by constipation antedating severe colic, sometimes accompanied by diarrhoea, headache, and vertigo, may develop gradually from a condition of general weakness and lassitude, loss of weight, and aching of the joints, or may make an abrupt entrance after a short period of severe exposure. The familiar "dropped wrist" is usually a late manifestation of chronic poisoning; other muscles, depending to some extent on the strain to which they are subjected, may be involved. "Blue line" on the gums, due to the local deposition of black sulphide of lead, is not evidence of lead poisoning but only of severe exposure. It is never found in the absence of teeth or in a completely clean and healthy mouth.

In fact, neither symptoms, nor physical signs, nor laboratory findings can singly give a clear line of differentiation between lead poisoning and lead absorption. "The medical diagnosis represents an opinion: the facts consist of the objective findings and the corroborative evidence supplied by the laboratory."

¹ Euvel, J., *J. Indust. Hyg.*, 1943, 25, 35.² Cholsky, J., and Bamber, K., *J. Indust. Hyg.*, 1943, 25, 47.³ Sanders, L., *ibid.*, p. 38.

THE PUBLIC HEALTH: CONTRADICTIONARY SIGNPOSTS

The paradox of public health in wartime whereby the vital statistics are better than in the years of peace and yet a great increase in minor illness is reported is examined at some length in the Summary Report of the Ministry of Health.¹ The favourable records in the vital statistics are certainly remarkable. In 1942 the standardized death rate among civilians in England and Wales was the lowest ever recorded. It was the lowest alike for males and for females, though large numbers of healthy young people, especially males, had been withdrawn from the civilian population. Maternal and infant death rates were also at their lowest, infant mortality for the first time falling below 50 per 1,000 births. New low records were established in the mortality from pneumonia, diphtheria, scarlet fever, rheumatic fever, chronic endocarditis and valvular disease, gall-bladder diseases, post-syphilitic disease, and gastric ulcer and other diseases of the stomach. Alcoholism and cirrhosis of the liver took a lessened toll. The deaths from influenza were less than half the number recorded in 1941. The total incidence of infectious diseases was probably lower than ever before, though changes in notification make comparisons difficult. The figures for diphtheria were the lowest for nineteen years; those for enteric fever the lowest ever recorded.

That is one side of the shield. On the other side are the rising claims to sickness benefit under National Health Insurance in all four quarters of the year, the crowded surgeries and out-patient departments, the figures for absenteeism due to sickness, the general complaint of fatigue and of feeling "run down." All this was only to be expected in view of war anxieties, long hours of work, often unaccustomed work in an alien environment, dislocation of home life, shopping and travel and housing difficulties, superadded duties especially at night, lack of holidays, uninteresting food, and that arch-depressant the black-out. But why should these factors stop, apparently, at the production of short-term illness? The greater resort to the doctor may be explained partly by increased health-consciousness. People may have taken to heart the teaching about "positive health" and have come to want "health with a polish on it." They may be more aware of the approaches of illness. The need for medical certificates to excuse absence from work, to obtain dietary specialities, to secure exemption from extra duties, leads people more frequently to the doctor's door. Moreover, if doctors' surgeries are more crowded it must be remembered that there are fewer of them. Again, proprietary "tonics" and drugs are not so easy to obtain, so that there is probably less self-medication or chemist-treatment than there used to be. And the influence of better nourishment upon the mass of the population is a factor that must not be ignored.

But when all these things are allowed for there remains a large residuum of short-term illness. The strains of war are cumulative, and the effects on health may be long-term. Even in the present statistics there are danger spots. The increase in new syphilitic infections since the beginning of the war is reckoned at 120%, and new infections of gonorrhoea may be estimated at six or seven times as many as those of syphilis. The mortality from tuberculosis was lower in 1942 than in the previous year, but there was a rise of about 3% in the number of new cases reported. The total number of deaths from cancer rose slightly, though no more than can be explained by the increasing proportion of the population to reach the ages liable to the disease; but the mortality from cancer shows no signs

of yielding to the intensive work in recent years in this field. Epidemic (catarrhal) jaundice, which is occurring widely throughout Europe and the Mediterranean area, shows a disturbing rise in incidence in this country. A special investigation is being undertaken by the Medical Research Council, but there are difficulties to be surmounted, one being the apparent immunity of the usual laboratory animals to the disease, so that immediate results are not to be expected.

The most encouraging note in the Summary Report is not the statistics, which may lead to false inferences, but the reference to the Emergency Medical Service. It may not be realized, so quickly have events happened, that the E.M.S. and the Emergency Public Health Laboratory Service have been the means of bringing a specialist medical service to the whole country. For the first time in our history a specialist medical and nursing staff and the essential equipment, as well as laboratory facilities, are available to the patient in his local hospital or special centre. They are no longer the privilege of only a relatively few patients in the teaching hospitals in the great cities. Standards of care and treatment and diagnosis hitherto known in only a few hospitals have become widely disseminated. This is specially noteworthy in the field of surgery. There are now in England and Wales 21 orthopaedic centres providing facilities for the treatment and rehabilitation of the most complicated cases. They are supplemented by some 300 or 400 fracture departments and clinics of different types. There are eleven special centres for chest injuries, ten for head injuries, four for injuries of the spine, twelve for plastic surgery and jaw injuries, twenty for skin diseases, eleven for neurosis, and many others. Mobile teams for head, chest, and plastic surgery and jaw injuries are based on the majority of the special centres for the treatment of those conditions. Along with all this have gone a vast extension of pathological laboratories and a blood transfusion service which supplies every hospital in the emergency system with a reserve of blood plasma and serum and maintains a large number of blood banks. Another point emphasized in the report—a remarkable document of 50 pages—is the advantage derived from hospital staffs generally from this continual contact with specialists.

RHEUMATIC FEVER

There are few diseases which recall so vividly Martineau's line—*Non est vivere, sed valere vita*—as rheumatic fever and its associated groups of clinical evils, the epidemiology of which is the subject of Prof. John R. Paul's monograph, a second edition of which has recently been published. The actual mortality rate is, of course, very far from negligible, but when one considers the price to be paid in terms of suffering and exclusion from the normal pleasures of active life by those whose hearts have been damaged in youth, an exchange of this enemy against another producing a higher death rate but less long-term invalidity might seem a good bargain for mankind. Prof. Paul and his coadjutors have an interesting story to tell. As so often happens in medical history, one begins with the observations of symptoms and physical signs in different groups of patients, shrewd physicians perceive affinities between apparently different groups, and finally a certain biological unification is effected by discovering a common bacteriological factor—here haemolytic streptococci. At this point the question of innate disposition and environmental or procataretic causes acquires—and their respective shares in the aetiology!

¹ *The Epidemiology of Rheumatic Fever and Some of its Public Health Aspects*. By John R. Paul, M.D. Second edition. Printed for the Actuarial Association by the Metropolitan Life Insurance Company, New York, 1943.

he disease acquire—a new significance, and we have an increase of collective or individual studies of the prevalence and social-economic, climatic, and racial factors which may affect the prevalence or fatality.

This monograph recapitulates the modern history of the subject clearly. More space is naturally given to American work than to that done elsewhere—quite rightly, because more has been done in the field, and the field is more extensive than elsewhere; but European studies are by no means neglected, and in a concluding section on the public health aspect of the disease the London County Council's rheumatism scheme receives well-merited praise. Rheumatism emerges as one of the killing and disabling diseases that fall, relatively as well as absolutely, most severely upon the economically and socially least prosperous classes of a community. Which of the correlates of "poverty"—over-crowding, bad housing, a low standard of nutrition, and, as extreme selectionists might urge, inferior genetic stock—is the most important direct influence might be debated, but most would give first place to that first mentioned so far as concerns incidence, reserving judgment as to the relative importance of the second and third in determining the outcome of the disease. That the elimination or "conquest" of rheumatism is a distant goal most agree. But there is no doubt that early ascertainment of cases and the supervision of youthful patients have done much and will do more to reduce the volume of human suffering and inefficiency. Perusal of this volume may depress some readers, by showing them that the problems to be solved are complex, but will also convince them that much can be done to improve the lot of rheumatic patients.

FRENCH DOCTORS IN REVOLT

Le Médecin Français is the title of an underground newspaper now being published in France by our French colleagues who are taking an active part in the covert war against the occupying enemy. A recent issue tells how the mobilization order for work in Germany affects the medical profession. "Germany," it is stated, "demands 5,000 French doctors, and everything leads us to believe that they will soon be called up. The Bosches are aiming at the physical destruction of our people. To take away our doctors is one of the best ways of achieving this." *Le Médecin Français* describes ways of defeating the mobilization order—for example, by failing to pass as fit the Frenchmen medically examined before deportation, by helping those who try to escape deportation, and by stimulating the population to protest against the enforced departure of medical men for Germany. That this can be no easy matter may be understood when one learns of the advice to doctors issued by Dr. Grasset, "Minister of Health by the grace of Hitler." This unfortunate man has to tell his French colleagues that in the examination of conscripts for Germany "the principle is that there must not be any 'unfit,' or rather that, real invalids apart, the 'unfit' must be the exception; in the present circumstances every individual, even in a bad general state of health, can and must be used, even if only for a job such as clipping railway tickets. . . ." It appears that the Vichy Government had set up "medical councils," supervised by a "Conseil Supérieur," whose members have recently resigned in a body. Commenting on this, *Le Médecin Français* observes: "The Council was the instrument for applying German orders. . . . Its failure is the same as that of any attempt to rebuild France as a country enslaved by a ruthless enemy, and governed by that enemy's lackeys." Another of the Vichy Government's measures opposed by patriotic French doctors is the suppression of what corresponds to our First M.B., and the replacement of it by

the A.M.P. (*Année Médicale Préparatoire*). This, the newspaper points out, is highly injurious to French medicine: "It is a measure that will be dear to the Nazis, and in keeping with their hatred of science and culture." We salute the medical men of France who thus keep alive the spirit of their country through the medium of what must be a unique publication in the history of medical journalism.

MASSIVE VITAMIN D THERAPY IN RICKETS

Although single massive doses of vitamin D were used as early as 1928 for the prevention of rickets in experimental animals, it was not until ten years later that this method was used clinically for the prophylaxis of rickets. During the last five years it has been tried by numerous workers, particularly in Germany by Harnapp,¹ Brockmann,² and Heisler,³ and in America by Vollmer⁴ and Zelson.⁵ They have shown conclusively that infants between the ages of 2 months and 1½ years can be adequately protected against rickets throughout the winter months by administering 400,000 to 600,000 international units of vitamin D in a single dose. This method has recently been re-examined in America by Wolf⁶ and by Rambar and his associates,⁷ who report that it is effective, safe, time-saving, cheap, and free from toxic effects. The vitamin D may be given either in daily doses of 1,000 i.u. up to two or three months, followed by a single dose of 600,000 i.u., which is repeated four to six months later; or the infant is given 50,000 i.u. at one and two months respectively, and then a single dose of 600,000 i.u. at three months, this dose being repeated from four to six months later. According to the American authors these large doses were well tolerated and no toxic manifestations were observed, such as loss in weight, vomiting, or metastatic calcification. This is interesting in view of some of the older reports on the toxicity of large doses of vitamin D. Many of these are open to criticism because impure preparations, such as the old vigantol, were used. These were not properly standardized and contained toxisterols and lumisterol derived from the irradiation of ergosterol, as well as vitamin D₂. Moreover, they were given in very large doses over periods of several months. Wolf and Rambar used a vitamin D preparation free from impurities obtained by irradiating vaporized ergosterol in a partial vacuum. The cases of metastatic calcification reported in the vitamin D literature must be evaluated in the light of our present knowledge of the part played by kidney disease in calcium metabolism. Laboratory studies by Rambar on the infants receiving massive doses of vitamin D revealed no significant changes in red and white cell counts, haemoglobin, and blood calcium and phosphorus.

The administration of a single dose of vitamin D to an infant only two or three times a year for the prophylaxis of rickets has considerable possibilities as a public health measure. It may well become the method of choice in the future. It saves the time of the mother and the doctor; it is cheap; and it is very suitable in clinic practice when dealing with uncooperative, unintelligent, or careless parents. If the vitamin D were given at the clinic in one dose there would be no doubt about the infant's receiving it. The method would also appear to have possibilities in the occupied countries of Europe, where the disease is rife owing to lack of animal fats. When we are able to give medical aid to the unfortunate children there, massive vitamin D therapy will have much to recommend it.

¹ *Klin. Wochschr.*, 1938, 17, 330; *Deutsch. med. Wochschr.*, 1939, 64, 1835.

² *Z. Kinderheilk.*, 1938, 69, 359.

³ *Munch. med. Wochschr.*, 1940, 87, 260.

⁴ *Amer. J. Dis. Child.*, 1939, 57, 343; *Arch. Pediat.*, 1941, 58, 9.

⁵ *J. Pediat.*, 1940, 17, 73.

⁶ *Ibid.*, 1943, 22, 396.

⁷ *Ibid.*, 1943, 23, 31.

PAPER CONTROL AND THE WAR OF IDEAS

Mr. Stanley Unwin has drawn attention in the *Times* to the paradox whereby the very books which ought to be readily available are increasingly difficult to obtain. Conversely, the supply of indifferent books by newcomers to publishing steadily increases. No one may start a new periodical or open a new shop without a permit, but anyone can start a new book-publishing business. And a newcomer to publishing is free to use any paper he can persuade any printer to provide, whereas an established publisher (and this includes the medical and scientific publisher) is compelled to declare his use of any such paper and to have its equivalent deducted from his meagre allowance. Hence old-established firms of repute have to announce that more and more of their essential books are "out of stock" for lack of enough paper to reprint them. The short-sighted paper policy which Mr. Unwin condemns made little discrimination between medical and scientific journals actively promoting the war effort, and worthless or mischievous periodicals. On a wide and statesmanlike view it was false economy in March, 1942, that compelled medical journals of the highest standing, already shrunk almost beyond recognition, to choose between cutting down circulation or still further cutting down pages. In our case there was no alternative because membership of the B.M.A. gives a right to a weekly copy of the *B.M.J.*, and the number of members has risen by 6,000 since the outbreak of war to a total to-day of well over 44,000. Our present ration of paper is wholly inadequate for the needs of the profession, and much valuable information is therefore delayed at a time when quick diffusion of new ideas and new methods may be of the first importance. The medical curriculum has been compressed so that students may qualify earlier and take their part in war work for the Forces and civil population. These new entrants, no less than their seniors, require postgraduate education through the professional journals. They cannot be properly served with the amount of printing paper now allowed to the medical press. There is colossal waste of paper for trivial purposes, and responsible editors and publishers of medical works should not have to plead and plead their case before the Ministry of Supply. In September, 1939, the *B.M.J.* voluntarily reduced its size as a matter of foresight and public duty. When paper control was enforced we began to suffer progressively severe cuts. We have done all that is possible to economize space and to restrict sales; so, no doubt, have contemporaries who print far fewer copies. Our main grievance—and in this we stand perforce alone—is against the unyielding attitude of the Paper Controller towards a valid plea for a percentage increase in ration to meet the demands of an ever-growing clientele, early all of whom are engaged in vital war work and must have their knowledge replenished and kept up to date. It is well known that the lay newspapers have lately been allowed a rather better ration of paper. Whatever the reason for this, the medical press should have no worse treatment: our argument is irrefutable.

DILANTIN FOR NON-EPILEPTIC PSYCHOSES

Despite the great advances in the treatment of psychoses by insulin, convulsions, and leucotomy, the need for a fully satisfactory sedative in states of chronic psychotic excitement is still pressing. Severe excitement and violence, particularly in katatonic schizophrenia, remain probably the most difficult problem of mental nursing; so much so that the rather heroic measure of leucotomy is being used more and more to relieve these symptoms in cases in which

recovery is not to be expected. Kalinowsky and Putnam have lately shown that diphenyl hydantoinate (dilantin epanutin) can diminish excitement and irritability in psychotic states, almost irrespective of the type of psychosis. They claim no more than a symptomatic improvement, which tends to wane on withdrawal of the drug. Nevertheless, when the fact is faced that none of the usual sedatives is altogether satisfactory owing to cumulative toxic or hypnotic properties, this encouraging report of dilantin is welcome. Dilantin, it is true, has toxic effects, but with care can be used harmlessly for long periods in epilepsy; its hypnotic action is conspicuously weak.

Of wider interest is the possible bearing of this work on our knowledge of the origin of psychotic irritability and excitement. Epilepsy is recognized as a "paroxysmal cerebral dysrhythmia,"¹ and abnormal electro-encephalographic (E.E.G.) records are common in epileptics. Abnormal E.E.G.s are seen occasionally in katatonic schizophrenia,² and, although the resemblance appears to be merely superficial, it has been pointed out³ that the abnormal pattern found in schizophrenia resembles that predominantly associated with epileptics subject to "psychomotor equivalent" attacks. In 1938 Merritt and Putnam⁴ observed that sodium diphenyl hydantoinate was particularly beneficial in psychomotor equivalents, so that its effect on schizophrenic excitement is logical and adds support to the view that cerebral dysrhythmia may underlie some schizophrenic reactions.

GIFT TO THE ROYAL COLLEGE OF SURGEONS

As was announced in the *Times* last week, Mr. W. H. Collins of Wexham Park, Buckinghamshire, has made a gift of £100,000 to the Royal College of Surgeons of England for the endowment of the Department of Pathology and the institution of a Chair of Human and Comparative Pathology. And Mr. Collins has added to his munificence by making provision in his will for a bequest of a further £100,000 for the endowment of the Department of Anatomy and the institution of a Chair of Human and Comparative Anatomy. Among Mr. Collins's benefactions to medicine was the building and equipping of the X-ray Diagnosis Department at the Middlesex Hospital. In a letter which Sir Alfred Webb-Johnson read before the Council of the College, Mr. Collins said that he had been much impressed by the value of the Departments of Anatomy and Pathology, which had made the College famous the world over. He had seen what grievous injury the departments had suffered as a result of enemy action, and appreciated what a big task it would be to restore them: "To embark upon this task it is essential that the Departments should have an assured income from endowments. . . . I trust that my gifts will enable the Council to proceed with confidence with their responsible task and to engage the services of men of outstanding ability to assist them in their labours." It will be remembered that the buildings of the Royal College of Surgeons in Lincoln's Inn Fields were badly damaged in air raids in 1941, when most of the Hunterian Collection of the Museum of the College was lost.

We much regret to announce the death in Melbourne of Dr. R. H. Fetherston, Director-General of Medical Services of Australia in the war of 1914-18, and a Vice-President of the B.M.A.

¹ Arch. Neurol. Psychiat., Chicago, 1943, 49, 414.

² Gibbs, F. A., Gibbs, E. L., and Lennox, W. G., Brain, 1937, 60, 377.

³ Walter, W. G., J. ment. Sci., 1942, 88, 110.

⁴ Gibbs, F. A., Gibbs, E. L., and Lennox, W. G., Amer. J. Psychiat., 1938, 95, 255.

⁵ J. Amer. med. Ass., 1938, 111, 1068.

THE EFFECT OF SUPPLEMENTS OF VITAMINS AND MINERALS ON THE HEALTH OF GIRLS*

BY

HILDA FOWKE, D.Sc.

In the autumn of 1940 the opportunity arose to study the effect on the health of girls between the ages of 8 and 12 years of adding a bar of fortified chocolate to the diets provided in five North Country orphanages. At the time the experiment was started few tests had been carried out in which chocolate had been used as a vehicle for vitamin and mineral supplements. Quite apart, therefore, from the direct dietary implications of the study, there was the interest of investigating the practicability of this use of fortified chocolate. The success of the test with chocolate encouraged its more recent use in a wider field. This experiment was undertaken under the direction of the Ministry of Food and the Ministry of Health. The specification of the "fortified" chocolate was devised by the Scientific Advisers Division of the Ministry of Food.

The Experiment

In all, 214 girls took part in the experiment. In each of the five institutions the children were divided at random into two approximately equal groups. One group, amounting to 110, received the fortified chocolate, and the remaining 104 girls were given a similar chocolate to which no nutrients had been added. The daily supplement of 1 oz. of fortified chocolate contained 2,000 i.u. of vitamin A, 250 i.u. of vitamin B₁, 100 i.u. of vitamin D, 35 mg. of vitamin C, 250 mg. of calcium, and 10 mg. of iron. The experiment continued from Feb., 1941, to April, 1942.

The composition of the diet provided by the orphanages was determined on two occasions—in Feb., 1941, immediately before the experiment began, and in Sept., 1941, seven months later. The assessment was made by weighing all the uncooked food provided for the children during three consecutive days. Nutrients were calculated from unpublished tables compiled by the Medical Research Council. No allowance was made for cooking losses or for table waste. The latter was probably small, as the orphans were accustomed to clear up everything put on their plates. The nutritional value of the diets is given in the table below.

Daily Nutrients provided for Girls of 8 to 12 Years in the Uncooked Food at Five Orphanages

	Home	Calories	Animal Protein	Calcium	Iron	Vit. A	Vit. B ₁	Vit. C
			g.	g.	mg.	i.u.	i.u.	mg.
Feb., 1941.	M	2,590	29	0.74	14	3,510	480	52
	L	2,480	21	0.57	12	2,410	410	48
	N	2,250	25	0.83	12	3,030	310	22
	H	1,850	16	0.59	9	1,780	380	31
	K	1,830	19	0.52	10	1,520	330	39
Sept., 1941.	M	2,870	34	1.18	14	3,420	590	87
	L	2,340	28	0.89	14	3,780	450	76
	N	2,490	31	0.90	20	6,540	700	85
	H	2,120	22	0.80	12	1,900	470	53
	K	2,330	20	0.61	11	1,460	410	63
Probable requirements		2,300	30	1.00	12	4,000	400	70

It will be seen that conditions in the different institutions varied. On the first survey the diets at H and K were deficient in all the nutrients studied, as well as in calories. The children in home M, as might be expected from the figures, seemed in general appearance best fed and happiest. The improvement in all the diets between February and September was due partly to a general amelioration in the national food supply, exemplified by an increase in rations of cheese from 1 oz. to 3 oz. a week, in jam from 8 oz. to 1 lb. a month, and an improved supply of milk, and partly to a greater self-consciousness, especially on the part of the worse-managed institutions, arising from the experiment itself.

* Permission has been given by the Ministry of Food for this work to be published. It is hoped to publish the report in full in another journal.

In order to measure whether the nutritional supplements contained in the chocolate had any effect on the health of the children the following tests were made. At the beginning of the experiment, after six months, and at the end after a year, heights and weights were recorded and a complete medical examination carried out. Additional measurements and tests were: sitting height, chest circumference, the time the breath could be held, the lifting power measured by a spring dynamometer, and the length of time each child could hang from a horizontal bar.

It can briefly be said that by the use of these tests we could detect no statistically significant differences due to the consumption of additional vitamins A, B₁, and C, calcium, and iron in chocolate over the period of a year. It appears, therefore, either that the basic diet of the children, which at the beginning of the experiment seemed to be defective, became of itself sufficiently ample in the nutrients studied, or that the clinical tests were not sensitive enough to detect minor signs of malnutrition.

Comment

The experience gained during the course of this work suggests that chocolate is a particularly good medium for the incorporation of vitamin and mineral factors. Among its qualities are: that it is of itself a food and not a medicine, that its taste is popular and strong enough to conceal that of substances added to it, and, most important of all, that the cocoa butter in it is an excellent anti-oxidant which prevents the destruction of sensitive vitamins during storage. In the course of this experiment samples of the fortified chocolate were kept at room temperature for several months, and the stability of vitamins A, B₁, and C measured in the laboratories of the Medical Research Council at Cambridge. The results are given below.

Effect of Storage at Room Temperature on Vitamins A, B₁, and C incorporated in Chocolate also containing Added Calcium and Iron

	Vitamin A (i.u. per oz.)	Vitamin B ₁ (i.u. per oz.)	Vitamin C (mg. per oz.)
Dec. 1941	1,490	280	22
Feb., 1942	1,650	252	26
April, 1942	1,600	249	22

This investigation was only made possible by the generosity of Mrs. Merlin Minshall, who sponsored the work as a memorial to her father, the late Dr. Llewellyn.

MEDICAL RELIEF IN THEATRES OF WAR

We have received from the Office of Foreign Relief and Rehabilitation Operations at Washington a report on activities of medical personnel attached to its North African Mission and on its plans for health and medical measures in future relief theatres.

Public health experts on the staff of O.F.R.R.O. are making detailed arrangements to follow up and supplement measures of the Army Medical Corps to forestall the possibility of major epidemics developing in the wake of war. Health and medical care preparations were undertaken on the basis of statistics which showed that malnourishment and a breakdown in sanitary services and standards which invariably accompany warfare resulted in the first world war in deaths and impaired health among civilians considerably in excess of deaths and mutilations due to battle. The world-wide scope of the present war, with great dislocations of populations, holds even greater possibilities of danger. Recognizing that measures of control must be initiated and followed up during every stage of military operations, O.F.R.R.O. is going ahead with sanitary programmes to accompany Allied arms in all relief theatres.

Experience in North Africa

Experience in medical relief is being acquired in North Africa, where U.S. public health officers have been at work for the past six months as members of a relief and rehabilitation mission. These officers have been attached by General Eisenhower to the military command and given supervisory responsibility for civilian health in the North African region, working in close co-operation with medical officers of the Allied Armies. In any measures affecting the civilian population they work through the French civil authorities, and make use of existing health and governmental services and French professional personnel in the execution of plans. Development of the North African campaign made health and medical

problems less complicated than had been anticipated. It had been feared that the severe bombardment of Axis forces in Tunis might create a serious health problem through damage to the water supply and sewage disposal systems of the city. Yet so precisely had Allied bombers concentrated on the harbour area that only minor damage of this type occurred in the city, and fears that typhoid and dysentery might become serious in Tunis and spread to other areas were promptly dissipated by rapid repairs effected by military engineers. Typhus, too, had been feared because it was known that only a year before there had been some 25,000 active cases in the region. Yet this year only a few scattered cases were reported in Tunisia. It was assumed there would be damage to hospital facilities, but in Tunis the hospitals were found intact with 1,000 empty beds. Although some of the other Tunisian cities, such as Bizerta and Susa, had had rougher treatment, the public health officers reported in general after the campaign that health conditions throughout the area were normal in virtually every respect. Captured atabrin was on hand for the malaria cases and "sulpha" drugs were obtained from military stores to make good the two most serious deficiencies in medical supplies. In Tunisia public health officers sent by O.F.R.R.O. worked closely with relief officials who were distributing food. Elsewhere in North Africa medical personnel have had a variety of duties. A principal task since the mission arrived early in the year has been technical assistance to French authorities in estimating and adjusting to available supply requests to Lend-Lease for drugs, medicines, and other medical supplies. Another task was to give aid to the French authorities in efforts to restore normal health services in rural areas and cities of the region. Notably, Oran was helped in this manner by the establishment of a modern health department for the city. At other points, delousing stations were established near cities to prevent the carrying of typhus-bearing lice into the coastal areas during the periodic migration of the Arab population to city markets. Operating through civilian authorities, continuous support has been given to military work for the control of venereal disease.

Preparations for Relief Elsewhere

While much of the health programme for North Africa necessarily had to be improvised on the spot, preparations were being made in Washington for more systematic arrangements in future relief theatres. Several different types of "packaged" units of medical supplies are being assembled for immediate shipment to any area of need. One is a basic emergency unit equipped with the minimal medical supplies for control of the more common diseases of world-wide occurrence. This unit is designed to care for the needs of a population group of 100,000 people for a period of one month. Multiples of this unit can be immediately shipped into any area of medical relief activities during initial stages of operations. Secondly, plans are being drawn up for a larger standard unit of supplies made up of the various drugs and surgical and sanitary equipment required by a population group of 1,000,000 people over a three-months period. This unit could be shipped into an area needing relief when the total health situation of the area had been surveyed and final requirements for medical relief established. Finally, there are special supplemental "packages" made up of supplies for combating diseases peculiar to certain regions or for diseases in epidemic form. Minimum "precautionary reserves" of hospital and laboratory equipment are being packed and kept ready in store for immediate shipment in accordance with needs developing after military action.

The supply of professional and scientific personnel to carry out and supervise health plans in reoccupied countries presents a major problem. While the Nazis have systematically attempted to exterminate professional classes in some countries, it is believed that enough trained personnel will be found in most of the reoccupied regions to carry out the bulk of the work under progressively diminishing supervision. Lists of local health officials, heads of hospitals, selected doctors, nurses, and sanitary engineers, dating from a period immediately before German occupation, are in existence in most of the European countries where action will be taken, and most of these people should be available. A limited number of health officer "teams" are being brought together for service in areas which may be soon opened for relief activities.

Hull and District Provident Society, formed to help members and their families to safeguard themselves against the risk of heavy and unforeseen expenditure arising from nursing home or hospital private ward treatment, and specialist medical or surgical service, was inaugurated on Oct. 6. Sir E. Farquhar Buzzard (chairman of the Medical Advisory Council of the Nuffield Provincial Hospitals Trust) said that his conviction as to the need for mutual insurance under a provident scheme had not been affected in the slightest by any statements made by the Minister of Health as to the comprehensive health service which he envisaged. Sir Farquhar was certain that no comprehensive health service could provide for the middle class anything like the kind of amenities and comforts that would be available under the provident society's scheme, with choice of physicians and surgeons.

MEDICAL DEFENCE UNION

In his address from the chair at the annual meeting of the Medical Defence Union, the president, Dr. JAMES FENTON, said that the war had not reduced the number of cases to which the Union was called upon to give attention. Litigation, in fact, continued on an increasing scale. "The missing swab, the burn by radiological or diathermy apparatus, the ether explosion, the missed fracture, the dispute account with allegations of negligence, seem to come before us with greater frequency than in the past."

G.M.C. and M.D.U.

The only case to which he referred in detail was that in which the Union gave full assistance to its member Dr. Spackman in the prosecution of his case against the General Medical Council taking it right through from the Divisional Court and the Court of Appeal to the House of Lords, with a very satisfactory result. "For the first time the General Medical Council is confronted with the possibility of making a new investigation by reason of the submission of new facts which would in some instances presumably have an extenuating influence, and in others make a complete rebuttal of a serious offence with which a member may be charged. The decision of the House of Lords is one which will be quoted through the years to come as a distinct benefit accruing not merely to Dr. Spackman but to the profession as a whole." In this connexion he paid a tribute to Mr. Oswald Hempson, the Union solicitor, and Mr. Henry C. Dickens, its counsel. He added that he and other members of the Council of the M.D.U. who were closely acquainted with the work of the General Medical Council held the view, notwithstanding the Spackman episode, that the G.M.C. was well fitted to investigate professional matters. He himself would prefer to be judged by that distinguished body of medical men, familiar with all the dangers and difficulties peculiar to medical practice, than by a civil court. The Union did not in any way object to the Council going to the House of Lords. There was merely a difference of opinion by the legal experts who advised the two bodies, and it was felt that it should be solved once for all. He was anxious to make it clear that the Union had always worked harmoniously with the Council, and, indeed, when the Union prosecuted unregistered practitioners the fines payable to the G.M.C. were generally returned to the Union as a contribution towards the expenses involved.

In conclusion Dr. Fenton issued two warnings. One of these was that doctors returning to practice on demobilization, and who might while on service have terminated their membership of the Union, should consider it their first duty to themselves and their families to satisfy themselves that they were once more registered as members in full benefit. The other was that if the State should assume control of the profession doctors must not take it for granted that membership of the Union would be no longer necessary. If a practitioner was employed by the State his obligation at law remained as before, and the State would not take over the liability for his errors and omissions.

It was reported that during 1942 the number of new members elected to the Union was 1,684, and that the membership now stood at 25,989. The guarantee fund amounted to just over £33,000 and the total funds available were about £141,000. Dr. James Fenton was re-elected president and Mr. E. D. D. Davi treasurer, and Dr. Roche Lynch was appointed chairman of the Council Committee.

WORK AT PAPWORTH

The 26th annual meeting of the Papiworth Village Settlement recently took place, and the report of the committee of management, which is also the governing body of the Village Centre for Curative Treatment and Training that operates the Enham Village Centre, near Andover, is now published.

The pioneer work of the late Sir Pendrill Varrier-Jones is being maintained in all its manifold aspects. Progress has been made in many directions; and the committee of management has taken some important steps to ensure that the loss of Sir Pendrill, at the early age of 57, shall in no way upset the workings of the great organization he built up. Of such steps, the most important is the election of Wing Commander R. R. Trail, M.D., F.R.C.P., to the honorary medical director of Papworth and Enham. Secondly, medical consultative committee has been formed to advise the committee of management upon all matters relating to the medical policy and development of the work of both Enham and Papworth. The chairman is Wing Commander Trail, and the following are members: Sir Walter Langdon-Brown, Mr. G. E. Gask, Dr. F. R. C. Heaf, Mr. J. B. Hunter, Sir Arthur MacNalty, Prof. J. Paterson Ross. In addition, the committee has recognized the invaluable service which the senior officials of the settlements rendered to it.

ndrill Varrier-Jones by forming a board composed of all departments of the organization—medical, nursing, domestic, industrial, appeals, and public relations. This board, with the hon. medical rector as chairman, includes in its membership the chief medical officer, the managing director of the industries, and the matron, and its as a valuable administrative liaison with the committee of management. The committee has thus ensured the unbroken sequence of Sir Pendrill's administration and policy—a mixture of medicine, economics, and sociology; and the results during the last two years fully justify this policy.

The formation of a memorial lecture scheme to commemorate the work of Varrier-Jones is also announced. Two lectures have been delivered, one by Wing Commander Trail on "Early Diagnosis," and the second by Sir Arthur MacNalty on "The Comprehensive attack on Pulmonary Tuberculosis." A third is to be given by r. Geoffrey Marshall, whose subject will be announced later.

Reports of Societies

CLINICAL PHOTOGRAPHY

At a meeting of the Association for Scientific Photography held on Sept. 18 at Middlesex Hospital Dr. H. MANDRILL addressed the particular qualities required in clinical photography. In his opinion these were: (a) a simple straightforward record with perfect definition; (b) a self-explanatory picture, but nevertheless one which did not include unessential portions; (c) a well-presented print, as much care being taken in the mounting and finishing as in a studio portrait; (d) in the case of colour photographs the colour must be true to the original. This was of particular importance in skin diseases which were characterized by the colours of the part affected. It was suggested that a Clinical Group should be formed in the Association, which would discuss the special aspects of this work and compare technique. Another point was the collaboration between the photographers and manufacturers of apparatus. The requirements of clinical photography were in many cases distinct from those of studio or outdoor work, and it would be of great advantage to have certain apparatus specifically designed for the work.

Mr. T. POMFRET KILNER stressed the importance of standardization in technique, particularly in his own sphere of plastic surgery. The photographs taken before and after treatment required to be strictly comparable as regards type of film, exposure, lighting, etc. He illustrated his remarks with views of a simple equipment employing a Leica camera and photo-flood lighting which enabled photographs to be taken at any angle and which could also be used for copying radiographs or documents. He recommended that ortho materials be used for the majority of work.

Miss HILDA MARSDEN showed examples of the work done in clinical photography at the Christie Hospital, Manchester, using a half-plate camera with studio technique. She laid special stress on the importance of lighting, particularly in delineating the outlines of growths, etc.

In the discussion which followed the papers Mr. ANDREWS (L.C.C.) showed illustrations of a convenient set-up for photographing patients in bed which was made with the aid of a pair of steps such as is always available in a hospital. The camera was fitted to the top of the steps with the usual ball-and-socket joint and could be directed in any required position. By means of interchangeable lenses and lights, also fitted to the top of the steps at varying angles, he was able to take a variety of photographs of a patient from head only to full-length. He had found that a 4½-in. lens was adequate for full-length and an 8-in. for head-and-shoulders. A 14-in. lens gave a close-up of an individual part of the patient lying flat about 5 ft. below the camera. As a matter of interest Mr. Andrews showed a photograph of a patient with one brown eye and one blue, taken with orthochromatic film without a filter. Only one photo-flood lamp was used and the colour rendering was excellent.

Mr. HENNELL (Metal Box Co.) said that he had taken several thousand clinical photographs in colour during the war, and used sashalite bulbs exclusively for illumination. He considered this was the best method for tackling a variety of jobs, and agreed with Mr. Kilner on the need for standardization. He exhibited several samples of colour prints on paper.

Several other speakers took part in the discussion, and it was generally agreed that clinical photography should be undertaken by a professional photographer, who would find it advantageous to make a special study of physiology and anatomy. It was not thought reasonable to expect a doctor or surgeon to do his own routine photography, and it was also pointed out that the majority of hospitals, while equipped for x-ray work, were not well equipped for clinical photography.

Those interested in the formation of the Clinical Photography Section should write to the secretary of the Association, Mr. R. M. Weston, at Houndwood, Farley, nr. Salisbury, Wilts.

CLINICAL PATHOLOGY

The summer meeting of the Association of Clinical Pathologists held at the Department of Pathology, Cambridge, was notable for a number of reviews of subjects of current importance. There is space here for only a brief summary of some of these and for mention of one or two of the demonstrations.

Typhus.—C. H. ANDREWS grouped the varieties of typhus thus: (a) Type OX19—classical typhus, endemic typhus, Mexican typhus, Brill's disease, and shop typhus (Malaya), with the louse and rat flea as vectors, and all giving good agglutination with OX19 but very little or none with OX2 or OXK. (b) Type XK—tsutsugamushi, scrub typhus (Malaya), mite fever (E. Indies), with the mite as vector, and agglutinating well with OXK but not with the other two antigens. (c) Type undetermined—Rocky Mountain spotted fever, São Paulo typhus, fièvre boutonneuse, tick-borne typhus of S. Africa, India, Kenya, all carried by ticks and giving poor agglutination with all three classical antigens.

Rh Factor.—P. L. MOLLISON said that 88 mothers whose infants were affected with haemolytic disease had been tested so far. Of these 85 were Rh-negative and only 3 Rh-positive. Anti-Rh agglutinins were found in the sera of 82 of the 85 Rh-negative women. In these cases the peak of the immune response to the Rh agglutinin was usually reached between the fifth and twentieth days after delivery, and this was therefore the most favourable time for examination. In two of the cases in which the mother was Rh-positive the destruction of the foetal erythrocytes was apparently due to very potent immune anti-B agglutinins. GERTRUDE PLAUT dealt with the clinical importance of the Rh factor, and G. L. TAYLOR demonstrated the technique. In the discussion E. N. ALLOTT asked whether there was any genetic linkage in the inheritance of the ABO and Rh groups. Dr. MOLLISON replied there was none.

Pathogenic Anaerobes.—F. A. KNOTT showed a series of tables summarizing methods and media for the detection of pathogenic anaerobes. The use of Fe media, neutralization of sulphonamide and suppression of contaminants, media giving good growth without anaerobe jars, and methods of identifying the specific toxins—all help to detect the presence of pathogenic strains without first going through the time-consuming process of isolating pure cultures. Secondly, the early detection of haemolysin and ferments such as lecithinase and hyaluronidase may give valuable early indication whether infection is likely to spread. The results in animal work give high promise of value in the management of wounds in man. Dr. KNOTT stressed that the M.R.C. War Memorandum No. 2, revised edition, is of high value to workers in this field.

Biopsy of Endometrium.—O. C. LLOYD observed that biopsy of the endometrium was of great value in the diagnosis of abortion and of malignant disease as well as in sterility and menorrhagia. In these latter conditions it was advisable to have a biopsy between the eighteenth and twentieth days of the cycle, when early secretory differentiation might reveal relative deficiency of the action of the luteinizing hormone on the endometrium.

Cutaneous Diphtheria in an Infant.—E. N. DAVEY showed specimens from a baby 7 weeks old which had developed during life a slough from thigh to navel and also behind the ear. The mother, who was Schick-negative, yielded the same type of *C. diphtheriae* as that obtained from the child's lesions, the mother being infected in nose, throat, and vagina. Apparently the child was protected by the maternal antitoxin in the milk so long as it was breast-fed. It died nine days after the cessation of breast-feeding.

BURNS OF EYELIDS AND CONJUNCTIVA

At a meeting of the Section of Ophthalmology of the Royal Society of Medicine on Oct. 8, with Mr. F. A. JULER presiding, a discussion was held on burns of the eyelids and conjunctiva.

Naval Experience

Surg. Rear-Adml. C. P. G. WAKELEY said that in the last war, in the Navy, the first-aid dressing used for burns was picric acid, but the large number of cases of burns which occurred in the Battle of Jutland showed this to be of no use whatever, because when left on it coagulated the skin to such an extent as to convert a second-degree into a third-degree burn. The conclusion was reached even as far back as 1916 that there were two fundamental things to be realized in the case of burns: the need for elimination of sepsis, and the need for skin grafting in the third-degree or deep burn. He then went on to speak of the methods of protection used in this war for gunners and other men whose eyes and face in particular were exposed to this danger. It consisted of the ordinary cellulose acetate goggles with certain heat-resisting material for the face, the whole of the gear being of such a character that it could be stowed away in the steel helmet when not in use. Since the introduction of this protective device the incidence of burns of the face had been very small indeed.

The speaker showed colour photographs of a number of cases treated with triple-dye jelly which had done well, the oedema clearing up and no permanent scar resulting. The difficulty in the Navy was that many of the burns occurred in small vessels on which there was no medical officer and which sometimes could not get the patient to hospital for five or six days. It was very necessary in these small ships to instruct those concerned in the use of a coagulant which prevented excessive fluid loss and was also antiseptic. At the beginning of the war it was thought that every case of burn received at hospital should have intravenous plasma or saline. To-day only one in ten was given intravenous therapy; the medical officers and nursing staff were instructed that, in general, patients suffering from burns should be given fluid by mouth. Common sense and clinical acumen were far more important in saving life than was scientific investigation. Certainly if there were only a few cases the fullest investigations should be carried out, but with a crowd of patients this was impossible. Moreover, if patients were given intravenous therapy they began to take a suspicious view of their own state, whereas if they were asked only to drink a sweetened fluid the picture was very different. He thought there had been some tendency to swing away from a rational form of treatment into a super-scientific treatment, which was to be deprecated in war emergencies.

Types of Burns in the R.A.F.

Fl. Lieut. D. C. BODENHAM said that from the point of view of treatment two types of burns were important: the superficial second-degree burn affecting only the layer of epithelium, and the destructive or third-degree burn in which practically all the dermis was destroyed. But it was surprising how often epithelial island cells survived, from which, by spreading and coalescence, healing occurred. With a large amount of destruction, however, this was much too slow, and it became a question of skin grafting. One marked feature of burns of the face, owing to the loose supporting tissues, was the great amount of oedema which developed even with a moderate burn. The oedema remained at its maximum usually for from 12 to 36 hours and then began to subside. It was remarkable how rarely, even in the most destructive cases, the globe was involved, but it was always the duty of the surgeon to examine it when the case was first seen. In burns due to exposure to the instantaneous combustion of magnesium used in flash bombs conjunctival involvement was very common, though the exposure was so brief that usually only the most superficial layers of the skin were burned. The globe was somewhat protected in these cases by the constant film of moisture which bathed the cornea and the conjunctiva. Sometimes tattooing of the globe occurred due to minute particles driven in by the force of the explosion, and too small and numerous to be

removed surgically. Treatment of burns in the R.A.F. was on simple principles—to prevent infection and to do as little harm as possible to the healing tissues. If a case did not heal on its own it should be assisted by skin grafting. An application of sulphonamide, either as powder or the 3% cream advocated by Dr. Colebrook, was in use, applied on a coarse mesh petroleum jelly gauze, making a very soft and gentle non-traumatic dressing. Penicillin, applied for 24 hours, has been found effective in eliminating streptococci and staphylococci from granulating surfaces. Keratitis was not infrequent in these eye burns. In the slighter cases simple measures might be employed, such as constantly keeping the globe moist with saline and using a lubricant, but in the more severe cases a contact glass had to be used as a mechanical protection.

Squad. Ldr. G. T. W. CASHELL said that in the burns seen in the R.A.F. it was remarkable that while there was seen a pronounced effect on the eyelids and face there was often practically no effect on the globe, apart from a little oedema of the conjunctiva, and particularly of the cornea, due to spread from surrounding tissues. In the case of flash explosions, however, the whole of the cornea and the conjunctiva might be severely pitted with particles of the bomb. Some of these cases did extremely well even though nothing was done to them; in others there might be severe ulceration or extreme tattooing of the sclera. He showed one case in which there had been complete obliteration of the lower conjunctival fornix due to an incendiary bomb. A skin graft was put into the lower fornix, but the eye remained extremely irritable and eventually the skin graft was excised and replaced by mucous graft, with mucous membrane obtained from inside the lower lid, with a satisfactory result.

Wing Cmdr. J. E. NEELEY gave an analysis of the cases of burns received at one R.A.F. hospital. Out of 120 cases the face was affected in 80%, and of this 80% ectropion was present in 20% and 5% had an affection of the globe.

Mr. T. POMFRET KILNER showed a film illustrating the grafting treatment of ectropion. The case was not one of burn but of lupus; nevertheless the procedure was instructive. He said that in the case of severe eyelid burn there was a question but that grafting should take place at as early a stage as possible. It was important to graft only one eyelid at a time. Very thin skin might be applied; it seemed to thicken up nicely and take up a reasonable colour match with the rest. One ought not to be over-much depressed if the eyelids contracted again after the first graft. The graft would still have served a useful purpose, and a more cosmetic result could be obtained quite easily at a later date. He used "mastisol" to avoid any sliding of the dressing over the raw surface. After-care was important. The patient should be carefully instructed how to carry out massage, preferably with aniline cream.

Mr. FREDERICK RIDLEY mentioned the value of the full salar bath in getting rid of blepharospasm and photophobia in these cases. It was wise to put the patient on 10% iodol night an ointment and 1% atropine at midday. This did no harm and ensured the best position if later on trouble should develop. Mr. Ridley demonstrated a device for obtaining a moulded acrylic mask and its fixation when there was a good bearing surface (an unburned surface) on the forehead and nose, and again when no skin-bearing surface was available. This was really the fitting of an artificial eyelid which could be worn day and night and was very comfortable. But he emphasized the rarity with which such procedures became necessary. He had been surprised to hear a previous speaker comment on the frequency of keratitis. In his experience the development of this condition was infrequent.

H. H. Perlman, A. M. Dannenberg, and N. Sokoloff (*J. Amer. med. Ass.*, 1942, 120, 1003) made a study of the excretion of nicotine in the milk and urine of 55 primiparae and multiparae from 18 to 48 hours after delivery, addicted to cigarette smoking with the following results: (1) Nicotine was excreted in the milk and urine of all the smokers. (2) Much larger quantities of nicotine were excreted in the urine than in the milk. (3) There was a definite correlation between the quantity of nicotine excreted in the milk and urine and the number of cigarettes smoked. (4) Lactation was little, if at all, affected by the smoking of cigarettes. (5) The nurslings were apparently unaffected by the quantity of nicotine ingested with the milk.

Correspondence

Wartime Diet for Peptic Ulcer Patients

SIR.—Dr. J. B. W. Rowe in his letter to the *Journal* of Oct. 9 rightly stresses the importance of providing people liable to peptic ulcer with sufficient easily digestible food for meals at regular and short intervals. The Ministry of Food has already done this. If the daily allowance of a quart of milk is wisely used there should be little difficulty in keeping free from recurrences when the ulcer has soundly healed, so long as other and more important factors than diet are kept in mind. The quart of milk and the whole of the sweet ration in the form of plain chocolate should be used for intermediate feeds, so that the patient does not fast for more than two hours, or in exceptional cases more than one and a half or even one hour at a time. The importance of frequent feeds in prophylaxis was emphasized twenty-five years ago by Sippy, whose patients always took a bottle of milk with them to their work so that they could drink a few ounces every hour.

The constitution of the main meals is of comparatively small importance. With the exception of such gross "roughage" as pips, tough skins, and vegetable fibres, there is no food intrinsically bad for ulcer, and I see no advantage in substituting cheese for meat, as suggested by Dr. Rowe. The food should be well cooked and thoroughly chewed, and the evening meal should not be eaten until the patient has rested, if he returns home exhausted after a long day's work. These conditions may be difficult to attain, but they are not a matter for the Ministry of Health.

Anxiety is the chief cause of recurrence, and everything possible should be done to help the patient to face his worries with equanimity. Phenobarbitone for insomnia and in small doses during the day to diminish nervous irritability is often more useful than alkalis. During periods of special stress complete rest and strict ulcer diet on Sundays, even in the absence of symptoms, may prevent a recurrence. Lastly, smoking should be prohibited or strictly rationed.—I am, etc.,
Oxford.

ARTHUR HURST.

Peptic Ulcer in Youth

SIR.—In your issue of Sept. 25 (p. 403) Prof. Grey Turner mentions Sir Joseph Leech's case of a perforated gastric ulcer in a boy of 13. I remembered this when I saw recently a young man, just 19, upon whom I performed a posterior gastro-enterostomy earlier in the year for advanced pyloric stenosis. He had suffered from periods of indigestion for many years and certainly when at school. The pain had become persistent when I saw him last May, and he was vomiting after meals. He had an enormously distended stomach. The radiograph (Dr. Wilkie) showed the stomach full of the barium 24 hours after the meal, and clinically I suspected he might have a condition of the pylorus akin to congenital stenosis found in babies, but at operation there was the typical fibrosis of chronic ulceration of the first part of the duodenum with adhesion to the liver.

I wondered how long this youth must have had his duodenal ulcer, and if pyloric stenosis had called for surgery at an age earlier than 18. It would not surprise me if Prof. Grey Turner has knowledge of a younger case than this one.—I am, etc.,
Sheffield.

H. BLACOW YATES.

Recovery of Bladder Function after Long Disuse

SIR.—In the remarkable case recorded by Prof. Rendle Short (*Journal*, Oct. 9, p. 464) recovery of bladder function took place after 21 years of suprapubic drainage. This success, in the extraordinary circumstances described, is high tribute to surgical skill and enterprise. No less is it a tribute to the remarkable adaptability of the urinary bladder. This power of recovery after long disuse is well seen in cases of vesico-vaginal fistula. Among my records are several examples of long-standing urinary incontinence; yet, with one partial exception (see below), complete function has been restored in every case. The following are cases in point.

1. Fistula of 9 years' standing. Urethro-vesical junction involved with considerable destruction of tissue. Seven previous operations—two by the suprapubic route, five by the vaginal route. Patient then told that she was incurable. Fistula closed by Sims's type operation. Complete recovery in every respect.

2. Fistula of 28 years' standing. Two previous operations; patient told she was incurable. Closure of fistula by Sims's technique. Complete recovery in every respect. (It was calculated that during the period of disability this patient had used about 6,000 bales of cotton-wool, and had washed considerably more than 50,000 towels!)

By contrast, the following is a case in which treatment has been only partly successful.

3. Fistula of 2 years' standing. History of obstructed labour, followed by gas-gangrene infection. Large sloughs came away in the puerperium; this resulted, as was subsequently discovered, in loss of the whole of the uterus and anterior vaginal wall, including part of the urethra. Patient had had eight or nine previous operations, some by the abdominal, some by the vaginal route. Fistula successfully closed by Sim's type operation. Subsequent operations undertaken to lengthen and to narrow the urethra. Patient now has fair bladder control, but capacity is only about 8 oz.; deficient sphincter action prevents accommodation of more fluid. This is a recent case, and progress is still being watched.

With the experience of these and other cases I venture to say that no vesico-vaginal fistula need be regarded as hopeless because of the long duration of urinary incontinence. Successful closure with full recovery of bladder function is almost always possible provided that the sphincteric region has not been entirely destroyed. Further, I believe that, with rare exceptions, vesico-vaginal fistulae are best closed by a vaginal operation based on the technique of Marion Sims.—I am, etc.,
Oxford.

CHASSAR MOIR.

Mosquitoes and Static Water Tanks

SIR.—In a letter appearing under the above heading on Oct. 2 your correspondent Dr. A. G. Newell directs attention to the use (in India) of larvivorous fish for preventing mosquito breeding, and advocates the application of this method of control to the case of static water tanks in this country. I venture to point out that even in India the method in question is subject to many limitations. According to Col. G. Covell, Director of the Malaria Survey of India, these are as under:

1. Fish are effective only if present in sufficient numbers.
2. They are completely effective only in the absence of all weed and floating debris.
3. Small boys can be relied upon to catch them if they get the opportunity.
4. Over-zealous persons are apt to introduce other and larger species which may prey on them.
5. If there is not sufficient food for them they will eat their own young, so that breeding places must be periodically re-stocked.
6. Constant inspection is needed to see that the fish are flourishing and are in sufficient numbers, and that the water is free from horizontal vegetation and floatage.
7. In order to carry out these inspections, and to keep up a sufficient stock of fish for the various breeding places, a special staff is necessary.

In view of the above disadvantages Col. Covell considers 'that "the use of fish as a measure of malaria control, though useful in certain conditions (e.g., in places where for some reason it is impossible to employ any other measure), cannot be said to hold a position of very great importance in India. Their chief value is in the case of wells and ornamental waters.' In this country experience has shown that the large static water tanks now installed in London and many other cities are only too apt to become depositories for waste matter of various kinds, and have then to be emptied for cleaning. This fact constitutes a further disadvantage to be added to Covell's list.

Of other control measures suggested by your correspondent, that of removing tanks from shady situations hardly meets the present case, since *Anopheles maculipennis* (to which his letter chiefly refers) definitely prefers open sunlit places in which to breed. Again, the statement that "leaves or algae will give a certain amount of shade and hiding place for larvae" overlooks the fact that anopheline larvae pass their existence clinging to the upper surface of "just-submerged" filamentous algae, floating leaves, etc., which certainly protect them from their various enemies, but do not provide them with shade.

So far as I am aware, the only large built-up areas in which the breeding of mosquitoes in static water containers has been

CORRESPONDENCE

systematically studied are London and Portsmouth, in which cities continuous observations were made and recorded throughout the summer and autumn of 1942. In the latter city the only species found breeding were *Anopheles maculipennis* and *Culex pipiens*, the former being recorded 7 times and the latter (which does not bite human beings) 27 times. The records of *A. maculipennis*, however, included four cases in which the larvae were few and far between, while the four others were provided not by excavated sumps in which masses of filamentous algae were growing. In the London area, where an extremely large number of tanks were periodically inspected, the only species found breeding was "man-ignoring" *Culex pipiens*—a state of affairs that I had ventured to predict during the previous year.

It would appear, therefore, that if static water tanks are free of filamentous algae (the growth of which can be inhibited by dissolving a very small proportion of copper sulphate in the water) they are extremely unlikely to become a source of mosquito annoyance. When, however, larvae of *C. pipiens* are found infesting a tank, it may perhaps be thought advisable to kill them by oil or larvicides, lest public apprehension may be aroused by the subsequent appearance of the adult insects. The suggestion that static water tanks should be provided with tight-fitting covers to prevent mosquitoes from laying their eggs on the water is often advanced. In countries abroad, where the yellow-fever carrier *Aedes aegypti* (which breeds in cisterns, garden tanks, and such-like water containers) is prevalent, the covering of tanks of moderate size is a precaution which is not only of vital importance but is also easily carried out. In this country, however, where we are almost exclusively concerned with an entirely harmless mosquito breeding in very large tanks (often of 25 ft., and not infrequently of 50 ft., in diameter), any such procedure would be both unnecessary and (for constructional reasons) impracticable.

JOHN F. MARSHALL.
British Mosquito Control Institute, Hayling Island.

- REFERENCES
 1 Covell, G. (1935). *Hlth. Bull.*, No. 11, Govt. India Press, Simla.
 2 Marshall, J. F. (1943). *The Control of Tank-breeding Mosquitoes in the City of Portsmouth*. British Mosquito Control Institute, Hayling Island.
 3 Shute, P. G. (1943). *J. roy. San. Inst.*, 63, 122.
 4 Marshall, J. F. (1941). *Times*, Aug. 12.

Sterility and Contraception

SIR.—In the *Proceedings of the R.S.M.* (Jan., 1943, 36, 105) described some animal experiments, which have since been repeated and remain unchallenged, to show that the premise of R. L. Noble was correct—namely, that the human semen contains a specific growth hormone. At the same time I cited two groups of newly married young women who had been observed over a period of two years. In Group 1 there was no contraception. Of these, 25% conceived in the first few weeks; in 50%, however, pregnancy did not occur until after an average of 7½ months. In Group 2 chemical and mechanical contraceptive methods were rigidly employed for more than one year from the date of marriage, but in 50% the uterus remained virginal—that is, immature—up to the date of writing. (10 months), and conception had not yet occurred. The deduction is that anything or any method which prevents, retards, or alters the normal degree of physiological absorption of human semen from the vagina carries with it during the early months and years of matrimony the risk of future sterility from failure of uterine development, and endocrinal asynchronisation. Surely, therefore, it is very desirable not only to confirm the views of the late Sir Francis Fremantle but to share the very natural anxiety of Dr. Joan Malleson for those women in the Services, war factories, etc., who are so misguidedly employing deleterious methods. Moreover, if further evidence and corroboration be needed let us read the latest written words of I. C. Rubin on the subject (*Bull. N.Y. Acad. Med.*, Aug., 1942, 541): "Contraceptive methods undoubtedly affect fertility for longer or shorter periods after their use has been stopped."

What is the ulterior effect of prolonged use of mechanical plus chemical contraceptives? Some hold that as a result the woman absorbs only fractional doses of seminal hormone from the vaginal mucous membrane, and that these not only

immunize her against her husband's semen but prevent proper growth of the genitalia. Others, among them Kurzrock and Miller, believe that such methods affect the intimate structure of the selective epithelium of the arbor vitae to such an extent that the secretion becomes abnormally viscous, and that it is the presence of leucocytes and debris, the result of congestion, that inhibits not only the lytic penetration of the mucus plug but also the cataphoretic action which normally accounts for chemotaxis. There is little doubt that the state and blockade of the cervix is of great importance. Upshaw (*J. med. Ass. Georgia*, Jan., 1940, 29, 2) and Moore (*Amer. J. Obstet. Gynec.*, Feb., 1940, 39, 269) believe that sterility can be charged to the cervix (apart from the male side of the problem) in 73 and 60% of all patients respectively; whereas Rucker (*Virg. med. J.*, Feb., 1936, 62, 656) states that 36% of primary and 65% of secondary sterility patients become pregnant when treated for existing cervicitis. Non-patency of the Fallopian tubes in cases of primary sterility is fortunate, rare in this country—certainly not more than 14% in a per se study of over 2,500 lipiodolograms during a period of 17 years—a figure that approximates that of Samuel Meaker in Boston, though almost exactly half that recorded by I. C. Rubin using CO₂.

The statistics of three large hospitals and long private experience point to the fact that, apart from the above, almost the commonest cause of sterility is genital hypoplasia (36-40%), where immature ovaries, the result of some depressive constitutional and/or endocrinal cause at the critical period of a girl's early life, produce a reduced number of comparatively infertile ova. Here lies a golden opportunity for preventive medicine and rehabilitation. I entirely agree with Dr. Malleson that research is urgently needed upon the two-patient problem of sterility. Nothing can be more irrational than the setting up of petty sterility clinics which are cut off from the co-operative team work of a properly staffed and properly equipped hospital, for to-day this complicated and comprehensive problem demands the services of an expert gynaecologist, andrologist, biochemist, pathologist, radiologist, radiologist, therapist, and, not the least, a psychiatrist, all working together on the same front in the same hospital for a common end—I am, etc.,

London, W.1.

V. B. GREEN-ARMYTAGH

Methedrine in Surgical Operations

SIR.—In your issue of Sept. 25 (p. 396) the author of the annotation on *d*-desoxyephedrine (methedrine) refers to our work (*Journal*, 1943, 1, 345) with this drug as a pressor agent in surgical operations, and states that "it may be argued that the drug is contraindicated in surgery because its anaesthetic action may lead to the use of more anaesthetic; certainly the dose used by Dodd and Prescott would be greater than that desirable for an unanaesthetized patient."

Methedrine was used by us solely to counteract the serious falls of blood pressure that often occur in major operation under all anaesthetics, including spinal. A study of this value for this purpose. The supposed disadvantage mentioned—that its anaesthetic action may lead to the use of more anaesthetic—is a theoretical one. Many of the operations were under local or spinal anaesthesia and no effect was observed. Patients never became restless. With general anaesthetics the premedication, the anaesthetic, and the post-operative morphine that the patients received were sufficient to annul the anaesthetic effect of methedrine. Anaesthetists who have worked with us have been impressed by the value of the drug, and have not observed that more anaesthetic is required after it has been used.

The dose we used is admittedly greater than that given to the unanaesthetized patient, because it was given only those suffering from a severe fall in blood pressure. Careful recording proved to us that the amounts recommended in our paper met the needs of such patients. We wish to emphasize that we did not administer methedrine as a routine or for the sake of trying its effect, but gave it only to patients undergoing major operation when the systolic blood pressure fell below 80 mm. or the pulse pressure fell below 10 mm. and stay

here for 10 to 20 minutes. A total of 98% of the cases responded satisfactorily.

Your annotator also refers to the possibility of tachyphylaxis—the diminished response to rapidly repeated doses. This is shown by all the sympathomimetic drugs, including methedrine. We found, however, that a single properly assessed dose was effective in restoring the blood pressure in 81% of the cases; of the remaining 19% only 2% failed to respond to repeated injections. Once the blood pressure was restored to its pre-operative level it kept to within 90% of this figure for several hours, for in practically all cases follow-up studies were made in the wards for at least this period.—We are, etc.,

H. DODD.

F. PRESCOTT.

London.

A "Charter of Health"

SIR,—The Recommendations of Council on the future of medical services, which were discussed at the Annual Representative Meeting, constitute an important pronouncement. Recommendation B, with its mention of "security against fear and want," invites comparison with another document, and, representing as it does a sort of "Atlantic Charter of Health," may be widely quoted as the considered opinion of our profession, and influence public opinion for many years to come. The greatest care should therefore have been taken in drafting it to make it as complete and as clear as possible, and by issuing Recommendation B in its present form the Council have missed a great opportunity.

At present the Recommendation, as slightly amended at the A.R.M., reads: "That the health of the people depends primarily upon the social and environmental conditions under which they live and work, upon security against fear and want, upon nutritional standards, upon educational facilities, and upon the facilities for exercise and leisure. The improvement and extension of measures to satisfy these needs should precede or accompany any future organization of medical services."

If the first sentence is intended to be a catalogue of the principal factors which influence health (and that seems to be its legitimate purpose), there are several important omissions.

Taking these in some sort of logical order there are, first, the inborn constitutional factors, which greatly influence the medical history of a patient whatever his environment may be. To be well born is at least as important as to be well educated or well nourished, and from the racial standpoint much more so. It would be a good thing to remind the general public of this fact at the outset. Secondly, if nutrition is specifically mentioned, other essential factors such as protection from the weather and the matters that are ordinarily cared for by the public health services should be mentioned also.

No list of the factors influencing health would be complete without considering the devastating effects of violence, which includes both the violence of war and the lesser violence of industrial accidents and injury on the roads. Equally essential is mention of the powerful effects on health of various forms of infection. Smallpox, influenza, and venereal diseases may strike down people who are perfectly well nourished and educated, with plenty of leisure.

Another serious omission in these days when so large a proportion of ill-health and absence from work is due to psychoneurotic illness is the psychological environment, and I believe most authorities are agreed that in this respect it is the first six years of life that are the most important. This is the period during which the neurotics of adult life are made.

I therefore beg to submit that, in the next edition, Recommendation B should be amended to read somewhat as follows: "Health depends primarily upon: (1) hereditary and inborn nature and constitution; (2) proper and sufficient food, pure water and air, adequate clothing, housing, and fuel; (3) proper disposal of refuse and excreta; (4) freedom from violence, infestation, and infection; (5) a favourable psychological environment, especially in the earliest years; (6) a proper education of mind and body, and a reasonable amount of exercise and leisure; and (7) suitable and congenial surroundings in which to live and work; and only secondarily upon medical attention when health has broken down. Attention to the factors (1) to (7), so far as is possible and necessary, should precede or accompany any reorganization of medical services."

I should also like to suggest that in Recommendation A, section (i), the unsatisfactory and ambiguous phrase "positive health" be done away with, and that the section might then read: "The system of medical service should be directed to the achievement of the highest pitch of health obtainable, and prevention no less than relief of sickness."

—I am, etc.,

London, N.W.3.

NORMAN A. SPROTT.

Treatment of Septic Hands and Fingers

SIR,—I most heartily endorse all that Dr. E. C. Atkinson has to say on this most important subject (Oct. 2, p. 432). About a year ago we began to run an accident service at the Royal Buckinghamshire Hospital, Aylesbury, modelled so far as possible on the lines of those already inaugurated at the great centres such as Birmingham and Oxford. Although our service leaves much to be desired, there is little doubt that, allowing for wartime conditions, we have achieved much and learned a good deal more. It may be of use to others to enumerate briefly some of our findings.

Whereas fractures, the more severe soft-tissue injuries, and extensive burns are sent to the accident service soon after the receipt of the injury and consequently can be dealt with at once under hospital conditions, septic hands and fingers and the more minor injuries tend to come up much later. Many of these cases have received improper treatment and arrive at hospital with complications, such as bone necrosis, wide soft-tissue destruction, etc., the result of inadequate and late drainage, indiscriminate and ignorant use of fomentations, or faulty incisions. All this means an enormous prolongation of the period of treatment, and often the taking up of a valuable in-patient bed, not to mention the time spent afterwards in rehabilitation.

I should like to point out some of the reasons which account for this rather deplorable state of affairs, which Dr. Atkinson rightly states costs the country a vast amount of time and money in wastage of man-power hours and compensation.

1. Ignorance on the part of the general public, who do not realize the fact that however trivial a finger or hand injury may appear it should be treated with the greatest respect (it may even imperil life) and a doctor consulted. Education on this point is fortunately going forward in the big industrial concerns, where all injuries sustained at work must be reported to the first-aid department. This is a great step forward provided that the right treatment is at once instituted.

2. Avoidance of bad treatment and the institution of correct treatment before the complications which I have already enumerated have had time to set in. To attain this end a better education of the profession in minor surgery is essential. Dr. Atkinson stresses the time taken up in the student's curriculum watching long and complicated operations of a highly specialized nature. While any practitioner should know something of the difficulties associated with major surgical procedures, and of the results of such, in order to be able in the future to advise his patients whether they should undergo this or that operation, far more time should be allowed for the teaching of minor surgery. I think minor surgery is rightly a general practitioner's job provided he has the knowledge, and the general practitioner of the future must be given that knowledge or woe betide the septic fingers receiving treatment in the proposed health centres of the post-war era. The necessary knowledge is sadly lacking to-day, and this is borne out by contrasting the results which can be obtained by careful treatment as compared with those which have received wrong treatment before attending an accident service.

3. Travel in country districts is to-day scanty and expensive, and the poor often find the fares charged beyond their means. It is extremely difficult, therefore, to get patients to attend regularly at the accident service. No doubt the advent of peace and better times will do much to rectify this evil, but it will be some years before an ideal can be attained.

4. Lack of skilled medical personnel. This is the main drawback to-day in the running of any accident service. At least two full-time well-trained casualty officers are essential to run an efficient 24-hour service, and they should be under the direct guidance of one or two general surgeons who are willing to give the necessary time to follow up each case individually. A very large number of septic fingers and other minor injuries can be seen in half an hour, and the necessary instructions with regard to treatment given. This daily visit of a general surgeon has been amply rewarded by the better results obtained at the Royal Buckinghamshire Hospital Accident Service.

5. Accident services should be run by general surgeons, remembering the huge variety of injuries which may result from an accident and that no part of the human body is immune. An orthopaedic specialist to act as consultant is another ideal; he will advise in the more serious problems of injury involving the skeleton. We have an excellent liaison with the Oxford orthopaedic specialists, who attend regularly and, if necessary, in an emergency.

During the months of January to June, 1943, there passed through the Royal Buckinghamshire Hospital Accident Service 69 cases of septic finger with an average attendance of from

CORRESPONDENCE

526 OCT. 23, 1943

10 to 14 days (including what rehabilitation we are at present able to give), 215 new fractures and 987 old, making a total fracture attendance of 1,202. There were 19 minor burns. These figures speak for themselves, as Aylesbury is only a small centre, but if the figures are taken and multiplied for the whole of England some idea can be gained of the magnitude of this problem. Let us hope that the memorandum which Mr. Atkinson so rightly advocates will soon be forthcoming.

—I am, etc.,
Aylesbury

R. H. GARDINER.

Infantile Enteritis and Breast-feeding

SIR.—I have read your annotation on Dr. C. J. McSweeney's report on infantile enteritis and breast-feeding (Sept. 18, p. 367) with great interest. While agreeing with him that breast-feeding, if universally adopted, would materially lessen the prevalence of D. and V. and therefore the death rate among infants, I would point out that until this Utopia is achieved much could be done both in prevention and cure if its aetiology were more generally realized.

D. and V. and dehydration in infants are caused mainly in two ways: (1) by a specific organism which attacks the gastro-intestinal tract; (2) by mastoiditis, which by means of a parasymphathetic reflex floods the intestine (see *Journal*, Aug. 7, p. 168). In both conditions D. and V. and dehydration are the most prominent physical signs. This fact has led to the diagnosis of gastro-enteritis of the faeces proves the absence in which bacterial examination of the faeces is incorrect and that of mastoiditis should be substituted, and such an amide treatment, in spite of dietetic, saline, and sulphonamide treatment, to lose weight, should be handed over to the aural surgeon for surgical treatment, for progressive mastoiditis treated medically is a fatal condition. In this manner many infant lives could be saved, and undiagnosed purulent mastoiditis less frequently discovered post mortem.

It is well known that so-called gastro-enteritis is much commoner in bottle-fed than in breast-fed infants. The main reason for this is that bottle-fed infants, on the other hand, since they are fed sitting up, do not develop mastoiditis through food entering the Eustachian tube. It follows, therefore, that if all bottle-fed infants were fed in the natural position, they, like their breast-fed fellows, would not develop mastoiditis. This important fact should be more universally recognized, by the medical profession, by nurses and mothers, for if universally adopted mastoiditis with its accompanying D. and V. and dehydration would cease to be a common condition.—I am, etc.,

PERCIVAL W. LEATHART.

Birkenhead

Hypersensitivity to Sulphonamides

SIR.—Major R. G. Parks's very informative article draws attention to the dangers of sulphonamides used locally—namely, skin sensitization and possible future complications of oral therapy (July 17, p. 69). I write to describe three cases of local sensitization to these drugs seen in the wards of a hospital, and make some observations on the method and type of sulphonamide application for local use.

Case 1.—Recurrent impetigo of face, mainly affecting the beard area. Treated in unit for three weeks with 30% sulphanilamide cream applied three times daily. On admission, face was slightly oedematous, generally erythematous over areas of application, and some lesions were slightly erythematous and showed vesiculo-papular eruption, especially on the dorsal surface. No other skin lesions.

Case 2.—Mild impetigo of face. Three weeks' treatment in unit with sulphanilamide cream (% not known) applied twice daily. On admission there was an exuding, crusting impetigo of chin and mouth margins and extending as far as the right ear. Apart from the forehead, the whole of the face and neck was erythematous and oedematous. A small area of skin to the right of the neck was weeping and the surface fissured. Erythema and vesiculo-papular eruption present on dorsal surface of hands. Face was sore and the hands itching.

Case 3.—Impetigo of face. Treated with a sulphanilamide ointment (% not known) applied twice daily for seven days. On admission, small-type impetiginous eruption of face, neck, and ears;

mild oedema of face and neck; erythematous-papular rash of the neck and, less obviously, of the face. Marked conjunctivitis the right eye had developed since the treatment had commenced and there was oedema of the right lids. Face sore and slightly itching. No other skin lesions.

Cases 1 and 2 settled with rest in bed, Lassar's paste applied locally at first, and then hydrarg. ammon. 2% in Lassar's. Case 3 responded to rest in bed, eau d'Alibour locally at first, and then a 2% gentian violet lotion. There was no previous history of skin trouble, and it is not known whether they had previously reacted adversely to the drug. Patch, intradermal, and scratch tests were not performed.

It is suggested that in the above cases the type of preparation—ointment or cream—and the frequent application over a long period were determining factors in the production of the reaction. When applied locally a drug has a more intensive action if used either as an ointment or powder than it has in paste form. Where this greater local stimulation exists the possibility of a sensitization resulting is enhanced if at the same time the period and frequency of application be prolonged or high. In paste form the introduction of the drug to the skin is gradual, and the paste itself is both soothing and drying. Briefly, therefore, this would indicate: (1) Where possible employ a paste preparation. (2) Continue the application of the drug only while improvement is being made. (3) Close clinical supervision, including a careful history. In ecchymatous and ulcerative states more use could be made of the "occlusive" type of dressing—the sulphonamide dressing being applied and sealed over and left for a week or longer. For some time I have used a 30% sulphanilamide cream in a base of 60% cod-liver oil and 10% beeswax. This was applied twice daily but discontinued after 6 days on the average. The change to milder but effective preparations of the type of eau d'Alibour was made as soon as possible. Preparations of 30% sul-anilamide and 5% sulphathiazole are now used in a base of Lassar's paste modified to contain 10% cod-liver oil. They have been applied without reaction and with satisfactory results. By the above methods it is anticipated that reactions may be reduced to a very low percentage.—I am, etc.,

H. LEE.
Lieut. R.A.M.C.

Precise Cephalometry

SIR.—I was delighted to read of Dr. Paul Cave's great advance in this procedure (Sept. 18, p. 375). It is based on the recognition of the "greatest circular section" of the foetal head to which I drew attention in my paper (*Proc. roy. Soc. Med.*, March, 1935), and entirely eliminates the personal factor and the small knowledge of obstetrics which were inseparable from the method which I described.

Most reliance should, I think, be placed on the calculation from this circular section, for although the occipito-frontal outline is often most temptingly clear it is impossible to be certain that there is no tilt and that the measurement will not be a trifle low. Furthermore, it is the biparietal diameter which is all-important, and in the case of a brachycephalic head the occipito-frontal might be seriously misleading. It is useful only as a check on minimal size.

For the preparation of the films Dr. Cave's method is extremely simple, and all information on the interpretation of film shadows will be found in my paper. Dr. Elliston's illustrated criticism is, as I pointed out and as Dr. Cave confirms, of no practical importance. It is to be hoped that all radiologists will now become familiar with this simple and reliable technique, and that obstetricians will make full use of it. Dr. Cave is greatly to be congratulated on an important advance.—I am, etc.,

NORMAN REECE.

Brixham, Devon.

Vitamin E and Menopausal Flushes

SIR.—I have just seen the article by Hain and Sym in your issue of July 3 in which some observations on the influence of vitamin E upon menopausal flushes are recorded. As a remark of mine at the vitamin E symposium in 1939 appears to have provided the original stimulus to this investigation, I may perhaps be pardoned for offering some comment. I have been impressed for years past by the numerous studies in the literature tending to show that post-menopausal patients frequently excrete appreciable amounts of oestrogenic substance. My own studies have amply confirmed the fact that

such women often exhibit oestrogens in quantity in the blood, as others have also found. I have recently tried to call attention² to this point in the effort to explain the not infrequent failures of oestrogenic therapy in menopausal states. Indeed, everyone must have seen patients definitely worsened by such treatment. Believing as I do that vitamin E is a potent anti-oestrogen, it seemed worth while to administer it to menopausal women. The relief of hot flushes and the troublesome headaches of this epoch was early observed, and was commented on in a paper read before the Toronto Academy of Medicine in 1937.³ The observation has never seemed to attract attention because the whole gynaecological world appears to be quite convinced that oestrogens are the *sine qua non* at the climacteric.

May I say that I rarely use oestrogens for menopausal disorders, that I have treated scores of such women with vitamin E, and that I believe my results would compare favourably with those of physicians who use oestrogens. There is little point in offering a statistical analysis of my cases, since, if Dr. Hain's suggestion is followed, others will try this remedy promptly and come to their own conclusions. I usually try 10 mg. of ephynal as a daily dose for 7 to 10 days, and, if that fails, at once increase the dose to 25 mg. per day for a time, reducing it later as indicated.

I notice that Hain and Sym found that vitamin E helped a woman with vulvar pruritus. Such patients usually require huge daily doses (100 mg. ephynal or even more), exhibit no changes for a latent period of at least 10 to 14 days, but then many obtain striking relief and visible rejuvenation of the vulvar tissues.² Oestrogens not infrequently render the discomfort of these women intolerable. May I very earnestly recommend a trial of vitamin E for such unfortunates.—I am, etc.,

London, Ontario.

E. V. SHUTE.

REFERENCES

- 1 Shute, E. V. (1939). *Endocrinol.*, 24, 744.
- 2 — (1942). *J. Obstet. Gynaec. Brit. Emp.*, 49, 482.
- 3 — (1937). *Canad. med. Ass. J.*, 37, 350.

In Defence of Nursery Schools

SIR,—As a nursery-school teacher I have been much disturbed by the debate on State nurseries which was reported in your issue of July 17. I feel that Dr. Helen Mackay has been singularly unfortunate in the nurseries she has visited, in which she found "a good deal of shouting from tired women, and crying from fretful children"; also in which there was a high incidence of infection and a low incidence of happiness. These facts are not typical of nursery schools, in which I have worked for the past 14 years. Surely Dr. Brodie has put her finger on the seat of the trouble when she declares that physical health is the first consideration, and mental health only comes second. Surely, also, Dr. Back discards the remedy for unhappy nurseries by stating that nurseries should not be developed as part of our educational system?

Nursery schools are playing a great part in our plans for education. They are in charge of teachers fully qualified to deal with the physical, mental, emotional, and social needs of children aged 2 to 5 years. The day's routine is carefully planned so as to provide all the essentials conducive to the health and happiness of the children. Various types of occupation and activity give ample scope for their all-round development; there are no periods in which they "do nothing." Each child is treated as an individual, with a personality which is recognized and respected by the staff. The food is well balanced and attractive and there is a rest period during the day. When the weather is at all suitable the children are out of doors as much as possible, having meals, sleep, and play in the garden, thus securing the maximum amount of fresh air and sunshine. We have found that our children keep fit and gain weight steadily after admission to the nursery. Home food problems and temper tantrums gradually die away, and we have a group of happy contented children, and appreciative mothers with whom we are in close and constant touch. I would like to add on behalf of those mothers that I have visited many of their homes, and I have a great admiration for the way they are working. Many are doing full-time work, and in very few has the home lapsed into squalor—granted there are some women who neglect their homes, but this is

not chiefly owing to the fact of their being out at work. They are the ones who would be slovenly under any circumstances, and the ones who struggle hopelessly under bad housing and social conditions; and they are becoming a small minority.

May I suggest that, in order to improve matters in wartime nurseries, the Ministry of Health should seriously consider the advisability of giving more financial support for the provision of educational equipment, play with which will satisfy the natural urges of the child.—I am, etc.,

Scarborough

B. R. ABELSON.

Fractured Great Toe

SIR,—Dr. G. N. Taylor (June 12, p. 724) draws attention to the fact that fracture of the great toe is the commonest fracture in industry. Seven years of experience as an industrial medical officer has convinced me that the incidence of this injury can be greatly reduced by the use of "safety boots."

As Dr. Taylor points out, trephining the nail gives dramatic relief from the pain due to subungual haematoma. I have found that the best instrument for this purpose is an ordinary twist drill of small diameter. These drills are always available in engineering workshops; they are easily sterilized by boiling; and, being designed for cutting holes in hard surfaces, they will cut through a nail with far less discomfort for the patient than an operating knife, which, after all, was designed for an entirely different purpose. The method of operation is to rotate the drill gently between thumb and index finger.—I am, etc.,

H. M. L. MURRAY.

Controller of Welfare, Department of Labour and
National Service, Melbourne, Australia.

Food for Nurses

SIR,—Commenting on the recent revelations respecting hospital food, a surgeon writes me: "Who would send their daughter into nursing with things as they are?" Exactly. Posters depicting beautiful girls in uniform will not allure till parents realize that hospital conditioning has been everywhere upgraded. Here and there feeding may be above reproach, but its generally low reputation, in relation to output of energy demanded, is now shown to be well founded.—I am, etc.,

Moor Park.

ESTHER CARLING.

Aleukaemic Myeloid Leukaemia

SIR,—I was much interested in the article by Dr. Della Vida and Mr. M. C. Connell (Oct. 2, p. 417). The first case described bears certain resemblances to one that I saw and investigated about ten years ago. My notes on the case are hard to come at at the moment, but to the best of my recollection the particulars were as follows. It will be seen that they present several features of considerable interest.

The patient was a solicitor, who stated that whenever he was overworked in the course of two or three years before the onset of his present illness a crop of haemorrhagic spots appeared on his shins, but these faded if he took a holiday. No blood count had ever been made. On examination his mental and general clinical features were very like those described by Dr. Della Vida, but his spleen was palpable though not very large. His total white count was in the vicinity of 5,000, and the differential count showed practically the same features as those in the count described in the article. Further counts were made at intervals of a week, and later at intervals of a fortnight. The patient improved clinically, but his white count rose steadily and continuously to 111,000 at the end of about eight weeks, the increase being accounted for by an increasing proportion of very rudimentary cells, identifiable only with difficulty as very immature myeloid cells.

At this stage the consultant for whom I was working handed him back to his G.P., who called in his own pathologist. I was stupefied to get a note from him about a fortnight later to say that the patient's blood count was now normal, and that he was very much better. I may say that he had had no treatment, and the doctor's letter ended with the ominous note that he now had some free fluid in his abdomen. I met the other pathologist and compared notes and blood films with him, and I don't think we were either of us surprised to hear that the patient had died a fortnight later. No P.M. was possible

OBITUARY

One is tempted to wonder, judging from his history, whether he had been having periodic spells of aleukia with haemorrhages, followed by rising counts of myeloid cells, during the whole of the two or three years that the purpura had been noticed. I should be very much interested to hear whether there is any evidence that such a thing can happen spontaneously. I had previously always imagined that the aleukias one saw were the terminal phases of leukaemias, the bone marrow having finally thrown in its hand, and was surprised to find that here it had managed, without outside help, to pick up again, possibly on quite a number of occasions.—I am, etc.,

J. W. SHACKLE.

Haywards Heath.

The Common Cold

SIR,—Dr. E. W. Braithwaite's letter (Oct. 2, p. 433) is of interest, but it is necessary to know what is his criterion of "cold." Is it merely a running at the nose, or does he require the presence, in addition to the running nose, of the usual constitutional disturbances, however mild, associated with the common cold and indicative of its infective origin? If, as one suspects, the former is the case, then the condition which he describes is that of vasomotor rhinitis (paroxysmal rhinorrhoea), a vasomotor neurosis. It is, of course, incorrect to be influenced by emotional factors. It is, of course, incorrect to describe vasomotor rhinitis as in any way being a cold, though the layman may find it impossible to distinguish between the two, and will refer to it as such if he is himself a sufferer. The question of diagnosis may account for Dr. Braithwaite's astounding contention that the specific factor in the common cold "is psychological, the microbe is at present so muddled that it would seem a great pity unnecessarily to allow confusion to become worse confounded.—I am, etc.,

BASIL M. MERRIMAN.

London, S.W.1.

Obituary

CECIL ROWNTREE, F.R.C.S.

Consulting Surgeon, Royal Cancer Hospital
We regret to record the death of Mr. Cecil Rowntree, which took place, after an illness of two years' duration, at his home East Grinstead, Sussex, on Oct. 9. He was in his sixty-fourth year. For a quarter of a century or more he had been recognized as a surgeon of exceptional skill and resourcefulness, specially of late years in the field of proctology. He was an enthusiastic captain in the fight against cancer, and not only by his own clinical observations and surgical procedure but by his encouragement of other workers in wider research he had done as much as any man in his time to assist the progress of operations along this extended front.

Cecil William Rowntree was the son of a London doctor, W. G. Rowntree, and was born in 1880. He was educated at University College, London, and went on for his medical training to Middlesex Hospital, where he held the Murray scholarship in 1901 and the Freeman and Hetley scholarships in obstetrics and in clinical medicine and surgery in 1902. He qualified with honours in medicine in that year, and took the F.R.C.S. in 1905. It was the Middlesex, even in those early years of the century, which directed his interest in the experimental methods, which research he was registrar in the cancer wards of the Royal College of Surgeons; this was also the first year of Sir Arthur Keith's Hunterian professorship of surgery to the Royal College of Surgeons; this was also the first year of papers were coming from Rowntree's pen, testifying to his alertness with regard to all that had to do with cancer. These appeared in the *Surgical Reports of Middlesex*, of which he was the editor in the years 1909-11. He also contributed the section on the treatment of cancer to Latham and English's *System of Medicine*

in 1912, and in the same year he edited C. H. Leaf's *Cancer of the Breast Clinically Considered*, a new edition of a work which had been published eight years before. Although later on he was known largely as a proctologist, these early studies covered a wide range—cancer of the lip and tongue cancer of the breast, x-ray carcinoma, among others.

For many years Rowntree was on the surgical staff of the Royal Cancer Hospital, Fulham Road, ultimately becoming its senior surgeon. He retired three years ago at the age of 60 and became consulting surgeon to the Woolwich and District War Memorial Hospital. Other hospitals with which he was associated were the cottage hospitals of Caterham, Erith, and East Grinstead. At one time he was a member of the surgical staff of the Dreadnought Hospital. During the war of 1914-18 he served in the R.A.M.C.(T.), reaching the rank of brevet major. He was also consulting surgeon to the American Red Cross.

His death will be severely felt in the ranks of the British Empire Cancer Campaign, an organization to which he gave his best energies. He was a member of its grand council and of its executive and clinical research committees. He took a large share in the arrangements of the biennial informal conferences of cancer workers from all over the country which were organized by the Campaign, and of the last of these, held in 1939, he was vice-chairman. He seldom came into the limelight, but his was the hand very largely directing the proceedings. At the council table he was seen at his best entering fully into the exchange of information and experience and both wise and modest in what he put forward. He vied not in its progress which the various investigators were making on physical and chemical lines. His reputation as a pioneer whose methods had been tried out and incorporated in general surgical practice extended beyond this country. He was honorary secretary of the surgical section of the International Conference on Cancer held in 1928, and he represented Great Britain in the Union Internationale Contre le Cancer, of which he was vice-president and a member of the executive. For his work in international surgery he was made Officier de l'Ordre de Léopold and Chevalier de la Légion d'Honneur. He served as president of the Subsection of Proctology of the R.S.M.; he was also a Fellow of the British Association of Surgeons, and in the B.M.A., which he joined in 1909, he was chairman of the Westminster and Holbo Division in 1928-9.

Rowntree was a man of fine build, in earlier years an athlete of distinction, a member of the Ranelagh Club, and an expert golfer. He had also a singularly handsome and dignified appearance, but one which indicated the kindness of his nature. He was always a most likeable man, more interested in the patient than in the case, and most mindful of his colleagues and assistants, whose confidence he enjoyed to an exceptional degree. He married in 1908 Katharine Aylmer, daughter of the late Mr. H. Whitworth Jones, and had two sons and one daughter. Among his surgical colleagues and a host of workers on cancer the news of his death will come with a sense of personal loss.

An old friend and colleague writes: The death of Cecil Rowntree at the age of 63 closes a long and gallant struggle against a cardiac disability which had limited his activities for very many years. Many and many a time he carried through exhausting programmes of operations in hospital at the cost of an oedema which would have made a less resolute fighter cry quits. In everything he did a vivid personality, an acute brain, and a strong sense of humour—one of the half-dozen among the medical profession in London, certain He had, as his record testifies, administrative ability of a high order besides his gifts as a surgeon. He was too quick in the uptake himself to suffer fools gladly, but only occasionally did he allow irritation to be discerned. Before his hair thinned it was of an arresting shade of red, which has been inherited by some of his family. He leaves a widow, two sons—one of whom is doing well in his father's profession—and a daughter.

G. H. EDINGTON, F.R.C.S.

An intimate friend writes:

While your obituary notice of George Edington supplied a record of his appointments and public work, both it and the delightful appreciation from a fellow member of the Moynihan Club leave much that might be said concerning his many-sided character. All his life he was interested in anatomical and embryological problems, and many of his writings were either in these fields or dealt with their bearing on surgery. I first remember him at the Oxford Meeting of the B.M.A. in 1904, when he read a paper on cysts in the neck, a subject with which his name was already associated. The thesis he presented for the D.Sc. in his own university had the same bent and was entitled "Congenital Occlusions of the Oesophagus and Lesser Bowel." In all that Edington said or did he was transparently honest, and professional integrity was his watchword. I well recall a contribution which he made at the Dublin Meeting of the Association. The subject was the surgical treatment of gall-stones, and he had to relate an unusually high mortality among his patients, but there was no attempt to explain away or gloss over unpleasant facts, and his only concern was to discover an adequate reason, and this was always his attitude towards his work. Edington had profound faith in his profession and confidence in its future, and his advice and encouragement were often helpful to young entrants, whom he was never tired of helping. Though very loyal to the Western he loved the old Glasgow Royal, and the short address on "The Soul of a Voluntary Hospital," delivered in 1931 before a lay audience at this hospital, was self-revealing and appeared to touch the very core of the subject. His early association with Macewen in the old Royal made a lasting impression, and many were the stories he had to relate of those strenuous days. Edington was a man of culture and was especially fond of books, history and biography being favourites. Though he was not a ready linguist he was deeply interested in language, and etymology was one of his hobbies. He was well versed in the story of his own city, and it was delightful to prattle about the old places in his company, for there were few he could not surround with lore and anecdote. The history of surgery was another interest, and he was well versed in the story of the Listerian period in Glasgow. In 1928, when president of the Medico-Chirurgical Society, he had erected a very suitable memorial to Lister in the rooms of the Society, incorporating a fireplace from Lister's accident ward presented by J. H. Teacher, and a plaque of the master presented by Sir Hector Cameron.

Edington was very fond of travel, and those privileged to be among his companions always had their journey enriched by his knowledge of the history of the places visited and the story of the people. The pleasures with which he could smooth over those little inconveniences incidental to travel, even in the luxurious days before the war, were always refreshing. His bearing in audience with the Pope, in conversation with Queen Ena of Spain, or at a reception in the Palace at Warsaw were occasions to be remembered. For the writer the happiness of the last meeting of the International Surgical Society which took place in Brussels in 1938 was largely connected with Edington and his sage observations in keeping with the atmosphere of those ominous September days. No one had a greater gift for cordiality, and he loved to keep his friendships warm, often by delightful letters, a timely reprint, or a present of some book of mutual appeal. He was most generous, and never so happy as when entertaining his intimates. He had quite a flair for creating an occasion, as those of us knew who were his guests in Glasgow, and he thoroughly understood the art of making one feel comfortable and welcome among his friends.

G. G. T.

CHARLES GIBBS, F.R.C.S.

Mr. Charles Gibbs, consulting surgeon to Charing Cross Hospital and for many years senior surgeon to the London Lock Hospitals, died suddenly at Thames Ditton Cottage Hospital on Oct. 5 aged 75. He was well known as a specialist in genito-urinary surgery and venereal diseases.

He was born in London, and entered as a student at Charing Cross Hospital in 1885, where after qualifying in 1890 he held all the minor appointments, including that of surgical registrar. He took the F.R.C.S. in 1893, and was for a time superintendent of dissections for the Royal Colleges. In 1896 he was elected assistant surgeon to Charing Cross Hospital, and later became surgeon in charge of the venereal disease department, lecturer on clinical surgery and anatomy, and vice-dean of the medical school. In the early part of the South African War Mr. Gibbs served as senior surgeon to the Langman Field Hospital; during the last war he held a commission as temporary major R.A.M.C.(T.) in charge of beds at No. 4 General Hospital. He wrote a number of articles on gonorrhoea and other diseases of the male reproductive organs for *Quain's Dictionary of Medicine*, and was one of the first in this country to report the results

of treatment of syphilis by French and English substitutes for salvarsan. He had joined the B.M.A. as long ago as 1892, and was vice-president of the Section of Venereal Diseases at the Newcastle Annual Meeting in 1921.

Mr. J. JOHNSTON ABRAHAM writes:

Having secured many scholastic honours as a student Charles Gibbs proved an active and popular lecturer at the Medical School of Charing Cross Hospital, and finally retired in 1923, by that time having become senior surgeon. He was elected assistant surgeon to the London Lock Hospitals in 1897, and full surgeon in 1907, and was still in active work there as senior surgeon at the time of his death, a period of forty-six years of service to this old charity which is probably unique. In 1899 he volunteered for service in the Boer War and was attached as senior surgeon, with the rank of captain, to the Langman Hospital, having Conan Doyle as a medical colleague. In the 1914-18 war he served as a Territorial officer, receiving in 1919 a letter of thanks from the General Officer Commanding London District for "his valuable and devoted work at the 4th London General Hospital during the past four years." He became a member of the *Pewterers Company* in 1889, and served as its Master in 1928. Gibbs was a magnificent teacher. His classes for the finals in surgery of the College and London University were always crowded. Many old Charing Cross men will remember with gratitude the clear coaching on essentials they obtained from him, for he was a master of exposition. A man of retiring and modest disposition, he was entirely wrapped up in his professional pursuits and family life. He never quite recovered from the death of his wife in 1940; and he now leaves a son and daughter who, though mourning their loss, are devoutly thankful that, having worked all his life to relieve the sufferings of others, he was spared himself from the trials of a lingering illness.

The sudden death of Dr. RONALD MACKINNON at Oldham on Aug. 31 came as a shock to a wide circle of friends and patients. Born in 1881 in the village of Staffin in the Isle of Skye, he was educated at Inverness Academy and qualified from Glasgow University, M.B., Ch.B., in 1904. Thereafter began his long training for the competent all-round physician he later proved himself to be. Besides assistantships he held resident appointments in Oakbank and Duke Street Hospitals, Glasgow, Islington Infirmary, Sheffield Royal Infirmary, and Leeds City Fever Hospital. Having joined the R.A.M.C. Special Reserve shortly after qualification he was only three months settled in his Oldham practice when he was called up in August, 1914. He served in France till the end of the war. When he returned to Oldham and resumed his practice it soon began to increase, and continued to increase until the attempt to cope with the work, latterly single-handed, overtaxed his strength and shortened his days. From 1920 on he was honorary pathologist to Oldham Royal Infirmary, and he published articles including "Post-mortem Findings in a Case of Exophthalmos" and "Rupture of Aortic Aneurysm in a Young Woman." His interest in the military aspect of the profession did not cease with his age-retirement as major, R.A.M.C., S.R. When the Home Guard was formed he joined up again and became the M.O. of the local unit. A busy professional life did not leave much leisure for the cultivation of hobbies, but Ronald Mackinnon was a keen student not only of the history of his clan, of whose military and ecclesiastical attainments he was so proudly proud, but also of the language, literature, and music of the Highlands. When in 1930 a Manchester branch of the *Comunn Gaidhealach* was formed, he was unanimously elected its first president, and to the end its interests were very near his heart. But his professional work always came first. Endowed with a pleasant manner and a quiet wit that never wounded, of the highest personal character, popular with his colleagues, skilled, conscientious, and painstaking, he was an ideal family practitioner, trusted alike as physician and counsellor. The affection in which he was generally held was shown on the day of the funeral service by the overflowing congregation and by the crowds which lined the streets. He was buried in his native Isle of Skye, where he rests in the shadow of the hills which he loved so well.—N. M.

With the death of Dr. FREDERICK MACPHERSON TRAILL SKAE there has passed away a member of a family who made their mark upon mental science in former generations. Dr. Skae was a grandson of the late Dr. David Skae, physician-superintendent of the *Royal Morningside Asylum*, Edinburgh, who introduced into that institution many reforms and ideas new in his day. His father, the late Frederick W. A. Skae, Inspector-General of Asylums and Hospitals, New Zealand, organized the mental hospitals and afterwards the general hospitals of the Dominion. Dr. F. M. T. Skae was for some time assistant to the late Sir John Macpherson in the *Stirling District Mental Hospital*, and later went to the *Federated Malay States*, where he spent some years as a general practitioner. He

OBITUARY

530 OCT. 23, 1971

returned in Scotland and served during 1914-19 in the Orkney R.G.A. In 1922 he was appointed assistant to Prof. Yule Mackay at University College, Dundee, and to Prof. Rutherford Dow, a post which he held until 1941.

Dr. J. N. LEGGE PAULLEY died on Sept. 1 at Cheltenham, where he had lived since retiring from active work in 1922. He was born at Tollard Royal, Wilts, on Dec. 22, 1855, and was educated at Westminster Grammar School and St. Bartholomew's Hospital; he qualified M.R.C.S. in 1877 and took the L.R.C.P. Ed. in the following year. He then went to practise at Pulham Market, Norfolk, and was medical officer for the 4th District of the Deepwade Union from 1883 to 1919, in which year he was made a J.P. for the County of Norfolk. Dr. Paulley joined the B.M.A. in 1883 and remained a member after his retirement. He had always been on good terms with his colleagues in Norfolk and liked to meet other medical men socially at the monthly meetings of the Gloucestershire Branch. Almost to the end of a long life he made a point of reading the B.M.J. every week. His recreations were gardening and chess.

The medical profession in the West Riding, and especially of Keighley, has lost an outstanding personality by the death of Dr. J. E. H. SCOTT on Sept. 7. He studied medicine at Leeds and graduated M.B., Ch.B. Vict. in 1899. On his retirement from active service in 1936 Dr. Scott, by that time honorary consulting surgeon to the Keighley Victoria Hospital, was presented with a wallet and a cheque of appreciation of his services of the Keighley district, in token of appreciation of that given during 21 years as their representative on the West Riding Panel Committee. He was then co-opted as a member of that committee, which had always greatly appreciated his opinions and suggestions. Dr. Scott joined the B.M.A. in 1912, was chairman of the Bradford Division in 1924-5, and served for two long periods on the National Formulary Subcommittee at headquarters. When war came he emerged from retirement to relieve the pressure upon his colleagues.

We regret to record the death on Sept. 8 at his home in Stanley, Perthshire, of Dr. ROBERT BURGESS, who was for many years a staunch and active worker for the British Medical Association. He studied medicine at the University of Aberdeen, graduating M.B., C.M. in 1893, and after holding posts as clinical clerk in the ear and throat department of the Edinburgh Royal Infirmary and in general practice at Stanley, Huddersfield Infirmary set up for the Parishes of Kinclaven where he became medical officer for Auchtergaven, M.O. and Moneydie, joint medical officer for surgeon. Dr. Burgess to the Post Office, and certifying his Division at the last joined the B.M.A. in 1900, represented the Perth Branch in Glasgow Meeting, and was president of the Perth Branch in 1922-4. From 1937 to 1940 he was a member of the Scottish Committee.

We regret to announce the death of Dr. GEORGE HENRY PATTERSON on Sept. 12, within a few days of attaining his eighty-seventh birthday. Born on Sept. 14, 1856, he received his medical education at St. Bartholomew's Hospital, taking the M.R.C.S. and L.R.C.P. in 1879 and the D.P.H. in 1896. After holding various house appointments at St. Bartholomew's and elsewhere he settled in Dalton-in-Furness, where he engaged in general practice. In 1886 Dr. Patterson became part-time M.O.H. of the Dalton Urban Sanitary District and in 1898 whole-time M.O.H. of the Ulverston Combined Sanitary District, comprising the Urban and Rural Districts of Ulverston and the Urban Districts of Dalton and Grange-over-Sands, with a combined population of some 43,000 and an area of no less than 56 miles. Thus he acted as M.O.H. for a period of no less than 56 years. It is given to few men to hold office for such a long period, yet Dr. Patterson made the most of his opportunities and continued to render active service up to the very end.

We regret to announce the death on Sept. 14 in Kensington of Dr. HANNAH PERRY ANDERSON, widow of the late Prof. Richard John Anderson, M.D., of Queen's College, Galway, and Newry, Co. Down. She was the daughter of the late Samuel Perry of Belfast, and received her education at Victoria College, Belfast, and at the Richmond Hospital, Dublin. She graduated B.A., M.B., B.Ch. of the National University of Ireland in 1918. Her first appointment was that of assistant resident physician at the Bermondsey Medical Mission. She was appointed in 1923 medical registrar at the London Temperance Hospital and M.O. to the ante-natal clinic, Archer Street Welfare Centre. Dr. Perry Anderson joined the B.M.A. immediately after qualification and served as a Representative at thirteen consecutive Annual Meetings, the last being in Aberdeen in 1939.

The Services

CASUALTIES IN THE MEDICAL SERVICES
Died at Sea.—Fl. Lieut. K. W. Monks, R.A.F.V.R.
Wounded.—War Subs. Capt. G. Byrne, R.A.M.C.

DEATHS IN THE SERVICES

Surgeon Rear-Admiral Sir THOMAS DESMOND GIMLETTE K.C.B., R.N., died on Oct. 4 at Epsom shortly before attaining the age of 86. He belonged to a family with naval traditions, for his father was Fleet-Surgeon Hart Gimlette, R.N. (the Navy List of just before the present war shows the name of Surgeon Commander C. H. M. Gimlette, who may also belong to the same family). Thomas Gimlette was educated at St. Thomas's Hospital, qualified in 1878, and held many important posts in the Navy, including charge of the Royal Naval Hospital in Hong Kong in 1904-7, and of the Haslar Royal Naval Hospital 1908-11; he retired in 1913. He saw active service in Egypt in 1882, in the Sudan in 1884, was mentioned in dispatches, and received two medals and two clasps. He was medical officer to an admiral during a mission to Abyssinia in 1884. In 1887 he was promoted to be Deputy Inspector General, Hospitals and Fleets. On the outbreak of war in 1914 he returned to active employment as Admiralty recruiting officer at headquarters. He was made a C.B. in 1907 and advanced to K.C.B. in 1911. He thus had a long and distinguished career and lived to enjoy a well-earned retirement. He was twice married, and by his first wife he had two sons.

Medical Notes in Parliament

Sir ERNEST GRAHAM-LITTLE was elected chairman of the Parliamentary Committee in succession to the late Sir Frank Fremantle at a meeting of the committee on Oct. 13.

The A.R.M., the Government, and Assumption B

Sir E. GRAHAM-LITTLE inquired on Oct. 14 whether the Minister of Health knew that the Representative Body of the B.M.A. had, in 1942 and 1943, recorded almost unanimous opposition to the establishment of any whole-time salaries for the State Medical Service and to the extinction of private practice as proposed in Assumption B of the Beveridge report; that similar opposition had come from numerous plebscites of the profession; and whether he still adhered to his declaration at Westminster Hospital on Oct. 4 that the Government had accepted Assumption B and was engaged in putting its provisions into operation. Mr. ERNEST BROWN said the answer to the last part of the question was "Yes." If Sir Ernest would look again at Assumption B he would find that it did not contain the particular proposal which he described, nor did it purport to deal at all with the method of organizing the new service. Mr. Brown added that he had never said the matter had been determined already and that it was being put into operation.

Dr. RUSSELL THOMAS remarked that 90% of the profession had already turned down the matter.

Representative Committee's Discussions

Sir E. GRAHAM-LITTLE also asked on Oct. 14 whether before publishing the promised White Paper on health services Mr. Brown would afford opportunity to the committee appointed at his request to represent the medical profession to discuss these services, not on the basis of any preconceived plan, but from the ground, in accordance with the undertaking given to him in these terms in March, 1943, which had not hitherto been kept, and the continued breach of which had caused resentment in the medical profession. Mr. BROWN said he could not accept this version of what had so far taken place. He intended to adhere to the procedure which he announced at the outset.

Ophthalmic Research at Oxford

On Oct. 12 Mr. THORNE asked the Financial Secretary to the Treasury whether the Government proposed to give a grant towards the £250,000 research station to be built at Oxford for eye research. Mr. ASSHETON said he had seen the public appeal recently made for £250,000 to build, equip, and endow the research laboratories of a Department of Ophthalmology at Oxford University. No question of Government aid towards the cost of this scheme had been raised; if it were it would no doubt have to be considered along with the other post-war needs of the universities.

Serving Doctors and the White Paper

Dr. RUSSELL THOMAS asked what steps Mr. Brown had taken to ascertain the views of doctors serving in the Armed Forces in this country and abroad on the future of medical practice. Mr. BROWN answered that he was alive to the need for this, but the appropriate time would be when the White Paper had been issued as the basis for public discussion. Dr. RUSSELL THOMAS suggested that no steps had been taken to ascertain the views of about 30,000 doctors connected with the Armed Forces. Dr. SUMMERSKILL asked whether Mr. Brown had taken advice only from the older doctors and not from the younger ones in the Services. Mr. BROWN repeated that the proper time would be when the White Paper was before Parliament.

Treatment of Leprosy in Central Africa

On Oct. 12 Sir E. GRAHAM-LITTLE asked the Parliamentary Secretary to the Ministry of War Transport if he was aware that the universities mission to Central Africa had been frustrated in the treatment of leprosy by the lack of essential drugs from India, which were held up by shipping restrictions, resulting last year in the closure for from four to seven months of all centres conducted by the mission. Mr. NOEL BAKER said that the drug in question was hydnocarpus oil, supplies of which had hitherto been obtained by the mission from local medical officers in Tanganyika Territory. Recent inquiries addressed to Tanganyika Territory showed that supplies of this oil were now being received from India and were now adequate. He had no information in support of the suggestion that the difficulties last year were due to shipping.

Hospital Accommodation in African Territories

Mr. EMRYS-EVANS informed Major Lyons on Oct. 12 that the numbers of beds available for Africans in Government hospitals in the High Commission Territories were: Basutoland 254, the Bechuanaland Protectorate 128, and Swaziland 44. The ratio of beds to population was 1 to 2,600 in Basutoland, 1 to 2,076 in the Bechuanaland Protectorate, and 1 to 3,483 in Swaziland. If the beds available in the mission hospitals, most of which were Government-grant-aided, were included, the ratios were 1 to 2,000, 1 to 1,067, and 1 to 1,783 respectively. Plans for the further development of the medical services in the three Territories, to be undertaken as soon as conditions allowed, were being considered.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales notifications of scarlet fever rose by 184, of whooping-cough by 103, of acute pneumonia by 53, and of dysentery by 67. Those of diphtheria fell slightly by 33 cases, and there was one case fewer of measles than in the preceding week.

For the sixth consecutive week there has been a steep rise in the incidence of scarlet fever, this being higher during the past quarter than in any recent third quarter. The largest increases during the week were in Yorks West Riding by 34, in Middlesex by 31, in Warwickshire by 26, and in London by 22 cases; the only drop of any size was in Lancashire, by 27 cases.

The local distributions of measles, whooping-cough, and pneumonia remained fairly constant. The largest variation in the trend of diphtheria was a decrease in Lancashire by 36.

In Scotland notifications of scarlet fever rose by 44, diphtheria by 25, and measles by 11; those of whooping-cough fell by 27. The incidence of dysentery was lowered for the fourth consecutive week, but the disease was still widespread; 62 cases were reported from nineteen areas, the most important centre of infection being Glasgow with 15 notifications.

Dysentery

Recent notifications of dysentery have been high. The 337 cases recorded this week constitute the largest total for any week since Dec., 1937. Notifications for the past seven weeks number 1,736. During the corresponding periods of 1939 and 1938 there were 208 and 234 cases. The largest rises during the week were in London from 42 to 91—Lambeth 39, St. Marylebone 10 (the remaining cases were contributed by eighteen boroughs). In Kent the returns went up from 36 to 57—Gravesend M.B. 21, Rochester M.B. 10, Maidstone R.D. 12; in Essex, notifications rose from 7 to 33 (Walthamstow M.B. 29), and in Lancashire from 15 to 42 (Blackburn C.B. 11, Prestwick M.B. 13).

The Week Ending October 9

Notifications of infectious diseases during the week in England and Wales included: scarlet fever 3,249, whooping-cough 1,481, diphtheria 732, measles 581, acute pneumonia 557, cerebrospinal fever 30, dysentery 263, paratyphoid 8, typhoid 9.

No. 39

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct. 2.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	30	1	17	3	1	61	7	19	—	3
Deaths	—	—	1	—	—	—	—	—	—	—
Diphtheria	724	26	192	60	28	860	43	200	72	26
Deaths	10	1	1	—	—	20	—	2	2	—
Dysentery	337	91	62	—	—	232	19	36	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	3	—	—	—	—	3	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	63	6	1	—	—	53	4	4
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	69	10	20	74	12	72	6	19	97	8
Deaths	—	—	—	—	—	—	—	—	—	—
Measles	465	32	42	14	1	3,801	223	185	13	28
Deaths	—	—	—	—	—	6	—	—	—	—
Ophthalmia neonatorum	80	3	19	—	—	95	2	16	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	7	—	—	1	—	5	—	9	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza*	409	16	18	1	2	508	19	4	—	1
Deaths (from influenza)	12	1	1	—	1	12	1	1	1	1
Pneumonia, primary	—	18	155	8	8	—	—	161	13	7
Deaths	—	—	—	—	—	—	—	—	—	—
Polio-encephalitis, acute	3	—	—	—	—	6	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Polymyositis, acute	13	2	9	—	—	33	4	2	21	1
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	4	17	—	—	—	1	25	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	143	12	20	1	1	172	11	16	—	3
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	2,956	282	381	45	88	2,423	155	455	62	34
Deaths	—	—	—	—	—	3	—	1	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	7	1	3	4	5	6	1	2	17	5
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	1,583	106	140	32	13	845	98	17	37	5
Deaths	10	1	1	—	—	13	3	—	2	—
Deaths (0-1 year)	316	38	—	39	—	337	41	63	41	28
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	3,915	571	551	167	—	3,740	537	548	189	104
Annual death rate (per 1,000 persons living)	—	—	12.4	11.0	5	—	—	12.3	12.6	5
Live births	6,387	757	866	451	—	6,200	713	845	426	265
Annual rate per 1,000 persons living	—	—	17.7	29.6	5	—	—	17.5	23.4	5
Stillbirths	205	24	36	—	—	201	32	27	—	—
Rate per 1,000 total births (including stillborn)	—	—	40	—	—	—	—	31	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Includes paratyphoid A and B.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a Congregation held on Oct. 1 Dr. J. A. Venn, President of Queens' College, resigned the office of Vice-Chancellor, and Dr. F. Shirley Hele, F.R.C.P., Master of Emmanuel College, was admitted to the office for the year 1943-4. The outgoing Vice-Chancellor in the course of his address to the Senate referred to the vacation by Dr. John A. Ryle of the Regius Chair of Physic on appointment to the Professorship of Social Medicine at Oxford, and wished him every success. It had been hoped, he said, that, despite grave difficulties arising from war conditions, at least two or three more appointments to vacant Professorships could have been effected, but circumstances arose that made postponement necessary. "I would, however, express the strongest hope that further elections will be made in the coming year, for it is really essential that certain large and very active departments associated with some of the 17 chairs that are now vacant should be thus strengthened. Foremost among them I would place the department of medicine, which is so closely involved not only with the proposed regionalization (or, dare I say, nationalization?) of the profession but also with the status of Addenbrooke's Hospital. The appointment of a successor to Dr. Ryle would, on all grounds, be most welcome." Finally, in welcoming the incoming Vice-Chancellor he said of Dr. Hele: "He comes into office at such a turning-point in the world's history that—it seems almost certain—to him must fall the opportunity of guiding the University in the difficult days of reconstruction and expansion. Possessing all the essential qualities of heart and of head, he carries with him our best wishes for the successful outcome of that great task."

Dr. A. C. Chibnall, F.R.S., the new Sir William Dunn Professor of Biochemistry, has been elected into a Professorial Fellowship at Clare College, and Dr. R. A. Fisher, F.R.S., Arthur Balfour Professor of Genetics, has been elected into a Professorial Fellowship at Gonville and Caius College, of which he is a former Fellow.

A course of eight lectures on "Science in the Sixteenth and Seventeenth Centuries" will be given on Saturdays at 12 noon during next Lent term. Details will be announced later in the *University Reporter*. These lectures are open without fee to all members of Cambridge and London Universities or of Girton and Newnham Colleges.

Medical News

The subject of Miss Margery Fry's Chadwick Lecture, to be given at the London School of Hygiene and Tropical Medicine, Gower Street, W.C.1, on Oct. 26 at 2.30 p.m., will be "Ill-health and Ill-being."

Dr. J. W. Brown will give the Bradshaw Lecture at the Royal College of Physicians on Nov. 4 at 2.15 p.m., and his subject will be interauricular septal defect.

Dr. H. S. Souttar, C.B.E., F.R.C.S., will deliver the Bradshaw Lecture on "Physics and the Surgeon," at the Royal College of Surgeons of England, Lincoln's Inn Fields, W.C., on Thursday, Nov. 11, at 3.15 p.m. Students and others who are not Fellows or Members of the College will be admitted on presenting their private visiting cards.

At a meeting of the Medico-Legal Society to be held at Manson House, 26, Portland Place, W.1, on Oct. 28, at 4.30 p.m., a joint paper will be read by Dame Louise McIlroy and Mr. D. Harcourt Kitchin on "Medico-Legal Problems in the Treatment of Venereal Diseases."

A meeting of the Eugenics Society will be held on Tuesday, Oct. 25, at 5.30 p.m. in the rooms of the Royal Society, Burlington House, Piccadilly, when Dr. A. Spencer Paterson will speak on "The Size of the Family of the Business, Professional and Titled Classes," with Lord Horder in the chair. Further meetings will take place on Nov. 16, Dec. 14, Jan. 18, and April 18, at the same time and place.

The centenary meeting of the Royal Anthropological Institute will be held on Saturday, Oct. 30, at 11.15 a.m., at the Royal Society, Burlington House, under the presidency of Prof. J. H. Hutton. C.I.E., D.Sc. Sir John L. Myres will give the opening address on "A Century of Our Work." Lord Hailey will give an address on the role of anthropology in colonial development, at 1.30 p.m. At 3 p.m. the future of anthropology will be discussed at the Royal Anthropological Institute, 21, Bedford Square, W.C.1, by Mr. G. M. Morant, D.Sc. (physical anthropology), Prof. V. G. Childe (archaeology), Mr. R. U. Sayce, M.Sc. (material culture), and Mr. R. Firth, Ph.D. (social anthropology).

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (from 9 a.m. to 5 p.m.). Members' subscriptions should be sent to the Secretary of the Association.

TELEPHONE No.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES.—EDITOR, *Antiology* Westcent, London; SECRETARY, *Mediscra* Westcent, London.

B.M.A. SCOTTISH OFFICE: 7, Drumshugh Gardens, Edinburgh.

ANY QUESTIONS?

Putrefactive Dyspepsia

Q.—What is a probable cause of stools (in a male of late middle life but otherwise fairly healthy) being chronically for a year or two past of the consistency of adhesive clay (but of normal, not "clay" colour), and therefore causing a daily and troublesome difficulty in evacuation? There is a general lack of "tone" throughout the body, but how does this affect—if it does—a deficiency in natural lubrication of the stools? The lack of tone is so marked that "postural" giddiness and semi-blackouts after any exertion, such as walking rapidly upstairs, are frequent. Heart and blood pressure fairly normal.

*A.—Adherent, viscous stools are described in intestinal putrefactive dyspepsia and in colitis. The physical basis of this adhesiveness is not known, but it is not due to mucus or fat in excess, for these make the stools slippery and easy to emulsify with water. The onset of putrefactive dyspepsia is probably due primarily to too rapid emptying of the stomach and small intestine, which may be related to the lack of "tone" elsewhere. A careful microscopic and chemical examination of the stools should be made, with special reference to bacterial flora, water content, hydrogen-ion concentration, excess of fat, and, if possible, organic acids and ammonia (Goiffon, R., *Manuel de Coprologie Clinique*, 3rd edition, 1935). If the diagnosis of putrefactive dyspepsia is confirmed by the presence of an alkaline stool with excess of ammonia and putrefactive organisms, the condition should be treated by a lacto-vegetarian diet. Carbohydrate fermentation should be promoted by the use of lactose or preferably uncooked rice starch, half a teaspoonful at meal times. A fractional test meal should also be performed and hydrochloric acid prescribed if achlorhydria is found. One of the vegetable mucilage aperients, such as psyllium seeds, of which there are several elegant proprietary preparations, would also be useful, particularly if the water content of the stool is subnormal.*

Achalasia in a Man of 60

Q.—I shall be grateful for advice on the treatment of a troublesome case of achalasia (cardiospasm) in an otherwise healthy man of sixty.

A.—The treatment of achalasia by drugs has been discussed in answer to a previous question (Aug. 7, p. 189). The simplest and most effective treatment of achalasia is undoubtedly Hurst's mercury bougie, which should be passed immediately before all meals for a fortnight and thereafter at gradually increasing intervals according to the degree of freedom from symptoms. If there is any oesophagitis, the diet should be fluid for the first fortnight. Half a pint of water should be drunk about 10 minutes after food to wash out the oesophagus, and this habit must be continued even after regular use of the bougie is no longer necessary. Operative treatment is not desirable except in the rare cases in which the oesophagus becomes elongated and kinked and the bougie cannot be passed. It may then be necessary to dilate the sphincter manually after opening the stomach.

Safety of Milk

Q.—Can a householder obtain reliable information as to the bacteriological safety of the milk he is compelled to purchase under the zoning order? What steps should he take to secure a test?

A.—If the milk is sold under the designation "Pasteurized" or "Tuberculin Tested (Pasteurized)," there is reasonable assurance that it will not contain pathogenic micro-organisms. If it is designated "Tuberculin Tested" or "Tuberculin Tested (Certified)," it is very likely to be free from tubercle bacilli. Otherwise it cannot be regarded as safe—and this applies whether the milk is sold as "Accredited" or as ordinary commercial milk. If the purchaser wishes to have a test done he must arrange for it privately at a laboratory which tests for fees, and the cost must be defrayed

by the purchaser himself, but the result of the examination of one sample is of little value for arriving at a conclusion as to the safety of milk. If he wishes to obtain from the vendor under the existing order one of the designated milks mentioned above, and if he cannot get satisfaction, he should make representations to the Divisional Food Officer for the area in which he resides, and he might also draw the attention of the local medical officer of health to the state of affairs. Apparently there is no firm obligation upon a vendor to obtain and supply such a milk when it is demanded. The whole position is very unsatisfactory, but it may be improved by the measures for compulsory pasteurization in large towns (except for certain milks sold under other designations) which the Government proposes to put before Parliament.

Pleuro-pericardial Rub

Q.—Seven months ago a soldier aged 25 reported sick with severe substernal pain of sudden onset, extending from the epigastrium to the root of the neck. It was aggravated by exertion. His pulse rate was 104, temperature 99° F. The outstanding feature was a very loud and typical pericardial friction sound, triple in character, and asynchronous with the heart sounds. I had little doubt that this patient had acute pericarditis, and the intensity of the pain necessitated morphine during the night. Next morning the pain was much improved, and the friction sound only just audible. On admission to hospital this physical sign had disappeared, and was never heard subsequently. An x-ray of the chest was normal. He returned to full duty in 10 days. He remained well until ten days ago, when he again reported sick with a similar precordial pain, and the same adventitious sound was heard. The pain and sound varied with posture, both disappearing in the semi-recumbent position: it was loudest when the patient lay flat. He was taken to hospital as quickly as possible, but again the friction sound disappeared on arrival. X-ray examination of the chest was again normal apart from "slight exaggeration of the lung markings in the right base." An E.C.G. was normal in all four leads. The sedimentation rate was 7 mm. in the first hour and 21 mm. in the second, with an average of 8.75 mm. The pain improved in a few days, and apart from slight dyspnoea and pain at the base of the neck on exertion, the patient again appears well. He says he has suffered neither from rheumatism nor from chest trouble.

I would be glad if any light could be thrown on the pathology of this condition, as I find it difficult to reconcile these transient attacks with the usually more serious implications of a pericardial rub. Could this man safely continue at work without further investigation or restriction?

A.—It may have been a severe local inflammation of the pleural fold in front of the pericardium, producing a pleuro-pericardial rub. Acute pericarditis seldom causes such severe pain—a contrast with pleuritis—and the normal electrocardiogram is much against involvement of the pericardium or the heart itself; so is the rapid and complete recovery. A pleuro-pericardial rub is not invariably influenced by respiration, though usually it is. Bodily movement would be expected to have some effect upon the pain. If pleuro-pericarditis is the explanation, the aetiology might not be related to any serious or known infection, but it would be well to limit physical activity for some weeks and to re-examine him monthly for a time.

Hyperemesis of Pregnancy and Rh Factor

Q.—Has the Rh factor any bearing on severe hyperemesis in a 3-para? The first child (female) was normal at birth, but there was jaundice and haemorrhage of the newborn in both the other children. The first of these (male) died, having been treated by injections of the mother's blood. The second (female) recovered, following treatment with vitamin K, 1 c.c.m., and father's blood, 10 c.c.m. Would vitamin K help the hyperemesis in the event of a fourth pregnancy? If not, what measures are advocated?

A.—Although toxæmia of pregnancy appears to be common in cases of the Rh incompatibility between mother and foetus, there is no evidence that hyperemesis is especially frequent in such cases. The history in this family is suggestive of Rh or similar incompatibility, since neonatal jaundice is characteristic and haemorrhagic manifestations are also rather frequent in babies suffering from icterus gravis. The Van den Bergh reaction is usually of direct positive type in icterus gravis, indicating that the icterus is not purely haemolytic but is associated with a degree of liver damage. This tends to lower the infant's prothrombin level below the normally low values of the neonatal period, and an increased tendency to haemorrhagic disease of the newborn might be expected. Recent work, however, indicates that the haemorrhagic tendency is sometimes the result of the haemolytic process itself, and in such cases vitamin K would not necessarily be effective.

In this family the blood of the parents should be tested for the Rh factor and that of the mother for any abnormal agglutinin; if the mother is found to be Rh-negative and the father Rh-positive, the recurrence of trouble in any future pregnancy should be anticipated, even in the absence of demonstrable anti-Rh agglutinins, and preparations should be made to treat the infant prophylactically by

the intravenous transfusion, immediately after birth, of Group O Rh-negative blood. The administration of vitamin K to the mother shortly before parturition would tend to correct the deficiency of prothrombin in the child's blood, but in Rh cases this is probably not the whole story, and transfusion is more likely to be effective in controlling the haemorrhagic tendency. For further details about such transfusions consult the M.R.C. pamphlet (see *Journal*, July 10, 1943).

There is nothing to indicate that vitamin K would be of value in the treatment of hyperemesis gravidarum, but it might be given purely empirically. Prophylactic treatment by a low-protein-and-fat diet rich in carbohydrates and with abundant fluids should be tried, but if hyperemesis occurs in a severe form the patient should be removed to hospital and glucose given intravenously.

Sensitivity to Sulphanilamide

Q.—Can you suggest a scheme of dosage to desensitize a patient who is allergic to sulphanilamide? He has been supplied with this tablet on several occasions on account of streptococcal tonsillitis but each time he has developed urticaria, and on one or two occasions angioneurotic oedema. The streptococcus itself does not appear to be the cause of the allergic response, since when purely local and symptomatic treatments are employed there is no urticarial reaction.

A.—It is practically impossible to desensitize patients who are drug-sensitive, getting asthma or urticaria on its ingestion, though some success can be achieved in cases of contact dermatitis due to chemical substances. In this case the following suggestions may be helpful: (a) Make sure the reaction is to the sulphanilamide and not to some aspirin taken at the same time, aspirin being the commonest drug causing sensitivity manifested by urticaria. (b) Use another drug with a similar action—e.g., penicillin when available. (c) Use other members of the series with as different a chemical make-up as possible, as the cause of the trouble is usually some special chemical radical. For example, people sensitive to quinine are usually only sensitive to the laevorotatory alkaloids, and hence can take quinidine. There seems to be a fair choice of sulphonamides at the moment to try.

Amphetamine in Narcolepsy

Q.—A man of 35, otherwise healthy, has been discharged from the Forces on account of narcolepsy. He has from one to four seizures daily, with an occasional clear day or week; they may be precipitated by emotion, but as a rule occur without apparent cause. They are completely controlled by amphetamine (benzedrine) sulphate, 30 mg. after breakfast and after lunch, with 10 or 20 mg. after tea. A reduction of this dose appears to be ineffective. Can this heavy dosage be maintained indefinitely with safety? How is amphetamine eliminated, and what are its deleterious effects? He has been informed that the dosage can be reduced by taking thyroid at the same time; is this so?

A.—The doses necessary in this case are rather high and their effects should be carefully watched, but larger doses have been given for at least 6 months without apparent serious harm. The obvious effects of overdosage are sleeplessness, excitement, tremors, and delirium. Loss of weight and anaemia are signs of danger. Aplastic anaemia has been recorded after the administration of 190 mg. in 19 days (*B.M.J.*, 1937, 2, 615). The drug is partly destroyed in the body, but about half of it appears in the urine in the course of a day or two after a single dose. The suggested effect of thyroid is doubtful.

Recurrent Erysipelas

Q.—A lady aged 55 has had four attacks of erysipelas during the past three years; the interval between the last two attacks was only six weeks. It begins in the same place each time—the left side of the face near the ear—and apparently spreads from the scalp. The attacks are mild and yield quickly to sulphonamides. Would a vaccine help, or can you offer any further suggestions regarding prophylaxis?

A.—There is apparently an individual predisposition to recurrence of erysipelas as there is to pneumonia and rheumatic fever. The recurrent attacks of pneumonia have been shown to be associated as a rule with different serological types of the pneumococcus; that is, the individual after an attack has acquired some resistance to that particular type of pneumococcus but is still more than ordinarily susceptible to other serological types of the organism. The same phenomenon may hold for erysipelas and the streptococcus, of which we now know there are many serological types. If that were so, a blunderbuss vaccine containing the more common infecting types of the haemolytic streptococcus might be worth trying as a prophylactic against further attacks of erysipelas. On the other hand, the recurrent attack may be due to the original infecting streptococcus, which has lain latent in the tissues until conditions are suitable for a recrudescence. In this connexion it is important that sulphonamide therapy be continued for 3 to 4 days after the

clinical infection has subsided. Erysipelas must often owe its origin to an abrasion of the skin, and patients after an attack might be advised to take particular care of the skin and avoid unnecessary exposure to extremes of heat and cold. Again, infection of the upper air passages is a frequent precursor of facial erysipelas, so that sinusitis, infected tonsils, and the like should be looked for and appropriately treated.

Psoriasis of Elbows and Knees

Q.—Can you suggest a complete cure for patches of psoriasis which have existed on both elbows and both knees for the past six years?

A.—There is no "complete"—i.e., permanent—cure for patches of psoriasis. The following methods will probably remove them for a longer or shorter period: (1) Rub in to the patches twice daily an ointment of 4% salicylic acid and 2% dithranol in vaseline, or preferably in an emulsifying base, and keep the same continually bandaged on, on lint or old linen. If necessary the strength of the dithranol may be increased to 4% when one is satisfied that the patient is not hypersensitive to the drug. The result of this treatment should be the reddening and brown staining of the treated skin, first round the patch and later on the patch itself. The treatment must be continued until all scales have come off and the site of the patch is just brown as the surrounding skin. This should take 2 to 3 weeks. The objections to dithranol are the risk of setting up dermatitis in a hypersensitive person, of conjunctivitis if any gets into the eyes, and of staining clothing and bed-linen. (2) If x-ray treatment is available, two to four doses of x rays, each of 100 r (unfiltered, 80 to 100 kV) at weekly intervals, localized to the patches and combined with the inunction twice daily of hydrarg. ammon. 2%, liq. picis carb. 12½%, in ung. paraffini B.P., will probably clear up the patches. This is a much cleaner method than the first.

A note on the treatment of psoriasis of the face and scalp appeared in the *Journal* of Oct. 9 (p. 472).

Menorrhagia and Hyperthyroidism

Q.—What is the treatment for a young unmarried woman of 23 years who suffers from apparently excessive monthly periods, menorrhagia? She is of the nervous type with symptoms of thyrotoxicosis, slightly enlarged thyroid, palpitation, dry mouth, and cold clammy sweats of hands. Rest helps her naturally during her periods, but does not diminish the monthly haemorrhage very much. Ergot makes her worse. What is the usual cause in such cases? The patient neither smokes nor drinks.

A.—Menorrhagia is not uncommon in thyrotoxicosis, and if local pelvic disease and blood disorders have been excluded in this case the menstrual disturbance should be regarded as another symptom of the thyroid dysfunction. Treatment of the menorrhagia, therefore, consists in treating its cause, the thyrotoxicosis. In the first place this should be by prolonged rest in bed with the regular administration of sedatives such as luminal, but, failing this, subtotal thyroidectomy may be required. Only if the menorrhagia persists after the thyrotoxicosis is cured should symptomatic treatment be considered.

Then calcium gluconate, crude liver extracts (containing "antihæmorrhagic factor"), and ascorbic acid, all given by mouth, regularly each day for 2 or 3 months, might be tried. Ethisterone, 5 mg. t.d.s. by mouth for 3 days pre-menstrually, is sometimes helpful. If there is no response to such simple empirical measures, endometrial biopsy should be carried out, and further treatment will depend on the endometrial picture.

Primary Amenorrhoea

Q.—A patient aged 20 years has primary amenorrhoea. The uterus and cervix are normal. Antuitrin "S" and thyroïd have been tried without result. As the patient is anxious to get married, what is the outlook?

A.—Amenorrhoea indicates that either the uterus, by reason of maldevelopment or disease, is incapable of responding to the normal hormone stimulus, or, if the uterus is normal, then the ovarian hormone stimulus is lacking or is being interfered with by some general disease such as tuberculosis. A diagnosis can be made only after further investigations such as x-ray of pituitary fossa, B.M.R. estimation, x-ray of chest, examination of blood, endometrial biopsy, and possibly a therapeutic test with oestrogen to see if the uterus responds. Amenorrhoea in itself is not harmful to general health nor would it necessarily interfere with marital life. The prospects for pregnancy, however, are bad, though, again, pregnancy is possible even in the presence of amenorrhoea; it depends on the cause of the latter.

Parodontal Disease

Q.—May I have suggestions for a radical cure for "bleeding gums" and gingivitis? I have tried many methods without success.

A.—Bleeding gums are a symptom of parodontal disease (pyorrhoea alveolaris), which is notoriously difficult to treat. Little can be expected from general measures. Vaccines and vitamins B and

C have their advocates, but the results are usually disappointing. Mouth breathing is an important aetiological factor and should be corrected. Local treatment is of more value than general treatment. It consists in the removal of scale, reduction and cleansing of pockets and interdental spaces, the surgical deletion of pocket and massage of the gum. If x-ray examination shows much osteoporosis or if there are clinical effects from septic absorption, it is probably wiser to proceed to extraction of the teeth right away.

Tobacco and Fehling's Test

Q.—The urine of a woman patient reduced Fehling's solution to a bottle-green colour, with a slight yellow precipitate. The green seemed to me to be the wrong shade for sugar, and as the patient is a fairly heavy smoker I wondered if there might be a link. I did a very crude test with tobacco taken from the end of a cigar and Fehling's, and got the exact shade of green that I did with patient's urine test. The tobacco further reduced the Fehling's yellow. Is there any real significance in this?

A.—The reduction obtained with crude extract of tobacco is due to the presence of glucose, which occurs in Virginian dried American tobacco to the extent of 6.9%. The appearance of the cuprous oxide which is obtained by the action of glucose on Fehling's or Benedict's reagents is dependent on the presence of other substances in solution. For example, glucose alone gives a brown finely divided precipitate, whereas in the presence of creatinine the precipitate is yellowish-orange and very bulky. As a result, a small quantity of glucose in a concentrated urine may give a bottle-green colour, with a slight yellow precipitate, similar to the reduction described. It would be interesting to carry out a fermentation test on the urine. If the reducing substance is removed by the action of yeast, it is most probably glucose.

LETTERS, NOTES, ETC.

Treatment of Schizophrenia

Dr. HORACE HILL (Salisbury) writes: In addition to the treatment described (*Journal*, Aug. 7, p. 159) I would suggest one or two courses of the combined histamine and insulin treatment, which gives very good results.

Strychnine for Paralysis

Dr. J. C. JONES (London, S.E.25) writes: It does not seem to be commonly realized that ascending doses of strychnine are extraordinarily effective in treating the paralysis of infantile paralysis and also diphtheritic paralysis. The dose of liq. strych. is increased by 1 minim per day until saturation is attained. When will someone fortunately placed person collect a series of cases treated in this way? I have never sent a case of infantile paralysis to hospital and I have never failed to get 100% recovery within a few weeks.

Medicine 100 Years Ago

Flight Lieut. KEITH F. D. SWEETMAN, Royal Australian Air Force writes from Queensland: It is with regret that I have noticed the last four or five copies of the *Journal* (last copy received dated April 15, 1943) the disappearance of that very interesting weekly feature, "Medicine 100 Years Ago," which always provided a pleasant five minutes' reading. As quoted in your review on the book *War Surgery* by Dr. J. Trueta, Osler reminded us of the historical method of approach is an absolute necessity in the solution of most of the problems in medicine, so I feel that the disappearance of the above-mentioned series is to be regretted. Also I am certain that there are many other medical men, removed from the places where the medical history of our country was, and is, being made, who are regretting your omission. I make a plea for the resumption of this weekly feature and its expansion into a full column, giving not only one extract from past literature, but all the available data as to the medical happenings during that week a hundred years ago, both in Great Britain and in any other country where medical progress was made.

Correction

Drs. JAMES P. A. HALCROW and N. O. RODGER write: May be permitted space to correct an error in our article on infectious mononucleosis (*Oct. 9*, p. 443). The reference to Downey Stasney should read *Folia Haemat. Lpz.*, 1936, 54, 417, not vol. We are indebted to Dr. A. Piney for pointing out this mistake.

Disclaimer

Major JOHN W. WISHART, R.A.M.C., writes from a General Hospital: It has been brought to my notice from several sources that an article appeared in the lay press recently in which my name was mentioned in connexion with the treatment of neuroses in North Africa. I have not seen this article and have no knowledge of the source from which it originated. Any article which may have appeared was published without my knowledge or consent.

LONDON SATURDAY OCTOBER 30 1943

TRANSPLANTATION OF THE URETERS INTO THE LARGE BOWEL*

by

G. GREY TURNER, LL.D., MS., F.R.C.S.

Professor of Surgery, University of London; Director of the Surgical Unit, British Postgraduate Medical School

This subject has always interested me, for at the outset of my surgical career I saw cases of ectopia which made me realize the utter misery of the sufferers, so often to become unwanted outcasts who, like Job, survived to "curse the day wherein they were born." Treatment was most unsatisfactory, and though transplantation of the ureters into the bowel seemed the best solution I was brought up in the belief that the operation was extremely dangerous and sure to be followed by ascending renal infection and rapid death: the only justification for a return to the subject is because some members of the profession still appear to be obsessed by this fear.

For me the bright lamp of surgical progress in this field was lighted in 1911 when Stiles of Edinburgh read a paper in Denver City on two cases in which he had successfully transplanted the ureters by burying them obliquely in the wall of the bowel, in much the same way that the catheter is buried in the stomach wall in the Witzel method of gastrostomy.

After-results

In 1927 I delivered a Hunterian Lecture on this subject, and was able to give the after-history of 17 personal cases from a few months to 15 years after transplantation (Turner, 1929). The subsequent history of these same patients after the lapse of a

After-history of 9 Cases of Transplantation for Congenital Defects with Incontinence All Previously Reported (Turner, 1929)

Case No.	Sex	Age at Operation (years)	No. in D.J.S. Vol. 17	Time since Operation (years)	Present Condition	Further Particulars
1	Male	8	1	30	In good health	Working long hours at munitions
2	Female	22	2	29	"	Three children born since operation. Does all own household duties. Twice had stone removed from right kidney and ureter
3	Male	19	3	25	"	Has worked as a farm labourer. Married
4	Female	6	5	25	"	Stone removed from kidney. Married: no children
5	Male	5	7	23	"	During one recent year several attacks of renal pain. Married
6	Male	10	12	19	"	Trouble with inguinal hernia. Otherwise well. Does heavy work
7	Male	8½	15	17	"	Nephrectomy for pyonephrosis—persistent urinary fistula. Does heavy work down a mine
8	Male	3	16	16	"	
9	Female	3½	17	16	"	Has always been splendidly well

further 16 years is now presented (see Table). The numbers of the cases recorded in the original paper are placed in the fourth column. The patients have been very closely watched, and those who have been admitted to hospital for various reasons have

been submitted to detailed examination. In no case has there been gross evidence of renal deterioration. In 1936 J. H. Saint examined several of these patients by the method of intravenous pyelography, and the results were published in a joint paper (Turner and Saint, 1936). In the original 17 cases there were four deaths directly due to the operation (peritonitis 3, septic dermatitis 1). Three patients subsequently died—from intestinal obstruction, sepsis following a plastic operation after removal of the ectopic bladder, and haemorrhage after plastic repair of the penis respectively. Thus none of the patients who recovered have subsequently died because their ureters were transplanted. Of the 9 surviving cases the essential details are set out in the accompanying table.

In Case 7 an enormously dilated ureter could not be buried and was simply tucked into the bowel end to the side. In Case 9 a submucous bed was prepared. In the other cases the original method of Stiles was used, one ureter being implanted at a time and with a varying interval between interventions. Full details of the operations are given in the original paper. "In good health" means that the patients can stand up to their environment and take their place among their fellows. No. 1 has never been a big strong person, but he has developed quite well, played games, including football, and has always been ready for work when it was available. No. 2 is a brave woman now 51 years of age. Her first child was born three years after the operation, and both pregnancy and delivery were without unusual incident. Ever since the operation she has had some pain in the back, but it has only been very troublesome at infrequent intervals during the last five years. In 1938 a phosphatic calculus was removed from the right kidney, which was considerably dilated, and early this year a large calculus was removed from the corresponding ureter. The patient is now very well. Except for these attacks her health has been good, and her greatest happiness has been to look after her family and household. She has carried out all the domestic duties which fall to the lot of a North Country woman of the artisan class. After her day's work she has often visited the pictures and has gone from home on holiday each year. For years No. 3 did the hard work of a general farm labourer. His marriage about three years ago was for companionship, but is not entirely Platonic. Case 4 has also had a stone removed from the right kidney 14 years after the transplantation; but she has always been well and active, carrying on the work of a ladies' maid, which in her case entailed a considerable amount of travelling. Three years ago she married, and is anxiously awaiting maternity. No. 5 was a feeble child but has developed into a sturdy young fellow. Four years ago he was exceptionally well, was working long hours, and dancing in the evenings by way of relaxation. During the past twelve months he has had several attacks of renal pain; but these symptoms left him after passage of a considerable amount of grit, and he is now working regularly in charge of a factory. No. 6 has enjoyed good health except for troubles due to double inguinal herniae, one of which had to be operated upon in a state of strangulation; but despite this handicap he puts in a long day as a crane-man. No. 7 has had a tedious time with many vicissitudes, including nephrectomy for pyonephrosis. None the less he is well developed, strong and active, and capable of hard work. No. 8 has been difficult to keep in touch with, but he is reported to be well and strong. No. 9 was operated upon at an early age, but she made an easy recovery, has developed normally, has never shown any untoward symptoms, and has grown into an attractive girl who enjoys excellent health. Many other cases operated upon since the above series have been equally satisfactory, and I would just recall a charming girl born with an ectopic bladder whose parents were thrown into the depths of despair as the result of the utterly pessimistic outlook of the

* Presidential address delivered at the Medical Society of London, Oct. 18, 1943, much abridged.

consulting surgeon who was called to see the case a few days after birth. The transplantations were carried out between 3 and 4, and now, eight years later, the child is perfectly well, highly intelligent, and especially fond of swimming. Also another girl, who wrote four years after operation: "I have to catch a bus in the mornings at a quarter to eight in the black-out, but it is fun!" An officer whose ureters were transplanted just previous to total cystectomy for neoplasm is now, two years later, back to his military duties, albeit on the home front, while in like case a street trader is actively employed in his traffic. I used to feel that every case of transplantation would sooner or later show some evidence of ascending infection, but I am now hopeful that with the great simplification of the technique there may be many in which it never occurs. The exact condition of these patients may be regarded as the results of an experiment in applied physiology, and can be detailed as follows.

Details of Results

Effect on the Economy of the Body.—Just after the transplantation the patients are invariably abnormally thirsty, and this may continue for about a year. During this period they often lose weight, and sometimes very considerably. After this time thirst diminishes and they not only regain lost weight but begin to put on flesh, so that they come to look plump and well nourished. Appetite is usually good and mental acuity more than average. They behave like normal individuals, are cheerful and happy, and able to work and play like others of their station. They can also stand up to the buffets of their environment, including physiological processes like pregnancy, operations, and illness.

Rectal Function and Control.—In nearly all my cases this has been satisfactory, though in two of them continence during the night has never been acquired, though these same patients have complete control by day. While there is some variation, most patients can hold the contents of the rectum for three to four hours at a stretch, and the call is not so urgent but what they can await a convenient opportunity with confidence. Some patients sleep throughout the night without being disturbed, while others may rise once or twice. All agree that the behaviour of the rectum is much influenced by the general health. With exhaustion or indisposition rectal calls are more frequent. The contents voided are usually an intimate mixture of faeces and urine, but sometimes the same patient may pass clear or opalescent urine at one time and a solid evacuation at another. The rectal mucous membrane is unaffected and, except for unusual moisture, looks normal when inspected through the sigmoidoscope.

Where the Urine is Stored.—At the time of my first communication many considerations led me to conclude that the urine was stored in the large bowel and not in the rectum. This conclusion is amply supported by urography.

Effect on the Kidneys and Ureters.—The changes in structure are sometimes very striking. In the first few weeks the ureters and pelvis may be dilated, and this dilatation may persist and increase. In the series of examinations made in collaboration with J. H. Saint four out of six patients showed a moderate degree of unilateral hydronephrosis, and in another the condition was bilateral. The most striking feature was the general good health of the patients examined. Marked unilateral hydronephrosis was also found in a patient who died subsequent to operation for intestinal obstruction, but that boy had enjoyed good health until it was fatal illness. In nearly all of the earlier cases there was clinical evidence of some ascending renal infection, but for the most part it was transient and did not materially interfere with recovery. From the clinical aspect only those cases in which there has been obstruction in the lower ureter have suffered seriously. This is in keeping with general pathology, and conforms to the rule that infection with good drainage is often neither very troublesome or dangerous. The ureter may be dilated or may look normal, but at the actual junction with the bowel and the opening into the lumen is not always demonstrable either by radiographs or by sigmoidoscopic examination. When visible it may take the form of a nipple with a terminal or lateral orifice, a rosette, or a tiny opening hidden behind one of the rectal folds.

Should Both Ureters be Transplanted at the Same Sitting?

Up till quite recently I have always taken the view that it is safer to transplant one ureter at a time, and the wisdom of this course has been borne out by statistics. With better understanding of the problems involved, a simpler technique, and more knowledge of after-care, I am tending more and more to carry out

a simultaneous transplantation, except in children, and even in them the hazards of a second anaesthetic may perhaps balance the only slight extra risk of the double transplantation.

What is the Best Technique?

The technique has now been very much simplified, and is carried out without any special apparatus. Clamps are not used either for the ureter or for the colon. Coffey's tubes are no longer employed, and Charles Mayo's catgut guide has been discarded. The main points are to make an oblique implantation into a submucous bed in the bowel without kinking or compression and with due regard for the blood supply of the ureter. Compression from too tight suturing or the result of haematoma or traumatic oedema is probably the most harmful thing that can occur. Fine 3/0 or 6/0 chromic catgut is used throughout. Drainage is not employed.

Preparation and Operation

Preparation will differ a little, depending on whether the surgeon is dealing with a congenital defect in an otherwise healthy child or the operation is for the relief of some condition, such as malignant disease of the bladder, likely to be associated with sepsis or general deterioration. No operation should be done until the renal function has been raised to as nearly the normal standard as possible. The bowel should be well cleared by a reliable purgative or by an enema not later than 12 hours before operation. If there is distension or constipation a full dose of castor oil is the best preparation. No attempt should be made to sterilize the bowel or even to cleanse it by repeated irrigation, which may result in the surgeon's encountering a wet puddle in the pelvic colon. The choice of anaesthetic will depend partly on the condition of the patient and partly on the practice of the surgeon, but whatever method is employed complete relaxation is necessary. The patient is placed in the Trendelenburg position and the abdomen opened by one of the vertical incisions, which must be long enough to give ready access to the pelvis. I have made it a practice to transplant the right ureter first, but I am not able to give any valid reason for the choice. If both are to be transplanted, at the same sitting I am sure that it should be into the same side of the bowel, and the right or inner side is the more convenient. To bring this about it is usually best to pick up the left ureter on the outer side of the sigmoid and to bring it through the mesocolon to the inner side, where it is made to enter the bowel about 1½ in. higher than its fellow. It is usually easy to identify the ureter as it crosses the pelvic brim. Spontaneous vermiculation, or this movement elicited by mechanical stimulation, is characteristic. The posterior peritoneum is incised in the length of the ureter for about 3 in., and the ureter is gently lifted from its bed and traced towards the bladder. Not more than 2½ to 3 in. should be isolated: in this respect illustrations in surgical journals are misleading. At the lower end the ureter is clamped and divided obliquely; the end is securely tied, and its open end carbolized and allowed to retract. The upper end is held by a suture passed from its lumen and out through its upper surface a quarter of an inch from the cut end. This is tied, and is subsequently used for drawing the ureter into the lumen of the bowel and for fixing it to the bowel wall. The ureter is now turned backwards over a pad of gauze; this kinking is enough to prevent the escape of urine. A few interrupted sutures draw together the edges of the incision in the posterior parietal peritoneum.

The position of the incision to be made in the bowel is now determined by finding out where the ureter lies most comfortably against it without kinking. The aim is to carry the ureter obliquely into the bowel in the same alignment as it occupies in its retro-peritoneal bed. The site for the right ureter will probably be in the lowest part of the sigmoid or the uppermost end of the first part of the rectum. The actual incision in the bowel will usually be 1½ or 2 in. long, and this is marked out by guide sutures. The incision is made obliquely through the muscular wall down to the submucous layer. The edges will retract, but this process may require to be helped by gently spreading with dissecting forceps or a few touches of the knife, used with the blade on the flat. At the lower end of this oblique bed a small hole is made into the bowel lumen. The idea is to make such an aperture as will comfortably admit the ureter, but in practice it usually works out a good deal larger. Both ends of the stitch on the ureter are now threaded on a small round needle, which is passed through the hole into the bowel and out through the whole

thickness of its wall half an inch beyond the aperture. The ureter may have to be manipulated through the latter. Both are pulled upon to draw the ureter to this site and well up against the inner surface of the bowel. The ends are then tied firmly, but not so tightly as to cut through the tissues. The edges of the incision in the muscular layer are now sewn over the ureter with four or five interrupted sutures. If there has been any doubt about the fixation of the ureter the first muscular stitch takes a bite of its wall. The peritoneum is then drawn together over the first sutures, taking great care to bury the ureter-fixation stitch properly. One or two more than the number of deep stitches will be required. It is particularly important that the stitch nearest to where the ureter enters the bowel should be lax, as it is at this point that obstruction may be caused by subsequent oedema or kinking. If after tying this last stitch the ureter is seen to fill up, the suture is causing obstruction and must be removed. If excretion is going on, the urine should be escaping into the bowel while the anastomosis is being made, and the ureter should never distend. The ends of this last stitch are left long, and are used to anchor the bowel to the cut edge of the posterior parietal peritoneum. In this way at the conclusion of the operation the ureter passes directly from its retroperitoneal bed into the bowel, so that it has no intraperitoneal course. If the second ureter is to be transplanted at once the same steps are taken, but the incision in the bowel wall should be an inch or an inch and a half higher up than the first implantation. After completing the toilet of the peritoneum the omentum should be crowded into the pelvis and the patient brought to the horizontal position for closure of the abdomen. For some three years now I have omitted drainage from the site, but it is a perfectly rational safeguard, and the surgeon need not hesitate to use it. The abdominal wall must be very carefully closed, some through-and-through sutures being used. As a last step a tube about forefinger size is passed into the ampulla of the rectum and fixed to the anal margin by suture. This is to prevent the accumulation of a puddle in the rectum which might encourage infection.

The whole procedure takes from three-quarters of an hour to an hour and a quarter, depending upon whether or not both ureters are transplanted.

Immediate After-progress and Treatment

There should be no shock and very little upset of any sort. Urine may be discharged into the rectum from the outset, but it is more usual for uremia to be delayed for about six hours. At all events, only if there is no evidence of secretion by the end of that time should active steps be taken to encourage it. Some patients vomit a good deal and a moderate amount of distension is not uncommon. Such symptoms nearly always clear up as soon as uremia is freely established. I have always avoided the use of enemata, fearing to disturb the site of anastomosis. The patient reaches the ward with a glucose-saline drip *in situ*, and this is continued until there is a free discharge of urine from the rectal tube. When the patient recovers from the anaesthetic, the drinking of hot water is allowed and, in the absence of vomiting or distension, encouraged. It is only in cases with rather poor renal output or in which uremia is delayed that the intravenous sodium sulphate 4.3% is employed.* The rectal tube should be removed in four days, or earlier if it is much resented. Thereafter there may be incontinence for some days, especially in children, and adults may have very frequent calls—perhaps every hour. But even children acquire rectal control quite quickly, and nearly always by the time they are ready to leave hospital—in three or four weeks. Of course some education is usually necessary, and to this end it may be a help to keep the bed-pan in the bed. A capable and understanding nurse will usually manage to assist even small children to acquire control within this time.

Complications

In the early stage anuria, chest troubles, and peritonitis are the only likely troubles. At the end of about a week distension, local tenderness in either iliac fossa, quickening pulse, elevated temperature, and general malaise are very suggestive of intra- or extra-peritoneal infections about the site of anastomosis. Such a condition is grave but not necessarily fatal. In two cases (Nos. 4 and 5) a localized abscess formed and after evacuation

was followed by urinary fistula, yet spontaneous recovery ultimately ensued, and both patients are now, many years afterwards, alive and well. Some infection of the kidney used to be so frequent as to be looked upon as part of the normal convalescence, but in more recent years it has seldom occurred, possibly owing to the simplification of the technique. Most cases turn out to be mild, but, even so, the onset may be rather alarming and attended with considerable general disturbance. As a rule this soon settles down, leaving a swollen tender kidney with some fever as the only indication. In the more serious types things go from bad to worse until the patient presents the picture of acute ascending pyelonephritis, but I have not seen death from this cause for some years. In his anxiety and apprehension about possible renal infections the surgeon must not forget that these patients are liable to the occasional complications attending on laparotomy for any purpose. I have successfully dealt with a case (No. 3) in which a loop of small intestine escaped through the wound and became strangulated, and the burst wound is not unknown.

Mortality

The mortality rate depends to a considerable extent on the condition demanding the operation. In the non-malignant cases and especially the congenital deformities it should be very low—perhaps 5%—but in the malignant cases such a low rate is not to be expected if the possible advantages of the operation are to be offered to the greatest number of sufferers. In children some deaths have been due to chest complications and to the exanthemata, and I would stress the wisdom of choosing the summer months for the ordeal and of keeping children in hospital for a fortnight before operation.

When to Transplant the Second Ureter

There is no stated time for dealing with the second ureter, and the interval must depend on the progress made after the first intervention. If all goes perfectly well, three weeks has proved a proper interval; should it be otherwise, the surgeon must bide his time. The only error is to re-operate too soon.

Some Late Sequelae

If pyelitis is going to develop it usually comes on within a fortnight of the transplantation, but once having developed it tends to recur at varying intervals, perhaps over a lifetime. Hydro-nephrosis, on the other hand, probably develops over the course of months, and may not give rise to symptoms unless it becomes infected. Quite often it is discovered only because looked for. Calculus formation is not very rare, for it occurred three times among my first 13 patients who lived long enough to develop the condition. The symptoms became suggestive 15 years, 22 years, and 25 years after the original operation. Frequency of rectal micturition has seldom been a constant feature, but it may be an accompaniment of general ill-health. Rectal incontinence for urine is in my experience the most disturbing sequel. Fortunately it is unusual. In spite of painstaking investigation I have been unable to discover the cause, nor have I been successful in treatment. Wearing a rectal tube at night—a large catheter of the de Pezzer type—is a useful palliative measure.

Special Groups of Cases.

Congenital Anomalies.—Of these the commonest is ectopia vesicae, which is said to occur once in every 50,000 births. The next are the lesser degrees of the same condition, such as complete epispadias in the male and the corresponding anomaly in the female known as subsymphysial epispadias. The age at which to operate is an important problem. I consider that the optimum time will occur somewhere between 4 and 6. But it is not so much a question of the number of years but of the condition, and whatever the age the operation must not be carried out until the child is in established good health. Many a child at 4 is better fitted for the operation than others at 6. But it is never too late to consider operation if congenital deformity is the indication, and my friend Mr. Norman Hodgson dealt most successfully with a case of ectopia in a man of 51 who, by a strange irony, had consulted me 30 years previously, only to be told that no operation was feasible. As a rule children do better than adults, and it is surprising how readily they accommodate themselves to the altered physiological condition.

* 42.85 g. of hydrated sodium sulphate (Glauber's salt) dissolved in one litre of distilled water gives an isotonic solution of 4.3%.

The exposed mucous membrane of the ectopic bladder is a distinct danger, and many examples of the development of epithelioma have been recorded. Quite apart from this risk it is offensive to the eye, may give rise to an unpleasant discharge, and is liable to mild injury and excoriation. In either sex some sort of plastic repair of the affected area is desirable.

With the lesser anomalies the question of marriage is often raised, and even in complete ectopia patients of either sex have sought the consolation of matrimony. The female with a normal partner may prove fruitful, and there is no reason why such marriages should not be happy. There appears to be no special risk in pregnancy, and, since the pubes is constantly separated, labour is often easy (Case 2). In the male sexual gratification is said to occur, but neither of my married male patients has as yet become a father. Now that the transplantation is less likely to be attended by sequelae, I welcome the opportunity of carrying out more careful and complete restoration of the genitalia.

Separation of the Pubic Bones.—In the case of complete ectopia the pubic symphysis is separated to the extent of from four to six inches, but the bones are connected by a very strong ligament. It is often assumed that such a degree of separation will result in marked disability, but though the thighs are more or less widely separated and the patient walks with a characteristic gait, they are usually quite strong and able to carry out ordinary activities without impediment.

Other Pre-operative Problems that may Arise.—Sometimes there is weakness of the anus with incontinence, and on occasions prolapse. If this is associated with some degree of spina bifida and perhaps weakness of the lower limbs no improvement can be expected, and transplantation into the usual site is contraindicated. Confronted with these circumstances Hey Groves made the transplantation into the caecum, and combined this with a left inguinal colotomy. As a result not too frequent pulaccous stools could be easily controlled by a colotomy belt, and for some years the patient was able to lead a sheltered but useful life.

Contraindications to Transplantation.—Marked pyelitis and hydronephrosis are usually regarded as contraindications to transplantation. It is always worth while establishing external loin drainage by nephrostomy and, if sufficient improvement follows, to proceed to transplantation while the drainage is still operating.

The Widening Scope for Transplantation

For many cases of malignant disease of the bladder total cystectomy holds out the best prospect of long palliation or even cure. In this operation it is necessary to divert the urine, and by far the best plan is to carry the ureters into the bowel. The technique is the same as that used in other cases. When the transplantation is a proved success—and this is usually assured three or four weeks—the removal of the bladder may be carried out.

In some cases of malignant disease of the cervix extension to the adjoining bladder renders treatment both by radium and by hysterectomy impracticable. In such cases total hysterectomy, together with simultaneous removal of the bladder, holds out some prospect, and in the absence of glandular involvement or distant dissemination should be practised. The transplantation of the ureters should be a first stage, and the next part of the operation should not be undertaken until the patient has become acclimatized under the new physiological conditions. An interval of 6 to 8 weeks will probably suffice, but there should be no unwarranted haste.

For some years now the operation has been used for certain intractable cases of vesico-vaginal fistula. In such cases transplantation should not be combined with a last desperate attempt at local repair, but should be a deliberate intervention only to be carried out after proper preparation. In the systolic bladder, which is sometimes a problem after the successful removal of tuberculous kidney, diversion of the ureter into the bowel may bring great relief.

Transplantation has also been used in certain cases of severe injury to the urethra usually associated with fractured pelvis. Though this indication is among the rarest, it should be kept in mind.

REFERENCES

- Turner, G. Grey (1929). *Brit. J. Surg.*, 17, 114.
— and Saint, J. H. (1936). *Ibid.*, 23, 580.

OCULAR MANIFESTATIONS OF NEUROSES COMMONLY FOUND AMONG SOLDIERS

BY

I. C. MICHAELSON, F.R.F.P.S.

Major, R.A.M.C.; Ophthalmic Specialist, British General Hospital
Extra Surgeon, Glasgow Eye Infirmary

Fear and environmental stress are very prevalent in wartime and often give rise to chronic anxiety. Many soldiers react to such a chronic anxiety by developing a neurosis, of which there are two main varieties—hysteria and the chronic anxiety state. Whether one or the other will develop depends on the individual personality type.

The hysteric has an essentially childish personality with an undeveloped or perhaps only unsustained sense of social responsibility. He reacts to the anxiety by dissociation, which may affect nerve, muscle, bone, joint, an entire limb, memory, the conscious state, etc. He is very open to suggestion, and the type of somatic localization may be suggested by his observation of the infirmities of others or his memory of past disabilities within himself. In this way undue prominence is given to a condition already present, or else one is created entirely *ab initio*. The somatic incapacity is such as to still the anxiety or the conflict that may have arisen between it and duty. The more successfully this is done the happier is the patient, who may indeed wear a fixed look of quiet satisfaction throughout the day.

The patient who develops a chronic anxiety state is usually a more mature personality with some awareness of his obligation to society. His reaction to the anxiety provoked by fear or environmental stress is different from that of the hysteric. The early somatic upset appears to take place in the endocrinal and autonomic systems, leading to disturbances of the vasomotor, respiratory, sudomotor, or gastro-intestinal system. In this way are produced palpitations, vascular throbbing, headache, syncope, flushes, paraesthesia, breathlessness, sighing, undue sweatings, vomiting, diarrhoea, and dry mouth. The somatic incapacity is frequently not sufficient to assuage the anxiety of the patient, who may present a worried, unconfident attitude to the outside world.

As a result of hysteria and chronic anxiety state, various conditions arise in and around the eye. Indeed, it may be said without exaggeration that half of the soldiers presenting themselves at the out-patients' room of the eye department of this hospital in the Middle East have complaints which may fairly be described as functional. The most frequent, and those that will be dealt with in this report, are defective day vision, defective night vision, asthenopia, diplopia, headaches, photophobia, spots before eyes, and epiphora. All of these symptoms are found in organic conditions. Investigations into each of them should therefore take three main directions: (1) exclusion of organic disease, or, if present, an assessment of its role in the production of the symptoms (organ-symptom parallelism); (2) a detailed investigation into the nature of the symptoms; (3) some investigation into the patient's personality (while in difficult cases this is the sphere of the whole-time psychiatrist, the ophthalmologist should be capable of the simpler approaches). As investigation No. 3 applies to all the symptoms similarly, a brief generalization will be made now of the main points of inquiry.

Inquiry should be made into the presence of any worries, dislikes, or fears, and the degree of duty sense as evidenced by his former reactions to life. Search should be made for anything in the personal or family experiences of the patient, or in his general environment, that might have suggested the symptom to him. This may be a weakness of one eye which the patient had many years ago, or a history of blindness in his family, or the defective night vision of which his friend in the unit has complained. The relation of the symptom to change of environment should be noted, especially when a new climate provides factors, such as heat and glare, which can be blamed for it. It is noticeable how often among the troops in the Middle East a visual complaint began on the voyage out between Freetown and Capetown. It is as if there were an incubation period for the symptom.

The reaction of the patient during the examination should be carefully noted. Is he "too accepting" of the symptom, or is he disgruntled or even aggressive? Are his responses variable, and is he open to suggestion? Is there hesitancy of speech, or is there a stutter? Note if his attention wanders during the course of the examination.

After such inquiry a general idea of the personality pattern of the patient should be known.

Defective Day Vision

Defective vision is a common functional symptom. It may vary from complete blindness of one or both eyes to a lowering of visual acuity to the neighbourhood of 6/24 or 6/36.

It should not be difficult to diagnose the presence of organic disease or disability. In disseminated sclerosis, however, this may not be very easy. The main difficulty is to be able to state that a given organic condition is sufficient to account for the degree of the symptom. Only experience can tell the ophthalmologist how much visual defect can be expected from an organic condition—in other words, whether or not an "organ-symptom parallelism" is present in any particular patient. This difficulty is encountered particularly in fairly high astigmatism. It is often not possible to state definitely that a patient whose 3 dioptres astigmatism has been corrected with a lens should see more than the admitted 6/24. If the condition is bilateral the question of amblyopia does not arise in such cases.

A detailed investigation into the nature of the symptom should now be made. Most symptoms can be analysed and the component parts found to have a certain parallelism with each other. With vision, investigation into this "symptom parallelism" can be carried out in different ways.

The two main methods used in this department are tests of visual fields and the plotting of vision correlation curves. The visual field tests are well known, and are dependent on the fact that the fields for white targets of different sizes have a certain relation to each other and to fields for targets of different colours. In functional conditions the normal relation is upset. For example, the field for a 5-mm. white target may be larger than that for a 10-mm. target in certain meridians. A correlation curve depends on the simple fact that the number of lines read on a Snellen chart varies fairly directly with the distance of the patient from the chart. The acuity is taken at six to eight different distances from the chart, starting at the furthest one. It is important to vary the order in which the acuity at different distances is taken. A graph is then made, using the distances from chart as abscissae and the Snellen lines read as ordinates. In normal cases the resulting graph is almost a straight line. Fig. 1 is an example of such.

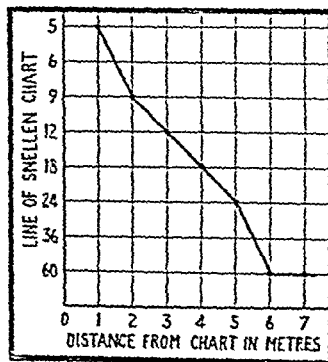


FIG. 1.—Correlation visual curve of a case of refraction error. (Note that the line is almost straight except at the end.)

In functional visual defect the graph is not straight. Fig. 2 shows graphs taken from a soldier with hysterical amblyopia of both eyes.

Important points to elucidate in the psychiatric approaches to such cases are the presence in the patient's history of any eye condition that may have made him "vision-subconscious" and his suggestibility to further acuity of vision during the test.

Pentothal sodium is an excellent diagnostic adjunct in cases in which the amblyopia is complete in one or both eyes.

It is the experience in this department that hysterical defects cannot with certainty be differentiated from simulation or malingering by physical tests only. In these tests it is not possible to exclude with confidence the effect of suggestion. The ultimate differential diagnosis between hysteria and simulation or malingering must be based on the psychiatric assessment.

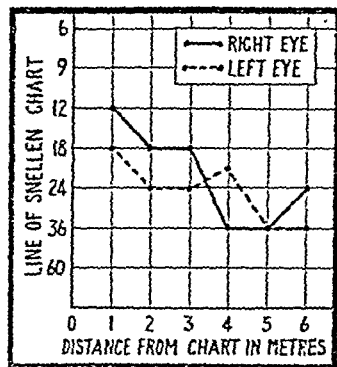


FIG. 2.—Correlation visual curves of a case of hysterical amblyopia of both eyes. (Note variation in direction of curves.)

Treatment of Defective Day Vision

As most of these cases are hysterical the treatment is difficult. The visual defect may be removed by suggestion with or without the use of narco-analysis, but the underlying personality defect persists and may show itself later as a relapse of the visual defect or as a somatic disturbance elsewhere. Patients who have had complete blindness in one or both eyes before treatment are unlikely, in our experience, to become fit to return to a forward area. They may, however, carry out useful duties at the base for a long time. Indeed, a relapse may never occur if the precipitating factor of the emotional disturbance has been removed. Patients who have a partial loss of vision—to, say, 6/24—do not seem to do well, and often require to be invalidated. It is important to have the help of a trained psychiatrist in the diagnosis, and especially in the disposal of cases of severe hysteria. In the exigencies of war, however, it is rarely possible for him to effect the profound personality change necessary for the permanent removal of the underlying cause of the patient's symptoms.

Defective Night Vision

Defective vision in the dark is a common complaint among troops. Most of these patients state that in the dark it was necessary for them to take a companion's arm. This is a convenient mode of assessing the symptom, as it supplies a certain relative quality to the patient's complaint. Many state that they had bumped into objects in the dark or fallen into slit-trenches. Of this it must be said at once that there are few people who have not had similar experiences since the institution of the black-out.

Defective night vision may be a symptom of organic disease. It may be found in moderate as well as high degrees of myopia, in choroiditis, retinitis pigmentosa, vitamin A deficiency, and toxæmia. Every patient complaining of this symptom should be examined for these conditions. During the past six months three cases of retinitis pigmentosa were seen in this hospital. It must be borne in mind that defective night vision may precede the appearance of the pigment in the retina. During the past year we have seen only one case in which food deficiency was a possible cause. There was one case of alcoholism, and it is suggested that inquiries into this condition should be made in every instance.

Measurements of vision in the dark are made on a dark adaptometer. For this purpose Koch's modification of the Hecht apparatus is used. With it a sufficiently accurate measurement of the minimum light and form senses can be obtained. The light minimum can be measured from 2 to 6 micro-milliamperes (log units— μ ml.). The minimum form sense is measured by the amount of light necessary to determine the

letter "E" 10 mm. in size and placed 380 mm. from the eyes. As the "E" can be revolved a check on the patient's accuracy can be made. The minimum light sense is usually examined after 3 and after 30 minutes' dark adaptation. The minimum form sense is examined after 30 minutes' dark adaptation. The following are normal figures on this instrument:

Minimum light sense: 5.2 μ ml. after 3 minutes

3 μ ml. after 30 minutes

Minimum form sense: "E" recognized by 30% with 4.2-5.5 μ ml.

In pathological conditions there is usually a fairly parallel diminution in minimum light and form senses. In functional conditions there may be a gross disturbance in this "symptom parallelism." For example, in repeated cases of neurosis with complaints of defective night vision the minimum light sense after 30 minutes' dark adaptation was in the proximity of 3 μ ml., yet the "E" was not perceived at this point even with 6 μ ml. This lack of "symptom parallelism" is similar to that already described above, and in some cases may be of help in the diagnosis of functional night-vision defect. It should be noted that in apparently normal subjects not complaining of defective night vision it is not unusual to find a poor minimum form sense in tests with the dark adaptometer. Another helpful example of symptom inconsistency is that the figures obtained for the light and form senses may vary from day to day. This, in our experience, does not occur in any organic eye condition.

Men complaining of defective night vision and not showing any physical defect should be examined by a psychiatrist. Particular investigation should be made into the reaction to dark during childhood and the incidence of defective night vision in the soldier's unit and among his friends. In connexion with the suggestibility of the patient, the use of the phrase "night blindness" on any document to which the soldier has access should be strictly avoided. It is a fluent phrase easy to remember and quickly passed from mouth to ear.

Treatment of Defective Night Vision

Cases of functional defect of night vision are rarely amenable to direct psychiatric treatment, although they may be somewhat helped by rest and change of environment. Disposal should not be based on one investigation of the dark adaptation alone. It should be repeated several days later. If the minimum form and light senses are both within normal the patient should be reassured and returned to his unit in his original category. If the symptoms are severe and are supported by findings with the dark adaptometer he should be examined by a psychiatrist, and the ultimate disposal will depend on the psychiatric findings. In this connexion it is recommended that all those in one area complaining of defective night vision should be seen by one ophthalmologist, who is then in a position to detect a tendency towards "infectious spread" in any unit. Everybody has some difficulty in moving about in the dark, and the requirements of the Service or a danger of the complaint spreading may easily modify the suggested disposal to a more stringent one.

Diplopia

Diplopia is a common functional symptom. It may vary from a momentary slight separation into two images to a constant and well-defined double vision. To investigate the possibility of organic origin the usual tests for muscle paresis, muscle spasm, convergence weakness, concomitant squint, and muscle imbalance should be carried out. Most of the functional diplopia in the Army is found in the following types of cases.

(a) There may be a concomitant squint which has been present since childhood without giving rise to diplopia until recently. In civilian life it is very uncommon to find diplopia in an adult with concomitant squint. Yet such cases due to emotional stress are seen in this department almost every week. In these an organic condition is present, but the symptom-effect is not parallel with it. It is an interesting fact that suppression of one image that took place at, say, the age of 5 years and has persisted since should after two decades be functionally removed.

(b) There may have been a muscle imbalance which has persisted for years without causing diplopia. During these years the duction power has sufficed to overcome the tendency to squint. Under conditions of emotional strain this duction power may break down, when a small-degree horizontal or vertical squint with diplopia results.

(c) The functional disturbance may produce a spastic squint which is usually convergent. Three such cases seen in this hospital during the past year were due to spasm of the internal rect muscle. Ocular movements in these cases were good, if inclined to be jerky. The diplopia was found only in the central part of the field, both images coming together as the object was moved to the right or the left.

(d) The functional disturbance may produce a partial or complete loss of convergence. The diplopia is most marked at near vision. Some cases of partial loss of convergence are associated with exophthalmos, as will be mentioned later.

Treatment of Diplopia

Spastic squint and convergence loss may be cured by psychiatric measures alone. The results may be immediate and striking. In these conditions there has presumably been pre-existing organic disability.

Treatment of hysterical diplopia associated with concomitant squint or muscle imbalance that has become a squint is very difficult. I have not seen a case which has been cured by psychiatric measures alone. With these cases it is best to use both the psychiatric and the physical approaches. As a first measure the patient should be given some insight into the condition by the psychiatrist. Stress is laid on this being done before prisms or operation are tried. There are two reasons for this order in the treatment. In the first place, it prepares the patient to accept the later optical or surgical help. The operation cannot be guaranteed to have the necessary precision and the patient should know beforehand that he must contribute to the cure. In the second place, the patient's confidence in physicians is maintained. If he is sent to a psychiatrist at incomplete cure of his diplopia by surgical measures he is inclined to think that he is being passed to another doctor in view of the surgical failure; or, in his own words, that is "being messed about."

Should psychiatric, surgical, and prismatic treatment fail, patient should be made uniocular by placing a frosted glass before one eye. He should then be categorized "B1 (E only)." Even then he may have the last word by developing photophobia in the used eye.

Asthenopia

Ocular fatigue is fairly commonly functional in origin. In many cases there is a small refraction error, which, however, under other circumstances might not have been expected to cause any symptoms. Whether or not glasses should be prescribed for any individual case depends on the experience of the ophthalmologist. It is felt that there is over-prescription. Yet a fair balance is difficult in the midst of a large out-patient day, and the patient is often given the benefit of the doubt.

Phorias and convergence insufficiency should be examined for in these borderline cases. It should be remembered that a certain degree of exophoria at near vision is normal. It is invoked to explain asthenopia only if the positive duction power is not sufficient to control the degree of exophoria. The muscle balance and the duction powers are within normal limits and if after the use of suitable lenses the patient continues to complain of fatigue and strain, the case in the great majority of instances can be considered to be functional.

In considering asthenopia mention should be made of the poor lighting conditions found in many Army offices. This should be inspected periodically by the D.A.D.H. in conjunction with the ophthalmologist of the area.

Headache; Photophobia; Muscae Volitantes; Epiphora

These form a well-defined group of symptoms, all or some of which are often found in the same patient. In the production of some of these symptoms there is probably a disturbance of autonomic control. Unlike the functional diplopia and defective day or night vision which have been referred to as hysterical this group of symptoms, together with asthenopia, may more properly be defined as the chronic anxiety state with its manifestations.

The headache is usually retro-ocular or bitemporal, often felt on the side where one eye has had some chronic defect, such as amblyopia. Practically any adjective may be used by the patient to describe the pain. It may or may not be associated with the use of the eye. It is often evoked

exercise or excitement. The pain never wakens the patient during the night, although he may waken in the morning with it. This symptom, like all those mentioned in this report, is frequently associated with a change of environment. In many respects the photophobia runs parallel with the headache. It, too, may be unilateral, and be felt on the side on which, as the patient is aware, there is ocular inferiority. Dark glasses are often worn on days not much, if any, brighter than can be experienced on summer days in Britain. Their use appears to have a symbolic significance to the patient. As stated, *muscae volitantes* and epiphora are often associated with photophobia and headache. Like them, they are very variable in their incidence: days may pass without the patient experiencing them.

Before making the diagnosis of chronic anxiety state with ocular manifestations it is, of course, important to exclude organic disease. The media of the eyes, fundi, and tear ducts should be investigated.

It is interesting to note in connexion with the disturbance of autonomic control which is suspected to be the basis of this group of symptoms, that a number of cases presenting the syndrome of headache, epiphora, and photophobia later develop exophthalmos with a well-marked von Graefe sign. In them there is not necessarily thyroid enlargement or increase in pulse rate. As mentioned above, such cases may have a partial loss of convergence, with diplopia.

Treatment of Chronic Anxiety State with Ocular Manifestations

The treatment of chronic anxiety state with ocular manifestations is more satisfactory than that of ocular hysteria, and in many cases can be satisfactorily carried out by the ophthalmologist. The qualities required are patience, kindness, and directness. It is easy to advocate these qualities, though difficult to show them in the rush of the clinic. Nevertheless no good treatment of the chronic anxiety state can be carried out without them. There must be patience to listen to the man's story, to watch his mind during the examination, to evoke his past life and environment, and to interrogate his emotions so that the hidden anxiety state may be exposed. This must not be done in a gruff manner, otherwise the patient becomes defensive and more tongue-tied than ever. There must be directness to impress him that no disease of the eyes is present and to indicate the manner in which the symptoms arose. There are few patients who do not intelligently and emotionally respond to this treatment.

Summary and Conclusions

In this report mention has been made of (a) the two chief psychical conditions—hysteria and chronic anxiety state—which cause a variety of ocular symptoms; and (b) the differentiation of these functional symptoms from those produced by organic disease.

For clarity the psychosomatic processes have been described as well-defined entities. These processes are personality reactions, and although the individual may show a tendency to react in a certain way, personality is too complex for the reaction to be simple and uniform. In practice many a case does not fit into a clear-cut pattern. An obvious hysteric may develop symptoms described above as chronic anxiety state with ocular manifestations, while a case with hysterical symptoms in the eyes may have a well-developed chronic anxiety state. Moreover, the difficulty is not only as between one functional condition and another. Both an organic and a functional condition may be present in the same patient. Their relative significance in the production of the symptoms is of therapeutic importance. Only a very careful physical examination together with some considerations along the lines indicated above, and the experience of the examiner, can help disentangle the threads.

It may be of some help to think of organic and functional disturbances coexisting in one of three different ways: (1) The association in one patient may be fortuitous. (2) A functional disturbance may be superimposed upon an organic one, modifying or aggravating the symptoms. (3) The psychic disturbance leading to upset of ocular function may appear to be an integral part of the organic process. This is noticed in disseminated sclerosis. It is not unusual in this disease for the "functional" symptom to be the predominant one and to be present for a long period before the "organic" symptoms arise.

I would like to express my thanks to Brigadier C. W. Graham, Consultant Ophthalmologist, Brigadier G. W. B. James, Consultant Psychiatrist, M.E., Major J. M. M. Jacobs, and the staff of No. 2 Psychiatric Centre for their generous guidance and help. Many of the cases were diagnosed and treated in No. 2 Psychiatric Centre.

HUMAN FIBRIN AS A DRESSING FOR BURNS*

BY

R. G. MACFARLANE, M.D.

*Clinical Pathologist, Radcliffe Infirmary, Oxford;
Radcliffe Lecturer in Haematology, Oxford University*

The copious and continued oozing of fluid from a superficial burn is a curious contrast to the behaviour of an abrasion, which soon becomes covered by a scab of dried and clotted exudate. It is clear that the normal mechanism of haemostasis is unable to control the exudation of plasma from the capillaries at the surface of a burnt area. It is a temptation to think that the delay in healing of such burns as compared with abrasions of equal magnitude may be the result of this continued oozing, since in the haemorrhagic states even minute wounds may refuse to heal for weeks unless leakage of blood is stopped by suitable treatment. It is certain that in severe cases the loss of fluid from the burnt area may be so great as seriously to aggravate haemoconcentration, and a practical method of controlling this loss would be of clinical importance.

Attempts were made, therefore, to control this exudation by means that are usually successful in controlling the exudation of blood in the haemorrhagic states. To begin with, various coagulants, such as Russell viper venom and thrombin, were applied to the surface of burns, but any hastening of coagulation that was produced appeared ineffective.

It was observed that blisters forming soon after a burn usually contained masses of loose trabeculated fibrin that had no controlling effect on the exudation of fluid. The "blister fluid" that was drawn off and examined contained a further small amount of fibrinogen and often underwent secondary clotting in the test-tube, suggesting that the clotting mechanism was not seriously deranged. Unfortunately it was not possible to make quantitative estimations of fibrinogen and prothrombin on the exudate before it had partially clotted. Experiments with blister fluid showed that it differed little from the patient's serum. Titration of the immediate antithrombin, the progressive antithrombin, and fibrinolysin gave results essentially the same as those obtained with the blood serum. From these observations it appeared that the continued exudation of fluid might be the result not of defective coagulation but of a capillary defect, so that the local condition might be analogous to the continued bleeding in the purpura, in which coagulation is normal. No effect would therefore be expected from the mere addition of coagulants to the issuing fluid: as in the purpura, the flow must be stopped by mechanical means.

It was therefore decided to attempt to seal the burnt surface with some relatively impervious dressing. Human fibrin was chosen as the physiological ideal, and it was hoped that its presence might reproduce the conditions in traumatic wounds and encourage healing. After unsuccessful attempts to produce a sufficiently tough and adherent membrane by covering the burn with concentrated fibrinogen solution, or dried fibrinogen subsequently clotted by a spray of thrombin, it was decided to preform the fibrin membranes and apply them when required.

Preparation of the Fibrin Membrane

The technique that finally evolved was as follows: Human plasma was allowed to clot in flat shallow dishes. The ordinary photographer's earthenware developing-dish about 12 in. by 10 in. was found satisfactory. Before adding the plasma the dish was levelled with a spirit level in order to ensure even thickness of the membrane. About 450 c.cm. of plasma was used for each membrane, and this was mixed with 100 c.cm. of 1.18% CaCl₂ and 0.5 c.cm. of 1 in 100,000 Russell viper venom, in a large measuring cylinder. The mixture was rapidly poured into the dish and any large bubbles burst with a hot wire. Firm coagulation usually took place in from a half to one minute. The clotted plasma was allowed to stand for 30 minutes and was then covered with about 500 c.cm. of tap-water. By gently rocking the dish the clot was detached from the sides so that it floated freely in the water. It was

* A report to the Burns Subcommittee of the M.R.C. War Wounds Committee.

then covered with a sheet of blotting-paper cut to fit the dish, and this in turn by a sheet of perforated zinc of the same size. By pressure on this sheet much of the serum in the clot could be squeezed through the blotting-paper and perforations. Water and serum were then poured away, and by careful inversion the clot was turned out, lying on the blotting-paper and zinc. These were now laid on a draining-board, and the upper surface of the clot covered by another sheet of blotting-paper and perforated zinc. Pressure on this expressed the remainder of the serum.

On removing the blotting-paper the clot was found to have been compressed into a thin sheet of yellowish fibrin. This was carefully washed in water until white, and then pressed between sheets of dry blotting-paper. The finished membrane is a tough, elastic, glistening white sheet when wet; when dry it becomes transparent and brittle.

Sterilization of the Membranes

The membranes, suspended in saline in small screw-capped bottles, were usually treated by heat. Though they resist boiling, the fibrin becomes thickened and waterlogged and loses much of its elasticity. Heating to 80° C. for one hour or 70° C. for two hours was found to be less deleterious and to kill non-sporing pathogens incorporated experimentally in the fibrin, and this treatment was used throughout the clinical trials.

In Dr. Colebrook's laboratory experiments on sterilization by antiseptics and bacteriostatics were carried out. Small experimental membranes were made from plasma to which cultures of *Staph. aureus*, *Bact. coli*, streptococci, and *Ps. pyocyaneus* had been added. These infected membranes were incubated for varying periods in different concentrations of C.T.A.B. (cetyltrimethylammonium bromide), 2:7-diaminoacridine, dettol, sodium sulphacetamide, sulphanilamide, etc. The pieces of fibrin were then removed from the solution, washed in sterile water, and planted out in broth. It was found that the C.T.A.B. completely dissolved the fibrin in 24 hours, and even after three hours the membrane was partly destroyed. The organisms were not killed by three hours' immersion in 1.5% C.T.A.B. 24 hours' immersion in 30% dettol sterilized the membrane, but also partly destroyed it. Sulphanilamide (2%) and sodium sulphacetamide (20%) did not damage the membrane, but organisms were still viable after 24 hours.

The 2:7-diaminoacridine stained the membrane a bright red, but did not impair its properties. 24 hours' immersion in this substance killed all the organisms named when the dye was in concentration of 1 in 1,000. When it was reduced to 1 in 10,000 the coliform organisms and staphylococci remained viable.

Preservation of the Membrane

All the membranes used in the clinical trials had been "pasteurized" by heat. One, in addition, had been preserved in 1 in 10,000 diaminoacridine. After two or three weeks' immersion in saline, even in the refrigerator, membranes begin to lose their toughness and finally to disintegrate. Various preservatives have been tried without effect. Freezing the membranes retards the deterioration to some extent. In the dry state they appear to keep indefinitely and to regain their elasticity when soaked in water. They are so brittle when dry, however, that it is almost impossible to handle them without breaking, and as a method of preservation it was found impracticable.

Application of the Membranes

Several methods of sticking the membranes to the burnt surface by means of freshly formed fibrin were used, all of which gave firm adhesion. At first the burnt area, after being cleaned, was sprayed with fresh human plasma to which enough calcium chloride had been added to produce clotting in three or four minutes. The membrane was then spread over the surface, smoothed down, and the edges trimmed with scissors. Subsequently plasma was applied to the burn as before, but coagulation was produced by a solution of thrombin, in which the membrane had been soaked before application. In one case the membrane was applied over a burnt surface that had been covered with powdered fibrinogen, the membrane having been moistened with thrombin. This latter modification was not so successful, as the powdered fibrinogen contained air, which formed bubbles as it went into solution.

Clinical Results

Eight cases of accidental burns and two experimental burns have been treated by the application of about 17 sq. ft. of preformed membrane made from human fibrin. Two cases were in the Radcliffe Infirmary, under the care of Dr. J. M. Barnes; the remainder were at the Royal Infirmary, Glasgow, under the care of Mr. A. M. Clark and Dr. L. Colebrook. A brief summary of these is given below.

Case 1.—Male aged 31, admitted July 26, 1941, three hours after petrol burns of hands and forearms and circumference of right leg. The burns were cleaned under general anaesthesia; the hands and arms were encased in plaster and the leg was covered by a fibrin membrane over a film of recalcified plasma. A small area of the leg that could not be covered with fibrin was tanned. Within three hours the membrane had become transparent and a few drops of fluid exuded through it. For the next three days the membrane remained intact and firmly adherent, but the small tanned area began to suppurate. Then the centre part of the membrane softened and was digested, and culture from this area showed infection with *Staph. albus*. The membrane was removed, the area which was then granulating was powdered with sulphanilamide and penicillin, and a new membrane applied. This dried into a transparent scab, which began to flake off from the edge as new epithelium appeared. Healing was complete in 17 days. The plasters were removed from the hands and arms a day later and here also healing was complete except for a few small blisters.

Case 2.—Male aged 19, admitted May 4, 1941, 24 hours after sustaining severe burns, multiple fractures, and lacerations in a aeroplane crash. The burns were treated by various methods. About 10 weeks after admission fibrin membranes were applied to four suppurating areas on legs and body. One of these was allowed to dry in air, and remained intact for three weeks, though a small amount of pus formed under a fold that had become detached. When removed there was evidence of active healing beneath it, and a second membrane was applied; but there was considerable formation of pus, and it was removed 12 days later without much evidence of further healing. Two other membranes were applied to suppurating areas on the chest and shoulders, and were kept moist by a oiled-silk dressing. In both cases the fibrin was completely digested over the whole of the raw area within 24 hours of application, and each area then healed within a few days without further application.

Case 3.—Male aged 14 months, admitted Oct. 7, 1942, one hour after extensive scalding of back and thigh with boiling water. The burnt area was cleaned under general anaesthesia, and the upper two-thirds covered by a fibrin membrane, over plasma and thrombin. Sulphanilamide cream was applied to the remainder of the burnt area. During the next two hours there was some exudation of fluid from the area not covered by the membrane, though the membrane itself was dry. Two days later there was some elevation of small areas by collections of fluid beneath the fibrin, and five days after application part of the centre had been digested. Healing appeared to be almost complete under the peripheral part of the membrane that remained. Seven days after the burn the membrane had flaked off and healing was progressing, except in the centre of the area originally covered, where there was a brown slough. The area of the burn treated with sulphanilamide cream appeared to be healing equally well. The sloughs finally separated nearly a month after the burn, and it was decided to graft that area.

Case 4.—Male aged 5, admitted Oct. 12, 1942, two hours after scalding scapular areas and buttocks with hot water. After cleaning, membranes were applied to the two burnt areas on the left side, those on the right being treated with sulphanilamide cream. Two days later it was found that the membranes had stuck to the gauze coverings and were only adherent in places to the burnt areas. There had been some discharge from this side. Four days after application the membranes became detached completely, leaving a clean surface that looked very similar to that on the other side treated with cream. Healing on both sides was complete within two weeks.

Case 5.—Male aged 27, seen as an out-patient on Oct. 12, 1942, six hours after petrol burn of dorsum and fingers of right hand. The burnt area was cleaned and covered with fibrin membrane cut to fit, and bandaged over gauze. The membrane dried into a hard scab, which remained *in situ* for 10 days, when it separated, showing complete healing beneath.

Case 6.—Male aged 2, admitted Oct. 14, 1942, two hours after scalding chest and left arm with hot tea. After cleaning, a small area on the arm was covered with membrane, the rest being dressed with sulphanilamide cream. Within an hour of application the membrane became dry and transparent. Unfortunately the child died suddenly 11 hours later.

Case 7.—Male aged 5, admitted Oct. 15, 1942, two hours after scalding left arm, back left side, and left leg with hot water. After plasma transfusion the area was cleaned, the arm being covered with a fibrin membrane, the remainder dressed with sulphanilamide

ream. The membrane remained intact for eight days, when it separated. The lower part of the arm had healed; all the rest of the original burnt areas were covered by brownish sloughs, which separated 11 days later, leaving granulating surfaces, which it was decided to graft.

Case 8.—Female aged 27, seen as an out-patient 24 hours after cauldng leg with boiling water. After cleaning, a membrane was applied, with almost immediately relief of pain. The membrane dried up, but two days later a small area in the centre became ligested. Healing proceeded rapidly under the intact parts of the membrane, and was complete in 12 days.

Experimental Burns

Burns were produced on the upper part of the extensor surface of the forearms by the application of the end of a copper cylinder, 1 in. in diameter, through which hot water was flowing. The apparatus was devised by Prof. R. A. Peters Leach, Peters, and Rossiter, (1943). The results are set out in tabular form below:

Subject I (R. G. M.)

Time	Left Arm	Right Arm
0	56° C. applied for 45 seconds. Blistering and detachment of cuticle over whole area. Covered by fibrin membrane and left exposed to air. Immediate relief of pain.	56° C. for 50 seconds. Blistering and detachment of cuticle over whole area. Covered by fibrin membrane, then by oiled silk to keep moist. Pain relieved.
5 hours	Membrane has dried into hard translucent film where attached to skin; soft and pliable over burnt area. No pain.	Membrane unfortunately torn off when boarding a moving train. Area oedematous and inflamed. Dressed with castor oil and sulphalamide.
24 hours	Membrane dry and firmly attached. No oedema. No other covering. No pain or discomfort.	Painful and tender. Discharging pus. Redness over area 3 in. in diameter. Oedema over area 4 in. in diameter. Re-dressed, with relief of pain.
48 hours	Membrane covered with dry gauze and strapping to prevent accidental detachment. Perfectly comfortable and painless.	Painful and swollen. Culture: <i>Staph. aureus</i> .
4 days	Apparently healed under membrane, which is now quite dry.	Oedema of whole forearm. Dressed with penicillin.
6 days	Membrane flaking off, leaving new epithelium.	Ester, but still swollen and painful. Re-dressed as before.
8 days	Completely healed.	Better: beginning to dry up.
10 days	—	Scab flaking off, leaving new epithelium.
12 days	—	Healed.
2 weeks	—	Obvious scar.
9 months	No scar.	—

Subject II (L. C.)

Time	Left Arm	Right Arm
0	56° C. for 60 seconds. Detachment of cuticle. Dressed with sulphalamide cream under oiled paper. Relief of pain.	56° C. for 60 seconds. Detachment of cuticle. Dressed with fibrin membrane. Relief of pain.
24 hours	No pain or swelling. Re-dressed as before.	No pain or swelling. Some leakage of fluid beneath loose corner of membrane.
48 hours	No pain, no swelling. Re-dressed as before.	No pain or swelling.
4 days	Some inflammation and oedema round burn, which is covered by a film of yellow exudate. Allowed to dry in air.	Membrane dry and firm. No inflammation or oedema.
6 days	Dry and comfortable.	Some oedema and discomfort. Infected with <i>Staph. aureus</i> and diphtheroids. Fibrin membrane digested. Dressed with penicillin.
9 days	Hard scab.	Hard scab.
11 days	Healed.	Healed.
12 days	—	Healed.

Conclusions

It is clear that the covering of burnt areas with an adhesive membrane of human fibrin is a comparatively easy procedure. From the results, however, it will be seen that any clinical advantage over orthodox treatment is so slight as to make the trouble involved in preparation and application hardly worth while. The membranes relieve pain rapidly and form comfortable dressings, but the same can be said equally of many other applications. They may, to a certain extent, reduce fluid loss during the first 24 hours, but it would probably be more economical to transfuse the patient with the plasma required to make the membrane. In the cases that became infected the membranes were rapidly lysed. In favourable cases

the membrane dried into a scab, and healing proceeded beneath this. Even so, however, healing did not appear to be much more rapid than was the case in other areas treated differently.*

The problem of the fluid loss from burnt areas still remains, and its causation is of obvious interest and importance. That it is due mainly to paralysis or disordered function of the capillaries seems probable. Attempts to restore this capillary function might be therapeutically profitable.

I wish to thank particularly Dr. L. Colebrook for his kindness and advice in Glasgow, Prof. J. W. S. Blacklock for providing laboratory accommodation, and Dr. J. M. Barnes for allowing me to apply this form of treatment to his cases in Oxford. I am also indebted to Prof. R. A. Peters for advice and interest. My gratitude is due to the Medical Research Council for financial assistance and to Glaxo Laboratories Ltd. for the gift of special apparatus that was used in the experiments on blood coagulation and the preparation of fibrin, thrombin, and fibrinogen.

REFERENCE

Leach, E. H., Peters, R. A., and Rossiter, R. J. (1943). *Quart. J. exp. Physiol.*, 32, 67.

OUTBREAK OF SANDFLY FEVER IN TWO GENERAL HOSPITALS IN THE MIDDLE EAST

BY

Lieut.-Col. E. R. CULLINAN, M.D., F.R.C.P.
Officer in Medical Division, a General Hospital, M.E.F.

AND

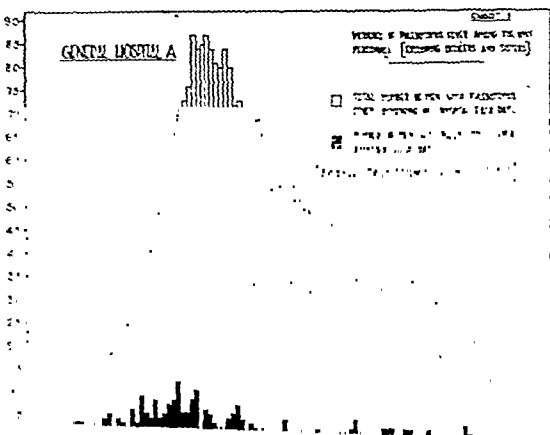
Major S. R. F. WHITTAKER, M.B., M.R.C.P.
Medical Specialist, a General Hospital, M.E.F.

From July 28 to the end of Oct., 1942, there was a severe and explosive outbreak of sandfly fever among the staffs of two general hospitals and among the patients admitted to one of them. These two hospitals came to a new station during the last week of July. They occupied newly made sites, side by side. Hospital A took over the site and patients of another hospital which had been working since early June, 1942. Hospital B did not receive patients until the beginning of September.

Within a few days of arrival members of the staff of both units began to get sandfly fever, other ranks being more affected than officers and sisters. Later, patients who had been admitted to Hospital A for other complaints contracted the disease. By the end of August the epidemic had become serious. It ceased abruptly at the end of October.

Incidence of Sandfly Fever among Unit Personnel

Several of the "other ranks" had two or more attacks, which explains why the total number of admissions exceeded the



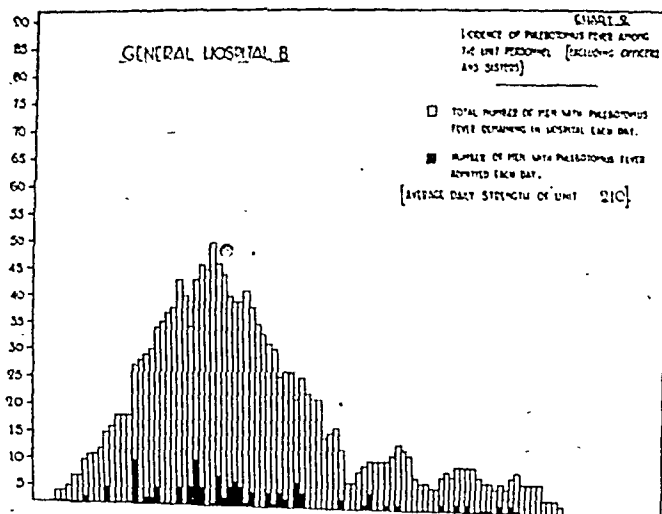
* Since submitting this report I have learned through the Medical Research Council that Ingraham and Perring of Harvard Medical School are using fibrin membranes "plasticized" by glycerol to prevent them becoming brittle, and sometimes backed with cotton. These improved membranes have given good results as a dressing for burns, and particularly as a dural substitute in brain surgery. Fibrin has also been used as a haemostatic. I have used small pieces of fibrin membrane soaked in thrombin as a haemostatic dressing for haemophilic cases with very encouraging results.

total strength. Even so, the majority of N.C.O.s and men suffered from the disease.

Hospital A

	Total Admissions, including Readmissions	Average Total Strength
Officers	8	30
Sisters	20	80
Other ranks	282	240

Chart 1 shows the number of other ranks admitted each day and the number remaining in hospital. It will be seen that for fifteen consecutive days from Aug. 27 to Sept. 10 there were over 70 men in hospital. The peak was reached on Sept. 2



(87 men). The epidemic occurred at a time when the hospital was busy. In all, 1,910 patients had been admitted to the medical division alone between July 29 and Sept. 30.

Hospital B

	Total Admissions, including Readmissions	Average Total Strength
Officers	12	28
Sisters	12	30 to 80
Other ranks	171	210

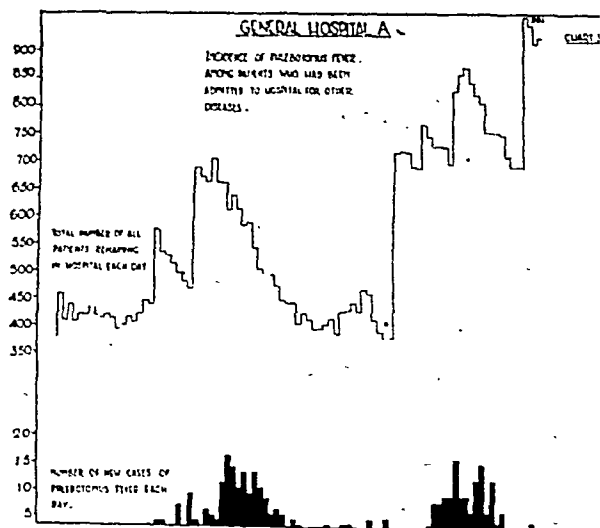
Chart 2 shows the figures for Hospital B. The epidemic was less severe than at Hospital A, but was nevertheless serious. The peak was reached on Aug. 26, when there were 50 men in hospital. In addition to the 171 cases admitted to hospital at least 30 more N.C.O.s and men were treated in their tents. The unit was not working to capacity, since patients were not received until the beginning of September.

Incidence of Sandfly Fever among Patients Admitted to Hospital A for Other Diseases

At Hospital A 365 patients who had been admitted for other diseases developed sandfly fever. Chart 3 shows the daily incidence of the disease and also the total number of patients in hospital. It will be seen that there were two periods when

the total number of patients in hospital was greatest—that shortly after the admission of fresh convoys of patients.

The distribution of the disease in the wards of Hospital is interesting (see Chart 4). With the exception of wards 10, 11, and 12, which were not in use until October, all wards contained approximately the same number of patients throughout the period of the epidemic. The incidence of sand fever was greatest in surgical wards 1 and 6, and lowest medical wards 3 and 4. Ward 1 was a stone ward, where ward 6 was a group of tents. Hence it appears that incidence did not depend on whether the wards were "hutter" or "tent." It will be seen from Chart 4 that the situation of the ward was important. The camp was newly constructed



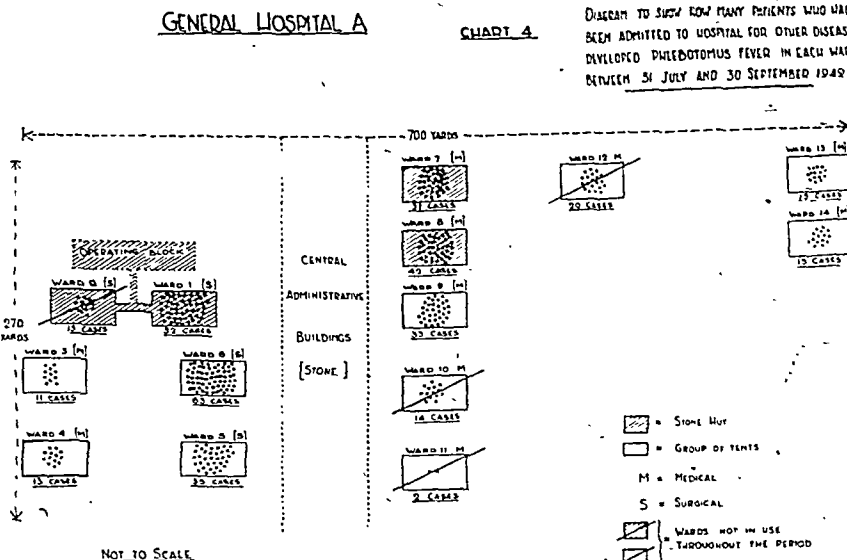
and, although it was largely tented and widely dispersed, there were some huts built of stone and the ground was stony. Much stone and rubble lay around and near the buildings. Where the incidence was greatest—around wards 1 and 6 and also around wards 8, and 9—the incidence of the disease was high. Where it was least—around wards 3 and 4 and particularly 13 and 14—it was low. This accords with the known habitat and the flight of the phlebotomus.

Clinical

The clinical picture was classical. One of us (E. R. C.) has seen many outbreaks of "short-term fevers," but none in which the symptoms and signs agreed so exactly with the standard descriptions.

CHART 4

DIAGRAM TO SHOW HOW MANY PATIENTS WHO HAD BEEN ADMITTED TO HOSPITAL FOR OTHER DISEASES DEVELOPED PHLEBOTOMUS FEVER IN EACH WARD BETWEEN 31 JULY AND 30 SEPTEMBER 1942.



was pain in the thighs and along the line of the ribs, or dysuria. When the patient reported sick the temperature was usually raised

incubation period in most instances was unknown. In a few there was reasonable evidence that it was as short as 3 days. Cases occurred exactly 3 days after men had arrived from another country.

The onset was usually abrupt with severe headache—particularly supra-orbital headache—pain in the back, and fever. There was pain behind the eyes, especially on movement of the eye. Sometimes the

to 102° or 103°, but occasionally the initial symptoms preceded the fever by 14 hours. Conjunctival congestion and pain on pressing the eyeballs were a common finding. The fever lasted from 1 to 8 days, but in most cases from 3 to 4 days. In about 10% there was a short secondary rise of temperature, usually about the 6th or 7th day. The initial temperature was sometimes over 105°, and the prostration was great. Many of the patients appeared very ill, and in a few instances the photophobia was agonizing. Drowsiness was sometimes pronounced, and in one patient the cerebrospinal fluid contained 110 lymphocytes per c.mm. and 90 mg. of protein per 100 c.cm. The colloidal gold test was negative. The disease was often followed by debility and depression. There were no complications and no deaths. Members of the hospital staff were usually off duty for 7 to 12 days and sometimes longer. Several senior N.C.O.s who had never been in hospital before were affected. Some of the patients who had previously suffered from malaria remarked that sandfly fever "knocked them out" far more than malaria.

The classical clinical picture and the known heavy infestation of the camp with the phlebotomus left the diagnosis in little doubt. The *Aedes aegypti* had not been seen, and dengue could be excluded. Neither malarial parasites nor spirochaetes were seen among the many hundreds of blood slides examined.

Immunity

It is sometimes said that one attack of sandfly fever confers a sound and lasting immunity. This is not our experience. It is true that both hospitals were newcomers to the district. Hospital B had recently arrived from England, and although Hospital A had been in the Middle East for a considerable time, it had been in a district where the disease was unknown among the staff. In the present epidemic 15% of the N.C.O.s and men had two attacks, and some had three attacks, during the three-months period, at intervals ranging from two weeks to three months. The initial symptoms of the later attacks were often as severe as those of the first attack, but the illness tended to be shorter. Between the attacks the men were on duty and felt fit. The attacks ceased abruptly at the end of October. It seems clear that second attacks were not relapses but fresh infections. It is possible that men succumbed to a fresh infection before immunity had developed or that a second attack was caused by a different strain of infection. It appears, however, that one attack conferred little or no immunity in this area.

Control

Antimalarial precautions were strictly observed by the personnel of both units. At Hospital B from September onwards all tents were "flitted" in the evening and half an hour before reveille. Men were ordered to be properly clothed until the sun was well up. These measures had little effect on the incidence of the disease.

At Hospital A an attempt was made to stem the tide of the epidemic among patients in hospital for other diseases. It was obviously impossible to deal with the breeding-grounds of the phlebotomus. This would have entailed concreting or asphaltting the whole site. Acting on the assumption that the phlebotomus starts biting at about 9 p.m. and continues until the sun is well up, the following measures were adopted early in September and rigorously enforced:

Every patient suffering from or suspected to be suffering from phlebotomus fever was nursed under a sandfly net day and night until he was afebrile. All other patients had their nets lowered from one hour before sunset until the wards had been "flitted" the following morning. Every ward and annexe (including latrines) was "flitted" three times a day—just before waking the patients, before the evening lowering of the nets, and at "lights out."

A glance at Chart 3 suggests that these measures had little or no effect on the incidence of the disease.

A suggestion was made that the infection might be controlled in the wards by burning pyrethrum powder throughout the night. The epidemic ceased, however, when this suggestion was made.

If there should be another epidemic in the future, it is proposed to carry out a controlled experiment, using the burning powder in two out of four tents in each group of tented wards.

SANDFLY FEVER AND THE RHEUMATIC SERIES

BY

R. L. FERGUSON, M.B., Ch.B.

Surg. Lieut., R.N.V.R.

The similarity between sandfly fever and influenza is generally known, though I have not heard of this fever being associated with the rheumatic series. Towards the end of the Sicilian campaign I had two cases of sandfly fever, and one case which, for want of a better diagnosis, I have named "pyrexia of rheumatic origin"; all three cases bore a remarkable similarity—so much so that I consider them worthy of record.

Case Histories

Case 1.—Diagnosis, sandfly fever. This patient, a leading stoker aged 22, went ashore in Sicily on the evening of Aug. 5, 1943, for recreational leave. On the evening of the 9th he reported to the sick bay, stating that he felt as if he had influenza. His temperature was 102° and his pulse rate 96. He complained of general stiffness of his limbs, intense pain behind the eyes, slight epigastric discomfort, and pain in his abdomen which radiated to the loins. He vomited twice during the evening, before reporting. On examination he was flushed, his conjunctivae were injected, and his tongue was furred. He was suffering from numerous insect-bites on his legs and trunk. His temperature slowly resolved, as is shown on the chart, and his symptoms abated with the diminution of fever. He was given 10 minims of tinct. opii three times a day, and tinct. iodi mistis to the insect-bites; he was also given A.P.C. tablets for the headache.

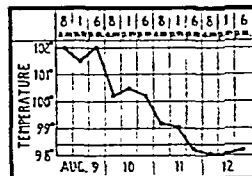


FIG. 1.—Temperature Chart of Case 1.

Case 2.—Diagnosis, sandfly fever. A leading stoker aged 24 went ashore in Sicily on the evening of Aug. 5, 1943. On the morning of the 11th he reported to the sick bay, complaining of intense supra-orbital headache and stiffness at the back of the neck and on the shoulders. He said that he had been feeling "off colour" for 24 hours previously. He complained of general lassitude and tiredness, but otherwise felt all right. His temperature was 101° and pulse 80. Towards the evening he sweated profusely, his face became swollen, and he suffered from severe conjunctivitis. He found difficulty in resting quiet in bed because of generalized aches and pains. There were a few isolated insect-bites on his trunk and legs, and he suffered from nausea and could not take his food. On the 13th the conjunctivitis cleared, but the headache persisted until the 18th. The generalized aches and pains in his limbs settled on the evening of the 15th, and from then on he appeared to be much better. He began taking his food normally, and finally was allowed up on the evening of Aug. 19, after eight days' sickness. He was treated with tinct. opii 10 minims b.d., aspirin and phenacetin aa gr. 5 S.O.S., luminal gr. 2, to help his insomnia.

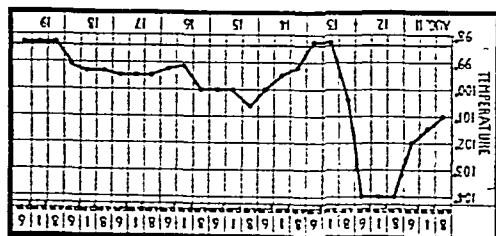


FIG. 2.—Temperature Chart of Case 2.

Case 3.—A leading seaman aged 20 reported to the sick bay on the evening of Aug. 11, 1943, stating that he was suffering from an influenzal attack; he had not been ashore for some time. He said that he had been feeling ill all day, but thought that he would

"try and stick it out." He said he suffered from aches and pains in his back and legs, especially in the muscles of the calf and in both knee-joints. He also had a severe frontal headache. He said that he had had rheumatic fever eleven years previously, and since then had suffered almost every year from similar attacks. In civilian life he went to bed and was attended by his doctor; the last attack was two years previously. On examination his temperature was 104.8° and his pulse 120. The only physical sign detected was a soft presystolic mitral murmur, which was not heard four days after the onset of the pyrexia. He was confined to his hammock and given mist. sod. sal. gr. 20 and luminal gr. 2. The following day he was given mist. sod. sal. gr. 20 and aspirin gr. 10 t.d.s. On Aug. 14 all medicines were discontinued, and he returned to duty quite well.

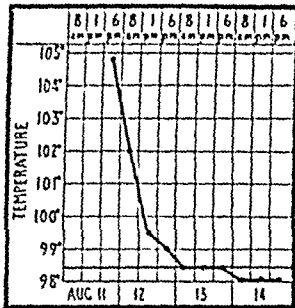


FIG. 3.—Temperature Chart of Case 3.

Owing to the exigencies of the Service at the time it was only possible to obtain blood films from each of the patients on Aug. 12, 1943, and examine them microscopically in a large ship, in order to exclude malaria or leishmaniasis; blood counts were not done. No parasites were seen in a careful examination of the slides. Paratyphoid, dengue fever, and influenza were all considered, and were rejected as improbable. Cases 1 and 2 were diagnosed as phlebotomus fever, and Case 3 as pyrexia of rheumatic origin. These patients suffered from intense supra-orbital headaches and generalized "rheumatic" pains, which varied in intensity. In all three cases there was absence of severe gastro-intestinal symptoms such as may be expected in the later stages of sandfly fever. The pyrexial period varied between 3 and 8 days. Bradycardia was not noticed in either of the cases of sandfly fever.

Conclusion

Case 3 resembled no particular syndrome with which I am familiar, but appeared to be related to the rheumatic series of diseases.

The cases resembled one another closely, and, by coincidence, occurred at the same time.

Cases 1 and 2 were diagnosed as phlebotomus fever because of the short duration of pyrexia, the presence of insect-bites, and the symptomatology. The fever, as is known, is caused by a virus introduced by the bite of *Phlebotomus papatasi*, which is present in large numbers in Sicily from May to October.

Almost constant "action station" routine caused the patients discomfort owing to the stuffy atmosphere in the ship, but it was possible to treat such cases of high pyrexia on board a destroyer provided that the patient was nursed efficiently.

According to Wenscher (*Dtsch. med. Wschr.*, 1942, 68, 984) neurological signs aid in the early diagnosis of typhus. The first indication is sudden high rise in temperature, accompanied by a typical and unusually stubborn headache which responds only slightly to analgesics. An additional sign is hardness of hearing, which occurs in almost all cases. If these signs are accompanied by speech disorders and the characteristic twitching of the perioral muscles the diagnosis of typhus exanthematicus is assured even without a distinct exanthema. Therapy consists in relieving the pressure. Apathy or restlessness responds quickly to lumbar puncture; circulation and respiration improve and the distressing headache disappears. Along with the essential support of the cardiovascular system, the main therapeutic concern is the prompt reduction of increasing pressure in the c.s.f. For this reason strophanthin should always be given in strongly concentrated glucose solutions, which exert a dehydrating action. After damage to the vasomotor and respiratory centres, the next most important danger is the occurrence of bulbar paralysis.

Medical Memoranda

An Unusual Form of Ectopia Testis

Sir John Thomson-Walker (1936) quotes Eccles (1903) as considering it extremely doubtful if the testis is ever spontaneously passed into the upper part of the thigh through the femoral ring. The following is the record of such a case.

Cpl. A., aged 43, was admitted to hospital with the diagnosis of right inguinal hernia. Seven years previously, while engaged in heavy work, he felt a sharp pain in the right groin followed by appearance of a lump; the swelling had remained there since. Examination showed a swelling the size of a hen's egg in the right groin, over the junction of the middle and inner thirds of inguinal ligament. The swelling was not reducible, felt cystic, was attached to the deep tissues. The right testicle was present on the scrotum, the left half of which was empty.

Operation showed the swelling to be an ectopic testis which descended through the femoral ring and canal, and had all coverings of a femoral hernia. A hydrocele was present; was aspirated, and the testis then made to retrace its path, femoral ring being exposed from above as in Lotheissen's operation. Dissection revealed a hernia of the congenital type, the neck of which was very narrow. The fluid in the sac had been restricted to the distal extremity by the constriction to the sac as it passed through the femoral ring, forming a hydrocele of the hernial sac. The spermatic cord consisted only of a fine bunch of vessels, the testicle itself being extremely atrophied.

Two interesting features are that the testis had passed through the femoral ring to gain the upper part of the thigh, and that both normal and ectopic testes were on the same side, the latter being justifiable that one testis found its way through the femoral ring because the normal passage through the inguinal canal was already occupied.

My thanks are due to Prof. R. C. Alexander, Surgical Director for the area, for permission to publish this case.

T. C. SKINNER, F.R.C.S.Ed
Surgeon, E.M.S.

REFERENCES

- Eccles, W. McAdam (1903). *The Imperfectly Descended Testis*, London.
Thomson-Walker, Sir J. (1936). *Surgical Diseases and Injuries of the Genito-Urinary Organs*, p. 844, London.

Recovery after 700-foot Fall

The following case would seem unusual enough to merit being placed on record.

CASE REPORT

A well-built paratroop pupil aged 25, weighing 11 st., was parachuting from an aircraft travelling at 80 m.p.h., at a height of 700 feet, into a 10 m.p.h. wind. Unfortunately, although the parachute came out of its pack, the canopy did not develop properly, with the result that the pupil landed some 10 seconds later on a ploughed field, dropping at a speed which must have been in the region of 50 m.p.h. When examined a few seconds later he was found to be still alive and just conscious. He was lying on his left side in a crouched position, with his knees drawn up towards his chin. The pulse rate was 70 a minute and weak, breathing was shallow and difficult owing to much mucus being brought up, and there was a small amount of thin yellowish fluid exuding from his right ear. Physical examination showed no obvious signs of fracture or paralysis. The pupils were equal and of normal size.

A "tubonic" ampoule (morphine hydrochloride gr. 1/3, atropine sulphate gr. 1/120) was given, following which he was put on a stretcher. A few minutes later he became very restless, and as he was now trying to move his arms and legs he had to be strapped securely to the stretcher during transit to hospital. Next day he looked very ill, but was cheerful and mentally clear, showing signs of disorientation or amnesia. He could move his arms and legs without difficulty and his excretory functions were normal. Two days later the improvement was so marked that he was considered fit for x-raying, when it was discovered that he had a compression fracture of the 12th thoracic vertebra. After immobilization in a plaster cast progress was satisfactory and uninterrupted.

COMMENTARY

Partial failure of a parachute is extremely rare and is almost as unique as this man's survival of the accident, which was undoubtedly an extraordinary escape, especially in view of the fact that all previous occurrences of this nature had resulted in instantaneous death either from multiple injuries or from fractured cervical vertebrae.

Reliable eye-witnesses of this descent were of the opinion that the degree of inflation of this soldier's parachute was slight and his fall so rapid that he could not possibly escape death. It is thought that he landed on one foot and fell six ways, thus preventing the full force of his landing being transmitted through the legs and spine to the base of the skull.

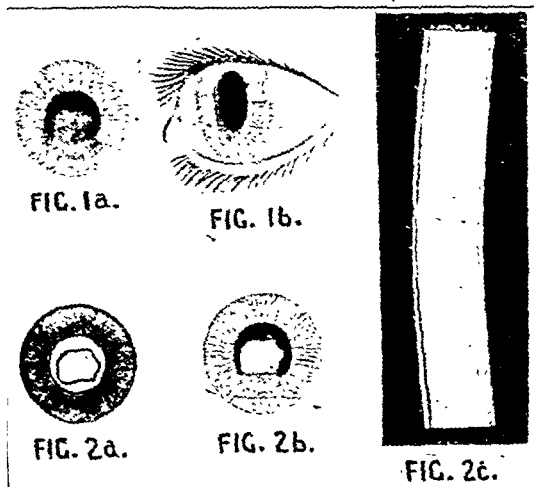
high would have resulted in a fracture in one or more of these places as in the other cases.

We desire to thank Squad. Ldr. J. D. Milne, R.A.F., and Major B. Davies, I.M.S., for permission to publish this case report. It would like to emphasize the co-operation between all the medical services concerned.

F. G. NEILD,
Capt., R.A.M.C.
C. M. MACKENZIE,
Flight Lieut., R.A.F.V.R.

Unusual Burn of Cornea from Molten Wax

Mr. H. Sewell Sims, of Palmer's Green, asked me to see a male patient whom he had attended the previous day. She complained of loss of sight after flicking out a lighted wax taper with which she had lit a gas stove, when she said some wax flew between the eyelids. There was no reaction to this foreign body, and the appearance of the cornea was quite normal till, on examination through a loupe, a perfectly transparent layer of wax was seen covering two-thirds of the cornea, which looked as if it had a contact lens lying on it. Until this was removed the cornea did not stain with fluorescein; afterwards approximately two-thirds stained, but the erosion was quite superficial. The wax was removed with a blunt instrument under cocaine, when the vision at once improved from one-tenth to one-third of full vision. Atropine and castor oil were instilled and the eye bandaged. The effects of the cocaine passing off, the eye wept profusely and was very painful. With the ophthalmoscope there was seen a fine line in the cornea, which marked the limit of where the wax had



rested. In spite of the extent of the lesion it had no depth, only the epithelium being affected. It is quite feasible that it acted as molten metals often do—forming a cast of the front of the eye, with a fine layer of protective vapour between. Usually, of course, the lids close so quickly that the cornea escapes injury.

Considering the risks that housewives run several times daily, it really is remarkable that injuries of a similar nature from splashes of boiling fat are not more common. Würdemann (1932) mentions boiling soap, fat, or lard as being possible causes of burns. Sir Stewart Duke-Elder (1938) makes no mention of this in his *Textbook of Ophthalmology*, though there is a diagram of a case of Mr. Doggart's which rather resembles this class of burn—a case of keratoconjunctivitis due to mustard gas. Haab (1909) has a plate in his *Hand-Atlas* showing a lime-burn of the cornea, which is more or less the same in appearance. Fuchs (1933) does not mention it.

Figs. 1a and 1b show the appearance after removal of the wax. Fig. 2a the line of demarcation, which, however, had entirely disappeared three days afterwards, when the eye was quiet and the vision normal again. Figs. 2b and 2c show the area stained by fluorescein. On the third day there was no staining, and the lesion had healed.

SYDNEY TIBBLES, L.R.C.P.S.E.,
Late Refractorist, Royal Hospital, Richmond.

REFERENCES

- Duke-Elder, Sir Stewart (1938). *Text-Book of Ophthalmology*, 2, 1713, London.
Fuchs, H. E. (1933). *Diseases of the Eye*, 10th Ed., Philadelphia.
Haab, O. (1909). *Atlas of External Diseases of the Eye*, Philadelphia.
Würdemann, H. V. (1932). *Injuries of the Eyes*, 2nd Ed., St. Louis.

Reviews

FRACTURES

Pictorial Handbook of Fracture Treatment. By Edward L. Compere, M.D. F.A.C.S., and Sam W. Banks, M.D. (Pp. 351; illustrated, 275) Chicago. The Year Book Publishers; London H. K. Lewis and Co. 1943.

Fractures. By Paul B. Magnuson M.D. F.A.C.S. Fourth edition, revised. (Pp. 511; illustrated 308.) London. J. B. Lippincott Company. 1943.

It is noticeable that the large number of textbooks on fractures which have appeared within recent years coincides with improvement in the results of treatment which has come about following segregation under specially trained staffs. Not all fractures, however, can be dealt with in special units, and it is necessary for both general surgeons and practitioners to be familiar with the most effective methods of reduction, fixation, and after-treatment. The scope for textbooks of fracture treatment is therefore wider than ever. The *Pictorial Handbook of Fracture Treatment* needs no apology such as we find in the preface. It is an excellent little manual and the pictorial part is particularly good—e.g., Fig. 130, p. 265, illustrates the method of production as well as the stages of treatment of "bumper" fractures; while Fig. 151, p. 295, depicts the way in which Colles's fracture and fractures of the os calcis and lumbo-dorsal part of the spine are produced. Fig. 163, p. 313, claims to depict Böhler's method of reducing a flexion compression fracture in the dorsal spine, but the credit for this method of treatment should, we believe, be given to Watson-Jones of Liverpool, and it is not usually desirable to anaesthetize the patient. Fractures of the patella are well done—it is pleasing to notice that the author does not support a recent radical and quite unjustifiable tendency to excise the simple transverse variety. Fractures of the skull may be thought to be rather briefly dealt with, but these fractures usually constitute a minor part of head injuries calling for treatment, and the surgical treatment—as opposed to first-aid treatment—of skull fractures may reasonably be considered to be beyond the ambit of this book. The book can confidently be recommended as a modern and well-illustrated outline of fracture treatment.

Like most new and the recent editions of older textbooks of surgery which have appeared in the last few years the fourth and latest edition of Magnuson's *Fractures* shows the influence of the war, and efforts have been made by the author to render the book more useful to surgeons in the Services. It is not surprising, therefore, that the principal additions deal with transportation and the early treatment of compound fractures. Written clearly in rather dogmatic style and well illustrated by line drawings and x-ray photographs this textbook is a straightforward guide which should be particularly helpful to medical students, practitioners, young surgeons generally, and Service medical officers. The line drawings, of which there is an abundance, appealed to us especially, as they indicate very clearly the steps in treatment of particular fractures—e.g., the method of reducing supracondylar fracture of the humerus (Fig. 5, p. 101)—a series of drawings showing the manipulations necessary and the reason for them. We are glad to find that the term "Pott's fracture" is still used despite a recent tendency noticed in some quarters to discard it. We disagree with the statement (p. 429) that "every patient with a skull injury accompanied by coma should be kept flat in bed at all times for a minimum period of two weeks." Nursing these patients with the head raised lowers intracranial venous congestion and has proved more effective; but in general the sections on skull fractures and their complications and those on fractures of the spine are as well done as the remainder and bulk of the book. Of the recently published books on fractures—of which there has been almost a spate—this is certainly one of the best.

FOOD POISONING

Food Poisoning: Its Nature, History and Causation; Measures for its Prevention and Control. By Elton B. Dewberry. Foreword by Gerald R. Leighton, M.D. In three parts, with appendices. (Pp. 166; illustrated, 151.) London: Leonard Hill Ltd. 1943.

Food poisoning is a complicated and extensive subject, but within 180 pages the author has covered its main features. The book is severely handicapped by being a compilation from other sources and not by an author who has himself investigated

the various problems involved. In many cases the original papers have not been consulted, while the views quoted may require modification, even by their authors, in the light of new experience.

The book is clearly written and arranged, while the numerous photographs of the chief workers in this field add to the interest. On the whole it has a high degree of accuracy, and its chief defect is some inequality of treatment. Botulism is given a very extended description, but, in particular, the author fails to realize the importance of staphylococcus food poisoning, and his description—confined to some three pages—is entirely inadequate and gives very little information. He also fails to draw the fairly sharp distinction which occurs in practice between outbreaks due to the ingestion of living bacteria and those in which the symptoms are of the toxin type. The distribution of *Salmonella* organisms in the animal kingdom is dealt with, but a great deal of importance is omitted, although this is of very great significance in connexion with the causation of food poisoning. The same importance attaches to the distribution in Nature of the various strains of *Salmonella* and the distinctions between the types, and very little information is given on this head.

In addition to bacterial food poisoning, chapters are devoted to contamination of food by poisonous metals, poisonous plants, poisonous fish and shellfish, and food allergy. In an appendix is reproduced the Ministry of Health's memorandum on steps to be taken by the M.O.H. when food poisoning occurs, with the Ministry's note on the identification of *Salmonella* types.

While the book can be read with profit and pleasure as a useful and generally reliable guide, it does not give a complete picture of the true incidence and relationship of the various organisms which can cause food poisoning.

A MEDICAL BIBLIOGRAPHY

A Medical Bibliography. A Check-list of Texts Illustrating the History of the Medical Sciences. Originally compiled by the late Fielding H. Garrison, M.D., and now revised, with additions and annotations, by Leslie T. Morton. (Pp. 412. £2 10s.) London: Grafton and Co. 1943.

Mr. Leslie T. Morton, librarian at St. Thomas's Hospital Medical School, has done signal service for all who use medical books by bringing up to date in an independent volume Garrison's remarkable list of historical texts. Thirty years ago the late Dr. Fielding Garrison compiled this list as "a convenient scaffolding" for his now famous *History of Medicine*. But with characteristic modesty he included it in the *Index-Catalogue of the Surgeon-General's Library*, of which he was an official. It has been an unfailing resource to those lucky enough to know it, and it gained slightly wider publicity when he revised it for the *Johns Hopkins Bulletin of the History of Medicine* in 1933. Even so it bore the signs of his wayward genius, and Mr. Morton's edition is a marked improvement in convenience. Garrison's introduction, a thumbnail sketch of his purpose such as only he could write, is missing, but the features repay this loss. First, Mr. Morton's revision has a logical classification and sound indexes, so that the inquirer is not mystified and delayed as he was by Garrison's arrangement. The specialist will find under his subject a neat chronological purview of the outstanding contributions, both books and journal articles. Thus reports on penicillin and sulphamezathine stand at the end of a pedigree deriving from Theophrastus; while Roentgen's paper "On a New Kind of Rays" heads sixteen items on diagnostic roentgenology. Garrison's section of "Original Accounts of Important Operations" was interesting, but each item from it is now properly under its special subject. Then Mr. Morton has added notes to the majority of his entries, much increasing the usefulness of the list. And he has sifted Garrison's compilation and added perhaps a quarter of the 5,500 items, not merely modern references but also filling gaps in the historical material.

Notes on Books

Dr. HOWARD CHARLES BALLENGER'S *Manual of Otolaryngology, Rhinology and Laryngology* was based on the well-established textbook originally written by the late Dr. Lincoln Ballenger. It was intended for students and for those practitioners who need a general survey of the subject. In preparing a second edition for the press (Henry Kimpton; 21s.) Dr. Howard Ballenger has carried out a good deal

of revision, making some changes in arrangement and many additions and amplifications of the text to bring it into line with present-day knowledge and practice. The chapter on paralysis and neurosis of the larynx has been revised and partly rewritten by Dr. John Ballenger. A new chapter, on foreign bodies in the air passage and tracheotomy, describes the technique for tracheotomy, because this is often an emergency measure and as such may be included in undergraduate teaching and in a text for the general practitioner.

The British Association in 1942 formed a committee for the consideration of scientific research on human institutions, with the following terms of reference: "To consider how the results of scientific research on human institutions and human needs at their interrelations can best be co-ordinated and brought to bear on the formation of public policy." The committee's report appeared in the August number of *The Advancement of Science*, and is now obtainable as a pamphlet (6d., or with postage 7d. from the British Association for the Advancement of Science, Burlington House, London, W.1. The main conclusion is that there is urgent need for the setting up of a British Council for the Social Sciences, independent of the Government, with permanent secretary.

The *Handbook of Tuberculosis Schemes in Great Britain and Ireland*, 1943 edition, containing up-to-date particulars of tuberculosis dispensaries, medical officers, institutional accommodation and other details of the tuberculosis schemes of counties and county boroughs, is now available. A list of branches of the National Association for the Prevention of Tuberculosis is also given. Copies may be obtained from the Secretary-General, N.A.P.T., Tavistock House North, Tavistock Square, London, W.C.1, price 5s., post free.

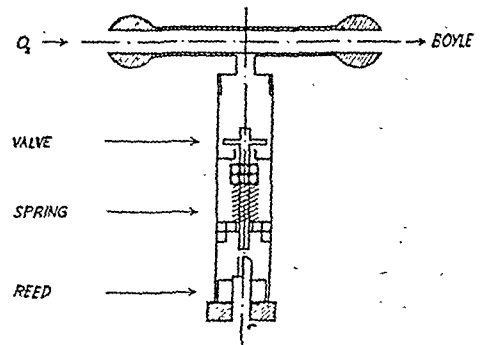
Preparations and Appliances

AUDIBLE WARNING OF EMPTY OXYGEN CYLINDER

Dr. MASSEY DAWKINS writes:

Modern anaesthetic apparatus is very nearly foolproof, but there remains the ever-present danger of failure of the oxygen supply. This is particularly the case when working in a darkened theatre, owing to the difficulty of observing the flowmeter. To overcome this a simple piece of apparatus has been devised which gives out a loud warning note when the cylinder is almost empty.

The device consists of a compact unit which can be introduced into the gas tubing conveying oxygen from the cylinder regulators to the flowmeter on a Boyle's anaesthetic apparatus. The attachment is effected by dividing the single common tube which connects both regulators to the flowmeter, and joining the cut ends by the connecting tube of the warning unit. The shut-off pressure of the regulators is usually in the region of



5 lb. per sq. inch, and at this pressure a valve which permits the oxygen to pass through the warning reed remains closed, preventing loss of oxygen, while the supply to the flowmeter is satisfactory. When the pressure falls to a low volume, a spring forces the valve seat off a nipple and the oxygen passes through the reed, causing an audible warning note which indicates the imminent need to change to a fresh cylinder. Then tension of the spring is adjustable to allow the device to operate at any suitable pressure.

The unit works very well in practice and gives a great feeling of safety. It can, of course, be used for nitrous oxide, cyclopropane, etc. The experimental work and the construction of the original model were carried out by Mr. P. A. Toller, L.D.S., of the Royal Dental Hospital, to whom I am greatly indebted. The finished instrument was made for me by Medical and Industrial Equipment, Ltd., of 12, New Cavendish Street, W.1. Thanks are due to Mr. E. Pories for the drawing.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY OCTOBER 30 1943

MISREPRESENTATION

Some people appeared to expect that the Annual Representative Meeting last month would be a stormy one, and that, faced with the threat of a whole-time salaried State Medical Service, representatives from different parts of the country would so far forget the patient as to put the doctor first in their discussions. But the meeting, handled with admirable tact by its Chairman, Dr. Peter Macdonald, showed very plainly that it did not come to discuss matters of the highest importance to medicine in a spirit of narrow partisanship. No doubt Dr. G. C. Anderson's address, "Evolution, not Revolution," printed in the *Supplement* of Sept. 4, page 29, had had a sobering effect. The discussions were conducted in a spirit of realism, and with an evident desire among the participants to be constructive in their approach to the problems of medicine in the future. The most noteworthy event of the proceedings was the Presidential speech of Lord Dawson, who put into words of wisdom what are the thoughts and aspirations of that large majority of medical men who see in medicine something more than a means of earning a living.

It was therefore most disturbing to read in the daily and weekly lay press obvious misrepresentations of what had actually been said and resolved. It was clear that propagandists of various views were getting busy and, like some propagandists, were being unscrupulous. The whisper went round, "The B.M.A. is anti-Beveridge"—and in these days it appears that this is the worst one can say of anybody.

So that these misrepresentations may be countered we are printing in this week's *Supplement* a series of statements submitted to, modified and approved by the Representative Body. These give the lie direct to the current accusation that the B.M.A. is "anti-Beveridge." It is as well to recall that Sir William Beveridge said that the problems of organizing a medical service were outside the scope of his report; so he suggested that an investigation should be made into the ways of financing and organizing the medical services. In a leading article earlier this year¹ it was made plain that the B.M.A. offered to co-operate with the Government in achieving the ideal aimed at in Assumption B, but stressed that the report should be acted on as a whole. Not only has the medical profession not set its face against the Beveridge report but it has insisted even more forcibly than many other sections of the community upon the need for securing the individual against the devastating effects on mental and physical health of poverty and of economic insecurity. Perhaps no group of men and women in the community has a more vivid picture than the medical profession of the crippling physical and moral effects of bad housing, insufficient and ill-chosen food, lack of facilities for healthy mental and physical recreation, faulty industrial conditions, and insufficient medical supervision of the man at work and of the

conditions under which he works. Knowing all these things, the medical profession has become highly suspicious of what appeared to be an attempt on the part of the Government to change the structure of medicine instead of getting on first with the job of improving the conditions of life and work of the people. Not only that, but there appears to have been little willingness to attend to those parts of the medical structure which in the opinion of doctors are in urgent need of repair. The B.M.A. is not anti-Beveridge. And Beveridge, we might point out, in looking for a definition of the objects of a medical service, adopted the definition in the Draft Interim Report of the Medical Planning Commission—namely, "(a) to provide a system of medical service directed towards the achievement of positive health, of the prevention of disease, and of the relief of sickness; (b) to render available to every individual all necessary medical services both general and specialized and both domiciliary and institutional."

The majority of doctors are not satisfied with existing medical services, and in fact have expressed their dissatisfaction, and set forth their proposals for reconstruction, now for a number of years. The revised version of the B.M.A.'s scheme for a general medical service for the nation, published in 1938, and the Draft Interim Report of the Medical Planning Commission published in 1942, are witnesses to this. What has been proposed stands there on record. Unfortunately controversy over the Beveridge report—published after the Draft Interim Report of the Planning Commission—has obscured many of the issues; and to some observers not the least part of this obscurity has come from medical men who have seized the opportunity to make these matters an issue of party politics. It seemed, therefore, that an attempt might be made to reach decisions about the future organization of medicine which would be based upon political expediency, and that the really difficult problems of the medical services would not be approached in an atmosphere free from influences which many doctors have come to distrust.

The medical profession is conscious of the need for reform. It has indicated some of the directions in which reform should move. The great majority of the profession believe that experiments should be made before even a working hypothesis is reached. They consider certain matters to be indispensable to the successful treatment of the sick individual. They do not believe that forms of service suitable for the control of environmental medicine and the prosecution of preventive medicine are fitted to individual medicine. They believe that a whole-time salaried State Medical Service would harm the interests of the sick person. They believe, in fact, that the evolution of medical treatment provides the unassailable argument against a whole-time salaried State Medical Service. But this view precludes further developments in the practice of individual medicine. In fact doctors recognize that the whole trend of medical science makes such evolution inevitable. If all these matters are taken into full account in the White Paper soon to be issued, and if the Government is prepared to discuss its proposals with the medical profession in a spirit of true inquiry into the facts and not on the basis of decisions already arrived

¹ *British Medical Journal*, Feb. 18, 1943, p. 193.

at, then we feel sure that in the give-and-take of debate medical men will co-operate whole-heartedly in trying to solve the problem of how to maintain and improve the health of the people.

THE RICKETTSIAE

War and famine are usually accompanied by pestilence, and it will be surprising if the latter fails to play a part in the present world tragedy. Apart from influenza, louse-borne typhus fever probably presents the gravest menace; indeed *Rickettsia prowazeki*, its causative organism, has already given indications of its readiness to take a hand in the game. It is of some importance that we should not allow ourselves to be lulled into a false sense of security by our remarkably good health record to date or by the long freedom from epidemic typhus which this country has enjoyed; we may yet have urgent need of all the knowledge about the rickettsiae which research workers have laboriously acquired. The rickettsiae, as is well known, cause many diseases of both man and animals, apart from louse-borne typhus, and many species are simply harmless intestinal parasites of arthropods—e.g., lice, bugs, mites, ticks, and fleas. The trench fever of the last world war was almost certainly a rickettsial disease; so are Q fever of Australia and Rocky Mountain spotted fever; and it is highly probable that rickettsial agents of many endemic fevers in all quarters of the globe remain to be discovered. By far the most important, however, are the typhus group of fevers, and of these louse-borne typhus holds pride of place because it is the only rickettsial disease, except possibly trench fever, which is primarily a disease of man and hence liable to assume epidemic or even pandemic proportions. Other members of the group, transmitted by mites, ticks, and fleas, have animal reservoirs and tend to remain endemic so far as man is concerned, but there is evidence that flea-borne murine typhus, which has occurred within recent years in Great Britain, may mutate to the classical epidemic form provided that opportunities exist for its transmission through lice. The revelations of Kenneth 'Nanby' concerning the frequency of louse infestations are not without significance in this connexion. It is extremely unlikely that a major epidemic will originate in this country, but conditions in parts of Europe and Asia are becoming ideal for an explosive outbreak, and M. D. Mackenzie² holds the view that widespread movements of population, by introducing the disease into a typhus-free region, may be a factor equal in importance to famine and overcrowding.

There is now little doubt that the rickettsiae are living and reproductive micro-organisms. Akin to the bacteria in some respects and to the viruses in others, they constitute a sort of biological connecting group. They are not filterable in the bacteriological sense, and are visible by ordinary microscopy, especially when stained; moreover, the recent application of electron microscopy to the morphological study of several species has revealed an organized structure within a limiting membrane.³ Like the viruses, however, they have so far eluded all attempts

to cultivate them on lifeless media, and some species appear to be obligate intracellular parasites. Fortunately *R. prowazeki* can be grown in the yolk sac of the chick embryo and in the lungs of infected mice, and both these methods of obtaining large quantities have been applied to the production of vaccines. It is too early yet to say whether the immunity they engender affords satisfactory protection against natural infection. So far only Weil vaccine, prepared from the intestinal contents of infected lice, has yielded satisfactory evidence of efficacy in the field, and this method presents too many difficulties for large-scale vaccine production. The problem of immunization is one of great urgency, for as yet we possess no chemotherapeutic agent capable of influencing the course of the disease; the sulphonamides are quite useless and may actually be harmful.

As regards diagnosis we are on firmer ground. The curious antigenic relationship which exists between rickettsial species of the typhus group and certain strains of *Proteus* has provided a means of easy and rapid laboratory diagnosis. A sporadic case of typhus fever may be impossible to diagnose on clinical grounds, but the Weil-Felix reaction on a sample of the patient's serum, taken towards the end of the first week of illness, will almost certainly give a definite answer. In view of the exceptional importance of the disease at the present time it is far better that the doctor should submit a score of negative sera for laboratory tests than that he should omit to send a single positive one.

INDUSTRIAL HEALTH IN 1942

The Annual Report of the Chief Inspector of Factories contains its usual review on industrial health. It is made by Dr. E. R. A. Merewether, who has succeeded Dr. J. C. Bridge in the office of senior medical inspector. Dr. Bridge succeeded Sir Thomas Legge in 1927, and under his leadership the number of medical inspectors increased to 13. There is little doubt that the prospective growth of medical supervision in industry will entail further increases of staff. As Dr. Merewether points out, the experience of factory life and knowledge of industrial processes clearly indicate the importance of preventive measures in maintaining industrial health, and the success of the measures now in force is suggested by the fact that the health of industrial workers in general, in spite of their arduous labours, shows little sign of regression. Dr. Merewether inclines to the view that mental fatigue, or more properly staleness, is increasing, though it cannot be traced in sickness records; but on the other hand it is encouraging to note that the incidence of certain specific diseases and poisonings is diminishing. This must be due in part to the growing recognition of the importance of adequate diet and the increased provision of canteens, and another factor is the great increase in the number of works medical officers who now total about 850, and of hospital-trained nurses who have risen to about 6,000. One of the most satisfactory improvements relates to dermatitis in filling and explosive factories. A very substantial drop was noted in the number of dermatitis cases due to T.N.T., tetryl, and other explosives, owing to strict supervision of ablutions, the correct application of barrier substances, the gradual elimination of specially susceptible workers, and the mechanization of many processes.

¹ *Med. Officer*, 1941, 65, 39.

² *Proc. roy. Soc. Med.*, 1941, 35, 141.

³ *J. exp. Med.*, 1943, 77, 355.

A novel feature in the report for 1942 relates to the use of radio-active substances, which has so greatly expanded owing to war requirements, chiefly for luminous dials of instruments. Several hundred "luminizers" were examined more than once during the year, but no evidence of a true aplastic anaemia was found. The Factories (Luminizing) Order came into force in May, 1942, and under it various preventive measures, which had for the most part been voluntarily observed for a number of years, became statutory requirements. Furthermore, the hours of work of the luminizers were limited, and workers under the age of 16 were prohibited. Another legal procedure came into force under the Workmen's Compensation Act, 1943, when the provisions of the Act of 1930 relating to workmen suffering from any form of pneumoconiosis were extended so as to include the condition of the lungs known as "dust-reticulation." This condition had been described in detail only a year before in the Medical Research Council report on chronic pulmonary disease in South Wales coal-miners, and its recognition is doubly important as it may result from exposure to the inhalation of dusts other than coal dust. Of the specific diseases and poisonings notified under Section 66 of the Factories Act, lead poisoning in 1942 showed a slight rise on 1941, but the cases of aniline poisoning (mostly due to T.N.T.) decreased from 249 to 204, whilst the cases of toxic jaundice decreased from the 44 (13 fatal) observed in 1941 to 27 (6 fatal). Cases of epitheliomatous ulceration fell from 128 (11 fatal) to 113 (8 fatal), and of chrome ulceration from 103 to 89. The reported cases of gassing showed a slight fall on 1941, the fatal cases being much fewer (25 against 41).

Industrial health is inevitably influenced by hours of employment, and this subject is discussed by Miss F. I. Taylor, a deputy chief inspector. During 1942 the hours worked by young persons were subjected to a detailed inquiry, and to this end inspectors visited all the factories in certain areas in London, Birmingham, Liverpool, Glasgow, and other centres. The average results obtained are more satisfactory than many social workers had supposed, for it appeared that of young persons aged 16 and 17 85% of the males and 89% of the females were working 54 hours a week or less; 56% of the males and 65% of the females were working 50 hours or less; and 48% of the males and 55% of the females were working 48 hours or less. Of the boys and girls aged 14 and 15, 30 and 37% respectively were working 44 hours or less, and the remainder (except for a very small number of illegal cases) for 44 to 48 hours. The inspectors also reported that the tendency during the year was towards a reduction of the hours worked by adult women and men, but no statistics are given.

PHOSPHATIC RENAL CALCULI

The problems presented by phosphatic renal calculi, frequently bilateral, demand the closest co-operation between the biochemist and the clinician. In seeking for the cause of the stones the factors of stasis and infection in the renal pelvis must never be overlooked, however important the underlying metabolic error may be; and when considering their treatment these two factors always need attention, whether or not the metabolism also can be corrected. Since the large branched stones which fill the pelvis and calices are commonly composed of calcium phosphate, often with the admixture of calcium carbonate and ammonium magnesium phosphate, and since they form in alkaline urine, an obvious method of tackling the problem is by dietetic and medicinal measures designed to make the urine acid enough to dissolve the stones. There seems little doubt that the stones vary in their consistency, and the successes

reported by this method have probably been obtained when the stones have been comparatively soft and less compact. The harder stones may still remain undissolved, and call for a more direct method of attack. The operation of nephrolithotomy under these conditions is fraught with so many dangers that any alternative must be carefully considered; and the method of dissolving the stones by instilling solutions of pH as low as 4.0 into the renal pelvis, as described by Suby and Albright, deserves an extensive trial. In their most recent paper¹ on the subject they quote some cases in which the solution was introduced through a nephrostomy wound, while in others no operation was performed but the renal pelvis was irrigated through a ureteric catheter. By such direct approach, of course, the stones may be continually washed over by fluid which is more acid than the urine can be made by diet or drugs. Their earlier attempts to make a solvent resulted in solutions which, though isotonic, were very irritating to the mucosa of the urinary tract; but the discovery that the addition of magnesium ions reduced this irritation led them to adopt a specially prepared solution containing citric acid, magnesium oxide, and sodium carbonate. Even this fluid damages certain bladders, and therefore they devised and now describe in detail an ingenious arrangement whereby intermittent irrigation of the renal pelvis is combined with continuous drainage of the bladder. As the fluid must be introduced through the ureteric catheter every 5 to 10 minutes for several weeks the treatment demands that a nurse shall be constantly in attendance. Even after dissolution of the stone the problem of recurrence has to be faced, but dietetic and drug treatment may be expected to control the reaction of the urine sufficiently to prevent further stone formation. The authors lay stress upon the value of air pyelography for determining whether a stone is in contact with the renal pelvis. They also quote one case in which their method was only partially successful—an outer layer of phosphate was dissolved, leaving the oxalate core unaltered—in order to point out that such stones, unsuitable for this method of treatment, should be recognizable radiographically.

THE PARENT IN THE DOCK

Juvenile delinquency, having reached really menacing proportions, is beginning to stir a faint alarm even in the British public. We received a very ugly shock at the reports—they could not be silenced because they were so many—which came from every country district about the appallingly neglected state of children evacuated from the towns. It has long been a platitude in child guidance clinics that the real problem of a problem child is the parents. Nevertheless, a pamphlet by Dr. L. G. Housden² is probably the first attempt to deal with juvenile delinquencies and other shortcomings from the point of view of the parents, and to assess the extent to which parents are to blame. It is founded on a series of lectures delivered in various parts of England with the object of drawing the attention of the responsible authorities and of the general public to the unnecessarily low standard of child welfare in Great Britain. It is published under the auspices of the National Association of Maternity and Child Welfare Centres and for the Prevention of Infant Mortality. Dr. Housden draws a vivid picture of the "horrible" children of the evacuation, and incidentally of the obscurantist attitude of the authorities. The juvenile delinquents he passes over with bare mention, for he has no need to add anything to our knowledge of that unhappy section. The mismanaged

¹ *New Engl. J. Med.*, 1943, 223, 1.

² *The Parents' Responsibility for their Children*. By Leslie George Housden, M.D. Eyre and Spottiswoode. (3s. 6d.)

child, the victim of the low moral standard of its parents, he studies at greater length, as he does the "ailing children" who are reared on purgatives and quack medicines. The cause of all these ills he regards as our general failure to train parents in child care. This is the cure he advocates, and in doing so he brings much evidence of the success of the attempts that have already been made. He appends a syllabus of courses in mothercraft and home-making (the current alternative to the term "fathercraft").

"THE OPPONENTS OF THE MEDICAL PROFESSION"

This is the heading to the first page of the first *Bulletin* issued by a body which describes itself as "Medical Policy Association (London)." The secretary of this association is Dr. Basil Steele, and the other active members whose names we know of, as they conjointly signed a letter to the Secretary of the B.M.A. earlier this year, are Mr. A. Rugg-Gunn, Mr. Bryan Monahan, and Dr. Russell V. Steele. The aim of this new body is to oppose the introduction of a State Medical Service—a laudable enough aim. It wants to preserve freedom for doctors as individuals: well and good. But it approaches these objects from a theoretical standpoint that will disturb those who wish well of the medical profession. The present situation of the medical profession, the *Bulletin* says, is "essentially a struggle, linked with a general struggle involving the whole of society." It then takes as its text some observations of a Dr. Tudor Jones. According to Dr. Tudor Jones, "The present century has seen the rise into prominence, despite every effort to maintain secrecy and to preserve the appearance of spontaneity, of a vast chain of interlocked organizations, possibly, and indeed probably, inspired from a common source, which pursue a long-term policy." The *Bulletin* lists as "some agents of the general policy": the Fabian Society, the Labour Party, the London School of Economic and Political Science, Political and Economic Planning (PEP). These are the "opponents." The *Bulletin* says that the London School of Economics teaches "strictly orthodox financial tenets, and produces economists who are subsequently employed by the great financial institutions. This fact is the clearest possible evidence of the nature of the threat to society." It all apparently goes to prove the "closest connexion between high finance and Socialism," and the curious complaint is made that those who control the "central financial institutions" are campaigning "to replace control through finance by control through law." The burden of their complaint soon becomes clear in this statement: "The personnel in ultimate control will of course be those at present in control of international finance—the Warburgs, Schiffs, etc." Hasn't something like this been heard before in the eegophonic tones of a broadcaster from a European station? There is an ominously familiar ring about it. In taking a few potshots at PEP our self-appointed medical pamphleteers go out of their way to refer to the position of Mr. Sieff in Zionism. Then they harp once more on the "central connexions" of these movements—that is, the movements of the "vast chain." The "central connexions" are traced to such people as "the Brothers Warburg, Jews who went from Germany to America," Rothschild, Sassoon, Schuster, Schiff, etc.

Fear that these doctors may be introducing anti-Semitism into propaganda for their "medical policy" unfortunately finds support in a subsequent reference in the same *Bulletin* to those well-known forgeries the "Protocols of the Learned Elders of Zion." "There is no doubt that they [the Protocols] are effective plans (i.e., for the complete domination of the world), written with deep understanding

of human psychology," state these would-be discoverers of a world-wide conspiracy. According to a report in an evening paper of an interview with Dr. Basil Steele, Mr. Rugg-Gunn, and two other unnamed medical men, these men said: "We are not against the Jews. We are against Jewish Fascism—international financial control by the Jews." This savours very much of the use of that abominable propaganda device of anti-Semitism to which we have been the painful witnesses in Germany for the last decade, part of something against which Great Britain has been pitting her whole strength for just over four years. We feel strongly that methods such as these are to be deprecated and must, particularly at the present time, tend to injure the cause of the profession.

MORE BACK NUMBERS WANTED

Ten weeks ago we printed an appeal to members who did not preserve the *Journal* for binding to send their copies (preferably in bulk) to B.M.A. House, Tavistock Square, W.C.1, addressed to the Secretary of the Journal Board, who will repay the cost of carriage. The response to this invitation has not been as large as we hoped for, but some members who intend to act upon it may be waiting until they have accumulated a substantial pile of recent *Journal*. There is a constant demand for back numbers from libraries, medical institutions, and other sources at home and abroad, and each issue goes quickly out of print hence any spare copies published during the war will be welcome, both for present purposes and to set aside for the reconstruction of medical and scientific libraries in countries now overrun by the enemy. The steady growth in membership of the B.M.A. to a figure well above 44,000 has increased the circulation of the *Journal* by 14% in the past five years, because every new member must have his weekly copy. Since April, 1940, there have been very severe and progressive cuts in the amount of paper allowed to be used for printing. A member who returns his copies at any time after reading them will by so doing put them back into circulation through the Head Office for the benefit of others, including the newly qualified who are joining the Association in large numbers. The help thus given will be much appreciated in these days of increasing difficulty.

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* have been printed. They will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who wishes to have one or both of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Accountant, B.M.A. House, Tavistock Square, London, W.C.1. Those wishing to receive the indexes regularly as published should intimate this.

Sir Henry Bashford has been appointed Medical Adviser to the Treasury. We understand that his duties will be to advise all Departments of the Civil Service on the environmental aspects of health, especially the effect of working conditions on health and fitness. Sir Henry's experience at the Post Office will no doubt enable him to extend to the Civil Service generally the admittedly able system of keeping accurate sick records so long employed by the Post Office, which has made it possible to undertake and publish various long-distance and large-scale observation on industrial health. Sir Henry's task will essentially be that of preventive medicine—the task of keeping the workers well and free from sickness. The Civil Service now has its own doctor, and in appointing Sir Henry Bashford the Treasury could not have made a happier choice.

TWO REPORTS FROM THE R.C.P.

The Royal College of Physicians of London publishes to-day two reports by special committees which are to some extent complementary and should be considered together. The Social and Preventive Medicine Committee was appointed on April 30, 1942, and has met on nine occasions. The Committee on Psychological Medicine was appointed on Oct. 29, 1942, to consider and make recommendations on (1) the training of consultants and others specializing in psychiatry or neurology; (2) conditions of recognition as a consultant in this specialty; (3) the undergraduate curriculum on psychological medicine and related subjects; (4) the future development of psychological medicine. It has met on seven occasions.

Social and Preventive Medicine

The interim report by the committee on this subject is a document of 32 pages, in which are set out the committee's views on the training of medical students and nurses in social and preventive medicine. It also suggests some of the ways in which an appreciation of the conception inherent in that term could improve the services of the medical profession to the community. The changes suggested are in no sense revolutionary; they represent merely a natural growth resulting in a change of emphasis from curative to preventive. To attain the aims outlined in this report the committee makes the following recommendations:

- (i) That every medical school should establish a Department of Social and Preventive Medicine, the size and scope of the department depending upon the facilities and personnel available.
- (ii) That this department should organize a modernized course in social and preventive medicine to replace the present course in public health, which, as in the clinical subjects, should be a curriculum founded securely on the basic sciences, growing and expanding through the three clinical years.
- (iii) That as well as theoretical teaching such a curriculum should bring the student into close touch with the active organizations in the community concerned, particularly with social and preventive medicine—namely, the health services provided by the local authorities, and the almoner's department within the hospital.
- (iv) That all medical schools should recognize the importance of problems associated with industrial medicine.
- (v) That student health services should be available in every medical school, and that under the general direction of the head of the department of social and preventive medicine they should be used as an instrument of teaching.
- (vi) That all teaching hospitals should employ properly trained almoners and psychiatric social workers, both in the care of patients and in the teaching of students.
- (vii) That the Royal College of Physicians should take an active interest in the organization of the teaching of social and preventive medicine, not only to medical students, but also to nurses and medical social workers.

Undergraduate Education in Psychiatry

The interim report of the Committee on Psychological Medicine deals with the subject of the third term of reference only—viz., the undergraduate curriculum on psychological medicine and related subjects. It is issued at this stage with the qualification that it is proposed to embody it later in the full report, and it may need to be modified in detail in the light of the findings of the committee upon the other terms of reference. The interim report is a document of 12 pages and ends with the following ten recommendations:

1. Every teaching medical school should have a department of psychiatry for both out-patients and in-patients, with an adequate teaching staff.
2. There should be a course of normal psychology towards the end of the second pre-clinical year.
3. At the beginning of the student's first clinical year there should be an introductory course on the psychiatric aspects of clinical work.
4. There should be a systematic course on psychiatry extending throughout the clinical period.
5. Six of the lecture-demonstrations of the systematic course on psychiatry should be devoted to mental deficiency, and at least two should be carried out at an institution devoted to the care of mental defectives.

6. Students should act as clinical clerks in the psychiatric department for three months during the first or second clinical year, and should hold a short resident appointment in a mental hospital or observation ward during the last clinical year.

7. The clinician attached to the department of social and preventive medicine should, as supervisor of social studies, work in co-operation with the psychiatric as with other departments.

8. Teaching hospitals should employ more psychiatric social workers.

9. The student's knowledge of normal psychology should be tested by examination at the end of the pre-clinical period.

10. In the final examination there should be a separate examination in psychiatry which might be taken at the end of the clinical period or at an earlier stage.

Pressure on our limited space permits no more than reproduction of the two committees' recommendations at the present moment.

A SURGEON'S LAST MESSAGE

The following letter, headed "Is there Safety in Numbers?" was written by Sir W. I. DE COURCY WHEELER for this Journal on Sept. 11, 1943, the day of his death. It was found in his typewriter and is the last thing he wrote.

SIR,—There is a tendency to-day among some surgeons to claim the right to express dogmatic opinions, and to feel aggrieved if such opinions are criticized, on the grounds that they have dealt with considerable numbers of the cases in question. They claim that they alone are in a position to judge the merits or demerits of the various forms of treatment, and that paucity of material disqualifies all others.

I have been a surgical traveller all my life, and have had priceless opportunities of seeing the great leaders in surgery at work both at home and abroad. The greatest specialists were not those who congregated large numbers of cases of a particular kind under one roof, but those who gave an intense personal study to a few.

Kocher of Berne, as far back as forty years ago, was one of the first Continental surgeons under whom I studied. He worked in a town of 120,000 inhabitants. He was an individualist. Like a painter of portraits he had no place for mass production methods in the realm of surgery. His cases, let us say of fractures, were comparatively few, but each case was treated by himself; possibly each would be seen more than once a day; the slightest deviation from normal alignment was regarded as a crime for which the surgeon was responsible; there was no delegation of duties to others. Kocher's entire time was spent in dealing with a few.

Can there be any question as to which is the greater authority, the surgeon who nominally has under his care a hoard of patients, to each of whom he can personally give but the scantiest attention, or the surgeon who has spent an equal amount of time studying intensively a few? The incentive to obtain results above reproach is greater when a few cases are in question than when large numbers form a queue. In the one case there results the well-finished hand-made article of the craftsman, in the other the less reliable output of mass production.

RESTORING THE INJURED MINER

The Miners' Welfare Commission has issued a useful four-page leaflet entitled "Rehabilitation Treatment for Injured Coal Miners," which actually covers more ground than this title suggests, going back to the time of the injury and explaining how the best medical care can be obtained. The accident rate in mines, it states, is six times as high as it is in factories, and the injuries are often very severe. When an accident occurs the colliery management or the colliery doctor must decide where the injured man should be sent for treatment, and much depends on a wise decision at this stage. Cases of fracture of the arm, spine, or the lower limbs from the pelvis to the foot should be sent immediately after first-aid treatment to a hospital with an orthopaedic or fracture department. These departments have been established in both England and Scotland at selected E.M.S. hospitals, the names of which can be obtained from the local representatives of the Ministry of Fuel and the Miners' Welfare Commission. The leaflet points out that every doctor and colliery ambulance man should know which hospital having such a department serves the area of the colliery. The cost of treatment, whether the fracture occurs during work or not, is borne by the

Ministry of Health or Department of Health for Scotland so far as it is not defrayed by the patients through contributory schemes or otherwise.

Rehabilitation, which is described as "the rounding off of good hospital treatment," can be provided, the leaflet continues, in almost 80% of cases at out-patient departments. For the remaining 20% rehabilitation at a special residential centre is necessary, and two such centres are already functioning well. Berry Hill, Mansfield, was taken over by the Miners' Welfare Commission at the beginning of the year, and the centre at the former Gleneagles Hotel was opened last January. Further centres, linked with the fracture service, are being developed by the Miners' Welfare Commission, to serve all the major coalfields. There is no charge for treatment at these special centres and patients' travelling expenses are repaid. The centres have no connexion with workmen's compensation and no reports are made for compensation purposes. Patients are recommended for admission by the surgeon responsible for treatment in hospital, or, in old cases, by the panel or colliery doctor, but the surgeon at the centre alone is responsible for deciding whether the patient's injury is suitable for treatment at the centre. The leaflet adds that an important factor aiding the speedy recovery of injured miners is the assurance that they will be re-employed afterwards. As the patient is not discharged until he is fit to start work there should be no interval when he is unemployed. At Mansfield 95% of 400 consecutive patients who had had long periods of total incapacity have been reinstated in industry. For the few who are prevented by some permanent disability from returning to the mining industry training is provided under the Interim Scheme of the Ministry of Labour for the Training and Resettlement of Disabled Persons.

REHABILITATION CENTRE FOR DOCK WORKERS

It has taken an acute shortage of man-power during the war to focus attention on the fact that the restoration to health of the sick and injured dock labourer in an island country is a matter of national concern. The explanation apparently is that hitherto the casual nature of the work has made organized rehabilitation among the men impossible. Now, however, with the registration of all dock workers the follow-up of those who are absent through sickness is made easier, and the authorities for the area of the port of Manchester have taken the next logical step and established a rehabilitation centre at Salford, where dock workers may go for advice and treatment. The centre is in an old mansion—Claremont, Eccles Old Road, Salford—which had been developed as a hostel and welfare centre for transferred dock labourers, and which, with its extensive out-buildings, has been equipped to provide physiotherapy, gymnastic, and social departments. The whole is administered by a committee, upon which, among others, are Dr. A. E. Quine and Dr. J. M. Ross, representing the Ministry of Health, and Dr. Joan Harwood of the factory inspectorate. The medical officer in executive charge of the centre is Dr. J. P. Broom, who was appointed last year and who has been supervising the lay-out and equipment and making himself familiar with the technique used in other rehabilitation centres throughout the country. He will have the help of a welfare officer of the Ministry of Labour, and the individual records of the men on the dockers' register and other facilities will enable him to get into touch with those to whom the centre may be of service. While Dr. Broom will advise an injured man on the special treatment suitable to his particular needs, he will do so without interfering in any way with the existing relationship between the man and his own doctor. The advice and treatment will help in large measure to check the tendency to return to work too early, but a much more telling factor will be the subsistence allowances that are to be made while earning capacity is reduced. These allowances amount to as much as 55s. a week (less sick benefit, pensions, etc.) in the case of the totally unfit worker, while there are suitable payments for the partially fit, who attend at the centre on certain days or for part of a week only. In addition, a midday meal is to be provided free of charge for those attending all day, and travelling expenses are to be refunded. Care is to be taken to see whether the dock worker is able to resume his former occupation or whether a transfer to a different type of work would be more beneficial. The centre is already in operation, and should be able to deal with 50 patients when it is fully functioning.

The increase in the number of women doctors in Germany in 1943 (*Koeln. Ztg.*, May 7, 1943) amounts to about 40% compared with 1939. This corresponds to the increase between 1937 and 1939. In the next two years still greater increase is expected. At present there are 9,426 women doctors in Germany in a total of 73,960 doctors. Of these women, 5,146 are in salaried employment, 2,210 have taken practices, and 2,070 are not employed in any medical activity: 74.7% of them are married and 47.1% of them are married to doctors. With the incorporation of the Ostmark, the Sudeten territory, and the Ostgebiete, 1,200 women doctors were brought into the Reich.

Reports of Societies

THE CRIMINAL, THE PSYCHIATRIST, AND THE STATE

The presidential address to the Section of Psychiatry of the Royal Society of Medicine was delivered on Oct. 12 Dr. W. NORWOOD EAST, formerly H.M. Commissioner Prisons, who discussed the subject of psychiatry in relation to the criminal.

Although there was no justification, he said, for the belief that crime *per se* was an indication of mental disorder, repeated criminal behaviour by the same offender might be the result of mental abnormality. The Home Office classification divided crimes into six main groups, which were not mutually exclusive: offences against the person, offences against property with and without violence, malicious damage, forgery, offences against currency, and other offences; but this classification lacked significance for the psychiatrist because legal and official approaches differed from scientific approach. The legal interest in a killing, for example, might depend upon differentiation of murder from manslaughter, while the medical interest was chiefly concerned with the personality of the offender. For medical purposes crimes could be classified as acquisitive, aggressive, sexual, gregarious, and the like, according to the instinct involved. These classes were incompletely differentiated. The crime of "entering" might relate to the acquisitive, the sexual group. Some cases of murder or arson were primarily sexual and associated with the aggressive.

After some comments

the State to the scientist might be less effective in crime and the role of that doctors

groups, as were usually was no peddled in criminology medical qualifications ready to make of the persons years exception; evidence given in the opinion of accused. He referred to psychologists seem views were likely to

Dr. East believed the mental condition of a psychological function. who were registered in men who had no special eminent they might be in, steadfastly refuse to be a witness box concerning the in the association of mental

Functions of Justice

The protection of society from the criminal, the psychiatrist, the latter was in favour of the criminal; this was the training of the physician led him to consider the patient before other considerations. the wider interests of society must be in favour of the offender. Any such attempt to injure him as well as the society in which he lives, on the other hand, it was very important that the psychiatrist should be maintained; his opinions must not become subservient to the law of the moment. Dr. East believed it to be a mischievous suggestion that the mental condition of a person should be decided by a medical referee, the president of the

determine the issue. If the results of a psychiatric examination were to be informed and purposive the accused must feel that the medical examiner was able to extend to him a hand of human sympathy and understanding. If the medical referee had merely to assess the value of the documentary evidence and the opinions of the expert witnesses without himself making a personal examination of the offender, he would often find himself uncertain and dissatisfied and sometimes wrong. But it was quite impossible to carry out a psychiatric examination satisfactorily in court: it required the most favourable conditions available, and immediate contact with the accused. Less objection would seem to apply to a procedure which restricted the duty of the jury to finding the prisoner guilty or not guilty of the crime, leaving the question of insanity and irresponsibility to a medical tribunal before the court determined the sentence.

But nowhere did there seem to be any willingness to transfer the functions of the court and jury to the psychiatrists, and he did not believe that the psychiatrists wished this duty to be imposed upon them. Their training and experience were not necessarily the best to apply to wider issues, and they might be able as psychiatrists to carry a case only partially forward to the final conclusion. Different interpretations of the significance of the same set of facts might be made by warring expert witnesses, and an intolerable burden would be placed upon psychiatry in its adolescence if it had the last word in a criminal court. For example, a sexual perversion might be the result of a constitutional anomaly, but was the psychiatrist the person to decide whether its overt expression should be more tolerated than that of sexual offences which were not due to perversion and which might be more urgent than the less forceful drives of many perverts?

Criminal responsibility was a legal concept which the public understood and of which it approved, and so far psychiatry had not replaced it by anything more precise or practical. Criminal responsibility and the culpability recognized by medical men should be regarded as two different things. If the former were left to the lawyers there would be more time to study closely the medical conception of culpability, for this was likely to become increasingly important with the crystallization of knowledge concerning minor mental abnormalities.

Psychological Treatment of Crime

The psychological treatment of crime was so recent that its scope was still uncertain. It was not to be recommended lightly or without discrimination, and it might be expected for some time to come that unsuitable cases would be suggested for treatment as well as suitable ones. The study of minor mental disorders, as well as the introduction of new methods of treatment, had opened up new possibilities in the scientific attack on crime. But a psychological investigation, while it might explain conduct, did not necessarily excuse it. There was a growing tendency in the courts to consider the criminal more than the crime, but the welfare of the criminal must often be subordinated to the wider interests of society. Imprisonment might be necessary for public reasons in spite of the fact that non-custodial measures had been recommended by the psychiatrist. Conversely, detention over a prolonged period, with or without special psychiatric and rehabilitative treatment, might be desirable from the medical aspect but not justified by the nature and circumstances of the crime.

Perhaps the most outstanding feature of the association of the modern psychiatrist and the criminal was the recognition of the importance of the emotional genesis of crime. The study of sexual crime, in particular, had contributed much in recent years to a better understanding of instinctive action when directed towards criminal purposes.

After discussing some of the proposals put forward in the Criminal Justice Bill, 1938, which was being considered at the outbreak of war, and the intention of which was to grapple still more closely, individually, and efficiently with the ever-present dilemma of penal reform, Dr. East concluded with the remark that in his judgment some of the intricate problems involved in the scientific approach to crime and the scientific treatment of mentally abnormal criminals belonged to the borderland between mental disease and anomalies of character rather than to the territory dividing mental health from mental illness. However this might be, the psychiatrist's part must

be carried out in the spirit of the scientist who was able to take the long view, willing to serve both State and lawbreaker, and, in spite of disappointments and rebuffs, a firm believer in man's usefulness to man.

A hearty vote of thanks was accorded to Dr. East on the proposition of Dr. Hubert J. Norman, seconded by Dr. J. Brander.

Correspondence

Old Lamps for New

SIR.—In a recent article in the *Guy's Hospital Gazette* Brig. W. H. Ogilvie, in speaking of wounds in the East African campaign, makes the following statement: "Drainage should be by gauze impregnated with some oily medium. Vaseline has proved its worth in many fields and in thousands of cases." Here we have a return, literally, to one of the household remedies of our grandmothers for the wounds of the greatest war in history.

Again, in your issue of March 20 last and in your leading article "Rehabilitation of the Flavines" you merely state what many of us—simple souls, no doubt—have found by experience during the last 20 years to be the best antiseptic for routine use in general practice. Does it not seem a matter for regret that while so much lip service is paid to the general practitioner, and his potential value in clinical research emphasized, his views are never really canvassed on any medical subject?—and herein lies the weakness of much medical research.

The present tendency towards extreme simplicity in the treatment of burns—reliance being placed chiefly on sulphanilamide in petroleum jelly or on sterile petroleum jelly alone—only tends to support the use for many years of acriflavine emulsion with its conspicuously successful results, though this preparation is belittled in your article. Such disparagement, no doubt, is comparable with the successful clinical use of strychnine in cardiac cases and *lotio plumbi cum opio* as an anodyne, though both have been condemned experimentally as of very little use. We thus see in the course of four years a complete swing over in the treatment of burns, from an attempt to convert a case of burns into the commonly accepted picture of an Ancient Briton to a few simple dressings of petroleum jelly.

What, then, is wrong with medical research that it has (in spite of some great forward moves) to scrap so much that has at one time seemed almost fundamental in therapeutics—e.g., tannic acid and the aniline dyes in the treatment of burns? Some problems are befogged by over-simplification, others by over-elaboration. Medical research seems to be hindered by the latter. Masses of facts are collected and presented in columns and tables at different times. Does anyone ever attempt to correlate all these hieroglyphics which are served up to us, or do they merely remain as disjointed monuments to the industry of the collectors? There seems to be an incurable fondness for this heaping up of Pelion on Ossa and Ossa on Olympus of facts based on experimentation and not on clinical observation of the human being. A few years before his death Lord Moynihan said there was ample clinical opportunity for research, though later he seems to have recanted and bowed to orthodox opinion.

These reflections may be mere presumption in a general practitioner and, like the Psalmist, he should perhaps say, "These things are too high for me." But again, like Rosa Dattle, "I merely want to know."—I am, etc.,

Hove.

G. L. DAVIES.

Early Recognition of Cancer

SIR.—Your correspondent Dr. Joseph Walter (Oct. 16, p. 493) states that the new Cancer Act will mean a great step forward in the treatment of cancer, and he urges that talks on the wireless and at the pictures and by lectures, advertisements in the Press and, presumably, on all the hoardings and buildings, the distribution of popular booklets on the recognizable symptoms of cancer in various organs will in the earlier recognition of the malady. How much is true?

I cannot help but feel that in those sites where the lesion is capable of early detection the patient suspects the nature, and because of a knowledge of the outcome of similar lesions in his friends tried to escape by secreting the evidence, hoping against hope that the suspicions will prove to be unfounded. I do not believe that the average person is so stupid as to ignore such lesions, for medical men and members of their families do not appear to come forward any more quickly than laymen; in fact the former frequently come for examination in the first instance because of the insistence of the non-medical relation. Your correspondent says pessimism about cancer is out of date. Was pessimism with a patient, whatever the condition, ever in date? The cancer expert who says to the patient: "You know what is the matter with you, missus; you've got a cancer," is not out of date but, so long as he cannot provide a certain cure, is inexcusably brutal.

The personal experiences given in your columns in the letters of William Gorse and Percy Furnival must have left some impressions: the latter "formed the opinion that the treatment he had undergone had increased his sufferings and made his passage more difficult, and he wished in his love for humanity to save others from a like fate." All of the cancer clinics could provide similar cases. So much for the cancer which can be recognized in its early stages. There are others which the patient suspects and the most exhaustive investigation fails to discover, even after the development of obvious secondary metastases. In some cases recognition of the primary is impossible at the post-mortem examination.

In the period of 1931 Paris and its environs was disfigured by huge posters about cancer, and at that time their Radium Institute was a model possessing the most up-to-date scientific equipment for cancer research. Has the incidence or mortality of cancer been reduced in that city or in the cities of this country where for years cancer teams have been energetically working? I can see no difference in the cancer rates in this country between those cities with the clinics and those without, and therefore I can see no reason to multiply such clinics if they are merely to repeat the work which has really not brought us any nearer to the solution of the problem. In such clinics there is a tendency in treatment to neglect the patient, not only in the clinical examination but in the response to treatment, and to rely on investigations in ancillary departments and data provided by the physicist. No matter how accurate the latter, the very variable factor of the patient cannot be estimated; for some years treatment was based on a fictitious "lethal carcinoma dose" of radiation because the patient factor was overlooked. With regard to the former, I wonder, for instance, how often is there failure to carry out a digital examination of the rectum where a radiological investigation is readily available. I have known the former to be neglected when the patient has complained of bleeding, pain, and a feeling of fullness in the rectum, when a secondary haemorrhage has been found and recognized histologically, and when parotomies and hysterectomies have failed to reveal the primary, which was within 2 in. of the anus. On the other hand, there is the question of the cancer expert and his ability to appreciate early signs. I have known definite radiographic signs to be neglected for months until clinical signs were recognizable.

Would it not be better to have two or three institutes investigating different aspects of the problem rather than multiple duplications of the present activities, and, in particular, a more careful investigation of the factors which bring cure to the small proportion rather than a prolongation of an existence to a larger number? The best and most attractive advertisement for cancer patients will be the announcement of a certain cure. I believe they know the early signs as well as we do and will not wish to have the bogey intruded before their minds when they seek recreation.—I am, etc.,

Birmingham.

JAMES F. BRAILSFORD.

Statistics of Neurotic States

SIR.—I was interested in Dr. Howard Collier's article (Oct. 9, p. 461) on the statistics of neurotic states in cases sent to medical referees. Some of his figures, however, require considerable study. He begins by explaining that a total of 2,000 cases were examined for the study, yet only 1,693 cases appear in the statistical table. It is not clearly explained where the

discrepancy arose. In the interpretations of the results to statements are open to criticism. The conclusion that about 280 per 1,000 of all cases of unduly prolonged disablement are due to or associated with manifest nervous or psychiatric disease is acceptable, but if that is the case, it is not true that 280 in every 1,000 disabled persons are likely to experience an unduly prolonged disablement by reason of "nervous disorders." According to the figures, there were out of 100,000 people at risk about 66,000 claiming benefit each year—1 in 3. With an estimated total of 770 to 1,540 neurotic cases showing prolonged disablement, this obviously gives rate of well under 280 in every 1,000—only 12 to 24 per 1,000 in fact.

Lower in the article a correct rate of 3.8 is calculated representing the number of cases per 1,000 showing prolonged disablement due to neurosis during the year 1940. Strange enough this rate is stated without any time limit, implying that it is the number showing neurosis at any time. That this is a real error of judgment is shown by the next statement that since 1 in 3 persons claims benefit each year the rate per year is 1.2 per 1,000. This argument will not bear scrutiny and the statement is meaningless, since the yearly rate has already been calculated, being a minimum of 3.8 per 1,000. The rate of cases at any time, implied in the rate of 1.5 per 1,000 requiring "expert psychiatric help," cannot be calculated without knowing the average duration of a psychiatric case, a subject worthy of considerable discussion. The figures produced are estimated totals for a quite arbitrary period of one year (1940).

Since this statistical method may well prove in post-war years to be a valuable method of acquiring information, one in which the average doctor may have to interest himself willy-nilly, it is of extreme importance that the aims and limitations of such a method should be clearly kept in mind. It would be an additional advantage if statistics could be presented in such a way as to be easily followed by an ordinary person like myself. Even at the expense of over-caution or over-simplification, it may be worth while trying to avoid the oft-repeated dictum that "statistics can be made to prove anything," a statement which often follows on a statistical survey that is difficult to understand and check.—I am, etc.,

Hamilton.

E. A. TURNER.

Mind and Stomach

SIR.—Was it by chance or design that you published in your issue of Oct. 16 Sir Henry Tidy's outstanding communication "Peptic Ulcer and Dyspepsia in the Army" and in your leader dealt with Masserman's recent work on behaviour and neurosis? One cannot help feeling that the increase in dyspepsia, organic and non-organic, among the civilian population during the past two decades, and also increased incidence in the Army during the present war, might be explained by a further study along the lines suggested in Masserman's book. The past twenty years have been years of tension, anxiety and insecurity, which might well be a disturbing factor in the total apperceptive field. It would be interesting to hear the views of the writer of your leader.—I am, etc.,

London, W.1.

LEOPOLD MANDEL.

Treatment of Septic Hands and Fingers

SIR.—As one of the many "most junior house-surgeons" sole charge of septic cases, I cannot let Dr. E. C. Atkinson's letter (Oct. 2, p. 432) pass unchallenged. We haven't a trade union to challenge him, although his plea for "standardization of propaganda" might suggest we have. The following remarks are presented in all humility, as an impression—not a statistical survey—after two months' work in a busy casualty department.

"The supervision of the ripening stage" intrigues me. As I see only 5% of septic hands in the stage of invasion ("ripening stage" is rather pickle bottle!), Dr. Atkinson is indeed a lucky man to be able to use such an expression. When seen 95% are either in the stage of localization or in the stage of neglect (in my own nomenclature) and require immediate incision. In fact patients arrive days after they should have come. Two people are to blame for this. First, the patient who "won't give in," this is particularly common in Service patients on leave. Second, the doctor who often foment the infection for days (14 days in a pulp infection being the record) and then sends a letter to the

"considers it now fit for opening and drainage." Yes, one iter said "and drainage"! Also the childlike faith in chemotherapy delays arrival at hospital and the attention of "the most minor house-surgeon."

Let me quote: "I shall be grateful if you will open this man's ind, which has not cleared up in spite of sulphamylamide"—he might add also in spite of inadequate dosage of 2 g. day (none a night) for four days. This is an opportune moment to remark that, as so many cases are only seen in the stage of realization, Dr. Atkinson's "no doubt in the future penicillin will vanish the boggy of the septic finger" seems unduly optimistic. In fact we may surmise that, when the fairy godmother who produced chemotherapy (in spite of which infection occurs!) gives forth penicillin bountifully, septic hands will reach "the most minor house-surgeon" in even greater stages of decay.

Next I should like to assure Dr. Atkinson that incisions are ever hurried. Fingers are opened with ring-block anaesthesia. I have done 100 now, of which 40 were infected—e.g., cases of aronychia and pulp space infection. In not one single case as there been any complication whatsoever, despite the frequent criticisms one hears. The remaining infections are opened under O_2 -and-oxygen in the same leisurely manner. Students work under observation, equally conscious of their responsibility in treating a worker's hand.

Dr. Atkinson continues, "The results of this surgical team work can be seen in large numbers every day in out-patient departments, where the patients attend for hot soaks, probing, and re-incision." Hot soaks are taboo except in the stage of invasion. With an open wound they make the tissues boggy and encourage mixed infection; and it is quite illogical to expect to hasten the process of elimination by washing the surface of a slough with hypertonic saline for half an hour a day. It has not been necessary to use a probe on any occasion. Only two cases have been re-incised. One was a foreigner with a subcuticular whitlow. The patient complained of so much pain that one was fooled into incising as a pulp infection. The other was a paronychia where a fungus infection was missed.

Dr. Atkinson is indeed unfortunate if he sees the cases he mentions "in large numbers." There have been three cases of osteitis, in each case as a result of a pulp infection the diaphysis sloughed. They were seen after 10, 12, and 14 days respectively. Two of these had been poulticed for that time by their doctors.

Despite what Dr. Atkinson says it is not the young generation who make the mistakes in treating hands. It is the older practitioners who are so often guilty of complacency. He will be also startled to learn that students have no idea of the after-treatment of gastrectomies and lobectomies but get several excellent lectures on hands. Old beliefs die hard. Only the other day, on the subject of vaccines for boils on the neck, one of the very aetiological factors was recommended, thus: "Vaccines! No! The best treatment is a damn good bread poultice. That was good enough in my time."

May I conclude with four observations. (1) No doctor should go into general practice without having done a casualty job. (2) Consider the patient as well as his hand. He has to knock off work, he hasn't slept for several nights, and if ever an individual needed encouragement it is the man with the infected hand. The strongest men often arrive on the verge of tears. Incision and medial provide a good night's sleep which quickly restores confidence. (3) No finger should ever be seen in any position but the position of function. A straight finger should be a crime. (4) Lastly, none should start to treat hands without having absorbed Marc Ibelin's *Surgery of the Hand*.

The worst mistakes are not made by "the most junior house-surgeons," but by the Dr. Blimps—amid shouts of, "Arrogant young puppy!"—I am, etc.,

Croydon General Hospital.

CHARLES ROMER.

SIR,—Attention is called by Dr. E. C. Atkinson (Oct. 2, p. 432) to the need for official advice to medical men throughout the country on the treatment of injuries and infections of the hands and fingers. Nearly a year ago (Dec. 12, 1942, p. 706) I made a similar plea: I hope Dr. Atkinson's appeal may meet with more response.

I am in entire agreement with all Dr. Atkinson's remarks and suggestions, although I feel that, in view of the importance of the subject, it would be better if the memorandum were drawn up by the Medical Research Council. A few days ago it was announced in the B.B.C. news that during the last year there has been a great increase in industrial accidents. When it is considered that 50% of these accidents involve the hands and fingers, and that the resulting disability is due, more often

than not, to maltreatment, the need is clear for an organized endeavour to improve the present deplorable standard of treatment of these lesions.—I am, etc.,

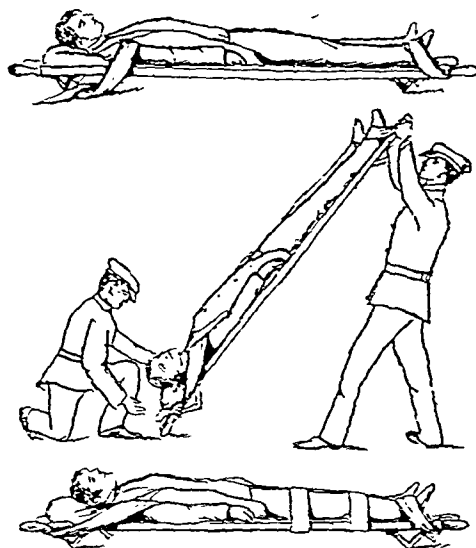
J. B. OLDHAM,
Surgeon-Commander, R.N.V.R.

Emergency Treatment of Fractured Femur

SIR,—In the *Journal* of Sept. 11 a description is given by Major P. L. Williams, F.R.C.S.Ed., for the emergency treatment of fractured femur with only a stretcher and triangular bandages or straps. During the last war we used the following method with great success:

The patient is laid on the stretcher, a clove hitch is put round the boot of the injured limb and tied firmly to the handle (it is as well to put on two clove hitches as it is most important that this fastening should be firm). Two triangular narrow fold bandages or straps are put under his axillae and made ready to tie to the handles of the stretcher at the head end.

The stretcher is now upended—i.e., the feet are raised right up so that the patient is almost standing on his head: the weight of the body extends the limb fully, the bandages (or straps)



under the axillae are then fastened firmly to the stretcher handles, and the stretcher is lowered. The limbs can now be tied together and a strap or straps put right round the stretcher and limbs. The effect of this is that the limb is fully extended and the ends of the broken bone are separated, the side of the stretcher acts as a splint, and the whole limb is firmly fixed and will stay in position, and the patient can travel in comfort.

The whole operation is extremely simple, can be done in a few minutes, and is very easy to teach. This method can be used for any fracture of the lower limb above the ankle, and if it were generally known would save infinite pain and suffering. I enclose three sketches which illustrate the method.—I am, etc.,

G. D. LANG,
Limpfield, Surrey.

G. D. LANG,
Late Temporary Major, R.A.M.C.

Significance of the Rh Factor

SIR,—It is apparent from several recent articles that the significance of the relationship of the Rh factor in paternal and maternal blood is becoming generally appreciated. The influence of this factor on the health of the offspring of an ill-matched couple is of particular importance. The chances of a child in such a family being born in good health are considered by Race and his co-workers in your issue of Sept. 4, 1943, and the results are not encouraging.

According to the iso-immunization theory (Levine *et al.*) the children of a homozygous Rh-positive father (RhRh) and an Rh-negative mother will almost always show manifestations of

Miss Jean M. Dollar (Royal Eye Hospital). An investigation into the value of cockerel serum in ophthalmic surgery, with especial reference to its use in connexion with mucosal and corneal grafts.

Miss Shirley M. Draycott (Royal College of Surgeons). The effect of the administration of sulphhydryl amino-acids on the anti-syphilitic action of arsphenamides.

It was reported that the Blane Medal had been awarded to Surg. Cmdr. D. P. Gurd, R.N., for his thesis entitled "An Investigation into the Incidence of Trachoma in the Maltese Islands."

A Diploma of Fellowship was granted to F. H. Masina and Diplomas of Membership were granted to C. O. Fung-Kee-Fung, R. N. G. Holloway, L. Howell, P. H. Huggill, J. A. Loveless, R. G. May, A. D. Payne, M. I. Pott, N. H. Seaton, and B. A. Ward.

A Licence in Dental Surgery was granted to A. C. Horne.

Diplomas in Child Health were granted, jointly with the Royal College of Physicians, as follows:

Patience E. Barclay, Monica M. Bird, J. P. Bound, Annie E. Burns, Cecil M. Driffield, Margaret Egan, H. V. L. Finlay, Cecilia Henry, L. Hornung, Margaret M. P. Jolly, F. L. King Lewis, F. G. Leslie, Kathleen B. McClintock, Rosaleen De C. McCormick, Mary H. McC. Snape, Cecilia V. Urquhart, Fanny D. Wride, H. J. Young.

The Services

Prob. Temp. Surg. Lieut. M. J. Hood, R.N.V.R., has been awarded the D.S.C. for courage, endurance, and great skill in tending the wounded when H.M.S. *Achates* was lost.

The following appointments, awards, and mentions in recognition of gallant and distinguished services in the Middle East have been announced in the *London Gazette*:

C.B. (Military Division).—Brig. K. MacCormick, C.B.E., D.S.O., C.H.S., New Zealand Military Forces.

C.B.E. (Military Division).—Brig. (local) W. D. D. Small, R.A.M.C.

O.B.E. (Military Division).—Majors (Temp. Lieut.-Cols.) D. M. Blair, R. H. Bland, E. Bulmer, J. B. S. Guy, T. D. Phelan, and J. C. Verbi, R.A.M.C.; Major A. L. Chute, R.A.M.C. (attached R.A.M.C.); H. W. Farrell, J. Morgan, I.M.S.

M.B.E. (Military Division).—Major P. J. May, Capt. (Temp. Majors) A. K. Borland, D. MacL. Douglas, M. H. Evans, C. P. Stevens, and J. C. Summ, R.A.M.C.; Capt. H. C. Allan, K. G. A. Arlow, A. M. Lester, G. B. Northcroft, K. R. D. Porter, and A. F. Smith (deceased), R.A.M.C.

D.S.O.—Majors (Temp. Lieut.-Cols.) L. T. Furnivall and R. McIlrion, D.F.C., R.A.M.C.

M.C.—Capt. R. G. MacLeod, A. D. Parsons, M. J. Pleydell, W. Taylor, and C. W. Warner, R.A.M.C.

Mentioned in Despatches.—Capt. (Temp. Majors) R. W. Cope and G. M. Willoughby, R.A.M.C.

The following appointments and mentions in recognition of gallant and distinguished services in Malta have been announced in the *London Gazette*:

C.B.E. (Military Division).—Col. F. Whalley, D.S.O., T.D., H.P., late R.A.M.C.

M.B.E. (Military Division).—Capt. (Temp. Major) H. G. Gernstein, R.A.M.C.

Mentioned in Despatches.—Capt. (Temp. Major) (Acting Lieut.-Col.) C. J. Cellan-Jones, Capt. (Temp. Major) W. O. MacFeat, Capt. C. V. Light and R. Mitchell, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Surg. Lieut.-Cmdr. D. J. WILKES, R.N.V.R., was killed in action recently by a bomb splinter and buried at sea. He began his education at the Old Edgbaston School and later at Birmingham University. He acted as house-surgeon at the General Hospital, and afterwards joined his brother-in-law, Dr. Dennis Allin, in practice in Birmingham. He volunteered for the Royal Navy and was called up at the outbreak of war. He took part in the Lofoten raid, the Dieppe raid, the Algiers raid, and finally Sicily. Tributes to him were received from the captains of the ships in which he had served. Officers and men alike wrote and mourned his loss. One tribute was from the Commander-in-Chief of the station in the Mediterranean, who wrote to his captain: "It was a most unfortunate and sad thing that you should have lost Wilkes at a time when he was badly needed, and the more so when he had given such good service and his relief was on the way. A man of such sterling character and so many excellent qualities will be sorely missed. We cannot afford to lose such as he."

Killed.—Capt. J. O. D. Williams, R.A.M.C.

DEATHS IN THE SERVICES

To many retired R.A.M.C. and I.M.S. officers who had served in India and Burma the news of the sudden death on Sept. 16 of Capt. T. HENDERSON BROOKS, I.M.D., will come as a shock. In his 33 years of service in the various large station hospitals in India he had come to be recognized as a very efficient organizer and administrator in hospital matters. A correspondent writes: His genial, jovial personality, sincere

and humble ways, and his ever-ready willingness to help and to advise, earned for him the respect and affection of officers and men alike. Born in 1872 in Karachi, son of one of the earliest settlers in the Province of Sind, he entered the military medical service in 1894. Till 1897 he was employed on platoon duty in the Bombay Presidency, receiving the personal thanks of the Governor for his services. In 1898 he received a Tirah campaign medal with clasp—actually helping P. Findlater when the latter gained the V.C. From 1901 to 1905 he was in Burma to deal with the very severe plague epidemic prevailing there. His elder son contracted the disease but survived. Once again for his services he earned the commendation of the Governor and the public. He was specially chosen in 1912 to accompany the Hkhomeptilon Expedition to the frontiers of Burma and China. Returning to military duty in 1916, he saw service with the 19th Indian General Hospital Salonika. After his return to India in 1919 he became personal assistant to the A.D.M.S. on the Raymak Expedition 1921-2. Besides the medal he was mentioned in dispatch and received special promotion. On retirement from military service Capt. Brooks settled in Karachi and continued to keep alive the reputation and skill of the family in the Province physicians—a reputation established by his father and handed down to each brother in turn (for there were several brothers as doctors) for a period of nearly a hundred years. He left a widow and two sons: one is serving in the Indian Army in the Middle East and one practising in Gloucestershire.

Fl. Lieut. JOHN KENNETH DENHAM died on May 9 while on active service, aged 37. He studied medicine at Cambridge and St. Thomas's Hospital and qualified M.B., B.Ch. M.R.C.S., L.R.C.P. in 1938. After holding house appointments at St. Thomas's, the Brompton Hospital, and the West (L.C.C.) Hospital, Fulham, he was appointed to a commission in the Medical Branch, R.A.F.V.R., on June 13, 1943. At the date of his death he was medical officer to a squadron operating over-seas.

Medical Notes in Parliament

Regulation 33B

Mr. ERNEST BROWN, in reply on Oct. 14 to Mr. GRAHAM WHITE, said that Regulation 33B was substantially helping local authorities to get into touch with persons suffering from venereal disease and to induce them to undertake treatment. Up to June 30 last 1,893 cases were brought to the notice of medical officers of health in this way. The number of cases reported more than once as alleged sources of infection was 110. In 3 cases it was necessary to take proceedings for failure to carry out treatment. Dr. SUMMERSKILL commented that on six men had been reported under Regulation 33B. Mr. BROWN said the Regulation was making a very useful contribution to reducing the incidence of venereal disease. Sir A. BEAVER asked whether the majority of the 1,800 cases were persons who had been compulsorily examined. Mr. BROWN said they were cases brought to the notice of medical officers.

Hetherington Committee's Report

Mr. JOHNSTON said on Oct. 13 that he had that day received the report of the Hetherington Committee on the Reorganization of Scottish Hospitals. The report contained many important recommendations affecting the future of the hospital system of Scotland. Those recommendations were being considered in connexion with the Government's examination of the whole question of a new national health service.

Physical Fitness for Employment

Mr. RHYS DAVIES asked on Oct. 14 whether Mr. Bevin knew of the growing practice of employers to engage medical officers to examine prospective employees; that this practice tended to transfer the determination of employment into the hands of the doctors, increased unemployment, and must create a pool of permanently unemployed persons, especially if the medical fitness required was of a progressively high standard.

Mr. BEVIN replied that his policy was to encourage the greater use of doctors' services in industrial establishments in the interest of the medical welfare of the employees. He had no evidence that this led to the imposition of unnecessarily high standards of physical fitness in prospective employees. He could not undertake to inquire at this stage whether pressure was brought to bear on employers by the insurance companies dealing with workmen's compensation so as to avoid compensation risks. He had an arrangement that a man who passed out of employment through injury or was unsuitable to go back into the employment was taken over immediately for training in some other employment.

Oct. 30, 1943

EPIDEMIOLOGY SECTION

INFECTIOUS DISEASES AND VITAL STATISTICS

Army Medical Services

On Oct. 19 Mr. HAMMERSLEY asked the Secretary of State for War if he had considered the complaints reaching him concerning inadequate medical attention in the armed Forces. Sir JAMES GRIGG replied that individual complaints about the Army medical services reached the War Office from time to time from various sources. The complaints were always investigated, and in most cases were found to be without foundation. When there was ground for complaint it was the fault either of an individual or of the local administrative machinery, and action was at once taken to avoid repetition of the fault. He was not, however, aware that there was any body of complaint about the general organization and administration of the Army medical services. In general, considering the special difficulties with which Army doctors had to contend and the impossibility of meeting the Army's full requirement to ensure that medical officers at home were used to the best advantage of the Army. An investigation was now proceeding by all ranks to the officers at home borne out by tributes paid by the Army over-seas. His view was borne out by the medical services with the Army. Sir James Grigg also told Mr. Hammersley that, without notice, early diagnosis of tuberculosis in the Army.

Accidents in the Mine.—During a debate on the coal-mining situation, Mr. THOMAS SMITH said that in 1943 to date 542 men and lads had been killed. For the same period last year the figure was 689. Progress had been made in treating fracture cases. To-day facilities for rehabilitation were provided in every colliery district; there were eight residential centres. For every man injured in a factory six men were injured in the pit.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales scarlet fever, measles, and acute pneumonia became more prevalent during the week, notifications going up by 293, 116, and 148 respectively. Those of whooping-cough and dysentery fell by 102 and 74.

The small general rise in the notifications of measles ends the continuous drop in incidence that has lasted for the past seventeen weeks. Although there were only 8 more cases of diphtheria than in the previous week, the county totals varied considerably. In the south (London, south-eastern, and south-western divisions) the combined total rose by 42. The only notable decrease was in Durham, with 50 cases in Middlesex. Whooping-cough incidence was down by 23 in Middlesex; the only noteworthy exception to the general trend was a rise of 37 in Essex. The increased prevalence of acute pneumonia was fairly general, the largest rises being 22 more cases in Durham and 21 more each in Lancashire, London, and Yorks West Riding.

Notifications of scarlet fever are now double what they were seven weeks ago, and the 3,249 cases now recorded (week ending Oct. 9) form the largest number for several years. The largest weekly total in each of the six years 1937-42 was: 2,717, 2,463, 2,012, 2,027, 1,419, 2,979. The biggest rises during the week under review were in Lancashire by 73, Yorks West Riding by 38, Essex by 52, and Kent by 35.

Despite the fall of 74 cases in the weekly figure for dysentery, the notifications exceed 260 for the fourth consecutive week. Notifications dropped in three of last week's epidemic areas—London 91 to 52, Lancashire 42 to 20, Essex 33 to 17—while there was a small rise in the fourth area, Kent, from 57 to 59. In several other areas there were increases, chiefly in Yorks West Riding by 18, Middlesex by 14, Hertfordshire by 12, Yorks North Riding by 9, and Gloucestershire by 11.

In Scotland there were 34 more cases of dysentery, 41 of whooping-cough, and 22 of acute pneumonia; diphtheria incidence was lower by 25 cases. The increase in dysentery was mainly due to an outbreak in Dunbarton County, where the cases rose from 4 to 42. The largest of the other centres of infection were the cities of Glasgow, 12, and Edinburgh, 11 cases. Of the 181 notifications of whooping-cough 120 were recorded in Glasgow.

In Eire the increase in diphtheria of 33 cases was spread generally throughout the country.

In Northern Ireland 60 of the 95 cases of scarlet fever were notified in Belfast.

The Week Ending October 16

The returns of infectious diseases in England and Wales during the week included: scarlet fever 3,324, whooping-cough 1,482, diphtheria 707, measles 675, acute pneumonia 569, cerebrospinal fever 37, dysentery 253, paratyphoid 3, typhoid 5.

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct. 9. Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland. Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	30	4	18	—	—	57	5	17	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Diphtheria	732	37	167	93	44	991	47	220	71	29
Deaths	9	1	3	—	1	12	—	3	—	—
Dysentery	263	52	96	—	—	209	16	45	—	—
Deaths	—	—	—	—	—	3	—	—	—	—
Encephalitis acute	1	—	2	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	46	6	10	72	5	57	8	7	62	7
Deaths	—	—	—	—	—	—	—	—	—	—
Measles	581	55	52	18	4	4,650	329	303	40	11
Deaths	—	—	—	—	—	—	—	—	—	—
Orphanism neonatorum	70	3	19	1	2	104	6	28	3	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	8	—	1	—	—	11	2	4	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza* (from influenza)	557	37	5	2	5	541	27	9	—	6
Deaths	14	1	2	—	—	12	—	—	—	—
Pneumonia, primary	20	177	19	13	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Polio-encephalitis, acute	1	—	—	—	—	23	—	2	28	—
Deaths	—	—	—	—	—	—	—	—	—	—
Polio-myelitis, acute	15	—	2	2	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	4	14	—	1	—	192	12	8	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	159	6	8	—	3	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	3,249	309	385	47	95	2,613	165	407	54	60
Deaths	1	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	1,481	101	181	42	19	972	96	26	31	3
Deaths	11	2	3	1	1	6	3	3	3	—
Deaths (0-1 year)	273	35	45	35	24	325	34	50	43	26
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	3,861	591	550	182	127	3,826	534	518	204	119
Annual death rate (per 1,000 persons living)	—	—	—	—	—	—	—	—	—	—
Live births	6,290	785	937	400	284	6,292	739	894	426	243
Annual rate per 1,000 persons living	—	—	—	—	—	—	—	—	—	—
Stillbirths	190	27	27	—	—	—	—	—	—	—
Rate per 1,000 total births (including stillbirths)	—	—	—	—	—	—	—	—	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

The Food Education Society announces a lecture by Prof. J. R. Marrack, M.D., on "Food and the Post-war World," to be given on Nov. 15, at 3 p.m., at the London School of Hygiene, Keppel Street, W.C.1.

After the annual general meeting of the British Social Hygiene Council, to be held at B.M.A. House, Tavistock Square, W.C.1, on Monday, Nov. 1, at 3.30 p.m., the president, Sir Walter Langdon-Brown, will give an address on "Social Biology and Planning."

A council meeting of the Medical Superintendents' Society will be held at the Midland Hotel, Derby, on Saturday, Oct. 30, at 2 p.m., and continued on Sunday, Oct. 31, at 10 a.m. and into the afternoon if necessary.

The Princess Tshahi Memorial Hospital Council, of which Lord Horder is the honorary treasurer, will hold a reception to General Sir William Dobbie of Malta at the Dorchester Hotel, Park Lane, W., at 3 p.m. on Thursday, Nov. 4. Lord Davies will preside and the Princess Tenagne Haile Selassie of Ethiopia hopes to be present.

Post-war nutritional relief is to be the subject for discussion at a whole-day conference of the Nutrition Society on Saturday, Nov. 6, at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1. The chair will be taken by Lord Horder. In the morning Prof. J. R. Marrack, who is on the Committee for Co-ordination of Nutrition Surveys, will speak about experiences of the last war and since, dealing especially with the current state of nutrition in occupied Europe and elsewhere. A discussion on this paper will be opened by Surg. General Dr. K. Evang of the Norwegian Ministry of Social Welfare. Mr. J. Hammond, D.Sc., F.R.S., will then speak on problems of production in relation to post-war nutritional relief. In the afternoon Dr. Audrey Russell will speak on the organization of nutritional relief in the field, the discussion on this subject to be opened by Prof. E. Nobel, M.D., formerly of Vienna University. The last paper of the afternoon will be by Miss E. M. M. Hume on opportunities for nutritional research in the work of relief. Proceedings will begin at 11 a.m. promptly. Non-members are admitted only through a member's introduction.

The council of the Liverpool School of Tropical Medicine has decided that the sum of £500 placed at its disposal by Sir Robert Rankin, M.P., to commemorate the scientific work of the late Prof. Warrington Yorke, M.D., F.R.S., shall be used to provide a memorial medal, to be awarded twice yearly on the result of the examination held at the end of each of two courses for the Diploma in Tropical Hygiene.

Survivors of the hospital ship *Newfoundland*, which was set on fire and sunk off Salerno on Sept. 13 by a German bomber, stated on their arrival at a Scottish port that the vessel was deliberately singled out for attack. All her lights were on and the Red Cross was clearly visible. There were no wounded on board; but six nurses, all the doctors, and the ship's officers lost their lives. The death-roll totalled 23; the dental surgeons on board escaped. The *Newfoundland* caught fire after a direct hit, and the evacuation of all those whom it was possible to save was effected by members of the crew. Orders were given to abandon ship, and all efforts were concentrated on removing the sick, many of them stretcher cases. In this task doctors and nurses worked heroically. At the time of the bombing the *Newfoundland* was carrying as passengers about 100 American nursing sisters who were to land with the Fifth Army.

The September issue of the *Archives of Disease in Childhood* contains two reports by the British Paediatric Association: one on "The Early Diagnosis of Tuberculosis in Childhood," and the other on "Arrangements for Newly Born Babies in Maternity Hospitals." Copies of these reports may be obtained from the Acting Hon. Secretary of the British Paediatric Association, Dr. Donald Paterson, 27, Devonshire Place, London, W.1.

The second East Asiatic Medical Congress was recently held in Japan and was attended by 300 delegates from countries at present in Japanese occupation. The subjects principally discussed were the campaign against tuberculosis and tropical diseases.

The Mackenzie Mackinnon Research Fund Committee has appointed Miss J. M. Dollar, M.S., F.R.C.S., of the London School of Medicine for Women and the Royal Eye Hospital, to a research fellowship.

The late Dr. William Hartley Tattersall of Deganwy, Caernarvon, who left £111,718 (net personality £102,316), bequeathed £500 to the Royal Medical Benevolent Fund.

Local authorities are to be allowed a further year, from March 31, 1944, to March 31, 1945, during which they may submit their plans under the Cancer Act, 1939.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (9 a.m. to 5 p.m.). Members' subscriptions should be sent to the Secretary of the Association.

TELEPHONE NO.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES—EDITOR, *Aitology Westcent*, London; SECRETARY, *Mediscra Westcent*, London.

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Osteo-arthritis after Colitis

Q.—Is there any useful practical treatment for early osteo-arthritis with painful "locking," in one knee? The patient is a man 60. Colitis has been present for many years following a typhoid, dysentery. This has improved enormously with the onset of knee trouble. There is definite swelling around the affected knee but no appreciable fluid in the joint. There is some resistance to the outer region of the popliteal space. Extension of the joint is somewhat limited.

A.—The active condition in this case would appear to be a violent synovitis, probably infective in nature and associated with colitis. Arthritis is often a sequel of dysentery, and the inflammation in the colitis with the onset of the knee-joint trouble is suggestive. A thorough bacteriological investigation by an expert in tropical diseases would be worth while; if positive, sulphaguanamide should be given a thorough trial. An endocrine disorder is a possible factor; villous synovitis is the pathological condition of the arthritis of the menopause. Osteo-arthritis has presumably been diagnosed from the presence of exostoses revealed by x-ray examination, but these are unimportant unless actually interfering with movement of the joint. A blocked leather splint to support the joint would control the tendency to "locking." The limitation of extension would probably prevent the use of a Howard Marsh splint with a hinge to permit flexion, which could be fixed in extension. An alternative which might be more effective if the patient would tolerate it would be a walking calliper transmitting the weight from the hip to the heel of the shoe; this would give support to the knee and permit the synovitis to settle down, and the swelling would improve or disappear. Short-wave therapy often relieves pain, or ionization with T.C.P., providing the ions of chloroiodine, and salicylic acid, is useful. In some cases the electrocautery has proved effective when other methods have failed—old farrier's practice of "firing" a horse.

Suppressing Lactation in Puerperal Fever

Q.—What is the best method of suppressing lactation in a case of puerperal fever? The administration of large doses of stilboestrol by the mouth at the same time as the patient is concurrently deavouring to assimilate full doses of sulphonamide does not seem to me desirable.

A.—Pregnant and recently delivered women tolerate large doses of oestrogenic substances. Hexoestrol tablets do not produce toxic effects that stilboestrol sometimes produces. For suppression of lactation by injections one would suggest oestradiol benz (50,000 units) three times during the first week on alternate days.

Pernicious Anaemia of Pregnancy

Q.—A patient 4/12 pregnant developed pernicious anaemia in pregnancy. The response to liver therapy by injection was satisfactory. The last injection was given 3/52 before the birth due, and she developed a very mild urticarial rash which was reported until after the birth. During labour she had 1 unit of thymophycin, and almost immediately afterwards became very ill and almost unconscious—her mucous membrane became livid. Adrenaline brought her round, but the child was born dead—anoxaemia. Now she is pregnant again, and her blood picture is good with taking large doses of pepsac. Skin tests show that she reacts to thymus, pituitary, and liver extract. If the occasion arises—say a P.P.H.—what injection, if any, can be given with safety?

A.—The fact that this patient gives a positive skin reaction to liver, pituitary, and thymus suggests that she is sensitive to protein, which is presumably the common factor. It is likely that desensitization to one of the extracts—e.g., liver extract—would be effective in preventing reactions from the others. In practice, however, it would seem preferable to avoid the use of any of these preparations, and if an emergency arises at the time of delivery

LETTERS, NOTES, AND ANSWERS

OCT. 30, 1943

P.P.H.), to give ergometrine either intramuscularly or intravenously. The administration of posterior pituitary extracts is always accompanied by the possibility of producing pituitrin shock; the clinical picture resembling that seen in this patient: the use of ergometrine is unaccompanied by such a reaction. It is of interest to note that anaemia came on early during the first pregnancy and was apparently easily controlled, whereas pernicious anaemia comes on late and may be slow to respond even to large and frequent doses of liver. Moreover, it is by no means inevitable that pernicious anaemia of pregnancy should recur in subsequent pregnancies. The diagnosis should therefore be carefully reviewed. If pepsac does not continue to be effective as this pregnancy advances, and reactions are given with a different preparation of liver, transfusion may become necessary to tide the patient over until after delivery. Note.—Pepsac is the proprietary term for desiccated stomach—the "ventriculus desiccatus" of the B.P.C. Desiccated stomach is also marketed under the following proprietary names: erythroid, eugastrol, extomak, gaster siccata, gastrexo, kytogen, ventraemon, ventriculin. This terminological confusion is to be regretted.

Glycerin in Ointments

Q.—(a) Is the use of glycerin as a constituent of an ointment or a lotion contraindicated in the treatment of industrial dermatitis or other skin disease? If no, what is its therapeutic use? (b) As glycerin is stated to dehydrate and therefore damage the skin cells, how does it effect its emollient action, and how is its use as an emollient justified? (c) Should glycerin be used at all as a constituent of barrier creams?

A.—(a) No. Glycerin is much used in lotions such as calamine to make the contained powder adhere to the skin and in emollient creams for the purpose of keeping the skin soft; also as glycerol of starch to make a non-greasy base for ointments. (b) Pure glycerin is strongly hygroscopic and is therefore irritating to an excoriated area of skin, though this property is useful in promoting exosmosis in the case of lesions such as boils and when used in tampons. When used in a lotion or emollient cream it is always diluted with water to a concentration of only 12% to 30%. In these dilutions it is not irritating. (c) It would not appear to have any particular function in a barrier cream except as forming part of the base.

Note on Schizophrenia

Q.—I have been puzzled over the terms schizophrenia and dementia praecox. The former term literally means "split mind." How may we diagnose clearly these two types of mental disturbance? Houston seems to have put both these types under the head of "Insanity of Adolescence."

A.—The two terms are synonymous for the same disorder, but dementia praecox is the older term. The term schizophrenia was introduced because it was recognized that a considerable proportion of the cases did not proceed to dementia, but on the contrary made a more or less complete recovery. It is now customary to speak of schizophrenic dementia instead of dementia praecox in those cases in which the end-result is chronic mental deterioration of a severe degree. The diagnosis in the condition as a whole is made on a symptom-picture in which at least the beginning is characterized by disturbance both of its form and of its content. Thinking shows disturbance both of the extent of incoherence, that is to say, it is disconnected often to the extent of incoherence, and it consists of a considerable variety of morbid ideas amounting to delusions, never well knit together and often characterized by oddity. Hallucinations are common but not invariably present, and are likewise apt to have a fantastic air about them. As time goes on the delusions and hallucinations in a deteriorating case become even more fragmentary and poorly knit together, until finally only a few relics of the old notions are left. Behaviour is altered from the beginning, either in the direction of increasing withdrawal and exclusiveness and occasionally very excited and impulsive behaviour. Again, in the typical deteriorating case the patient settles down to a largely vegetative existence. The inquirer should refer to Henderson and Gillespie's *Textbook of Psychiatry* (5th edition, 1940) for further information.

Lock Hospitals

Q.—Can you tell me the origin of the name "lock" as applied to "lock" hospitals for venereal diseases?

A.—Four possible explanations have been given for the origin of the word "lock" in this connexion. (1) The use of a lock of hair in ancient times to arrest haemorrhage. (2) The situation of the female lock hospital near the lock bridge. (3) That the name of the founder was Lock. (4) That the patients were kept under lock and key. These explanations seem rather weak, and have little to support them. The following information very kindly supplied to me by Mr. Johnston Abraham seems much more reliable. "The origin of the name 'lock' is obscure. There is no doubt it was applied to

the old lazaret houses for leprosy in the Middle Ages, and when syphilis became a menace and leprosy died out it was transferred to the venereal hospitals. Anson, who was a pupil of Ricord, states in his book on prostitution that the name is Norman French, and is a corruption of 'Les Loches,' the lazaret houses. There is an engraving of the old Lock Hospital in the Borough founded by Edward VI, which shows over the doorway the words 'Les Lock.' This old hospital, which was staffed from Bart's, was demolished in 1741. The name was revived by William Blomfield, surgeon to St. George's Hospital, when he founded the present Lock Hospital in 1746. That, I think, sums up all that is known about the name. One thing is certain: it has nothing to do with locking people up."

Undescended Testis

Q.—Until what age in childhood should the condition of undescended testis be left untreated in expectation of spontaneous cure? What treatment, short of surgical correction, should then be provided?

A.—Until the approach of puberty. A large number of hidden testicles descend spontaneously then. Treatment with chorionic gonadotrophin will frequently bring them down earlier, but it is unnecessary in so large a proportion of cases that it is not justifiable, although the risk of producing a precocious puberty has been exaggerated. At the age of about 12 or 13, 500 rat units of chorionic (urinary) gonadotrophin should be given intramuscularly twice a week until descent occurs or three months' treatment has been given. If then the testicles have not descended they are truly ectopic, and operation should be performed without further delay.

Blocked Tubes

Q.—A woman aged 33, married seven years, no children, h. tuberculous peritonitis at the age of 15. Eighteen months after marriage she had what seemed to be an abortion. Recently laparotomy was made to gauge the patency of her tubes by injecting lipiodol into the uterus. Both tubes were blocked at a distance of about 1½ in. from the isthmus of the uterus. She has recently also been examined for T.B., even though she showed no symptoms of this disease, and the opinion has been expressed by the physician that the tuberculosis is quiescent and that there is no danger of lighting up the old disease. Is there any hope, by means of air insufflations over a period of time, of opening up the tubes, or is there any alternative treatment?

A.—The history suggests that the tubes have been obstructed by tuberculous salpingitis associated with peritonitis. If, however, it is certain that this woman did have an abortion, then the tubal obstruction may be the result of post-abortion infection, with or without pre-existing tuberculosis. In either case air insufflation at it pressure insufficient to rupture obstruction, and any attempt at it coming a complete mechanical obstruction, would be likely to cause an acute exacerbation of the infection. The only possible line of treatment is salpingostomy by abdominal operation, and, with the obstruction half-way along the tube, the chances of this being successful are remote. If the infection is tuberculous in nature the outlook is hopeless, and in view of this possibility it would probably be wiser not to undertake any further treatment, thus avoiding the risk of activating a quiescent condition.

Reaction to Potassium Chloride

Q.—With reference to the question on chloride of potash in allergy (Oct. 2, p. 440), what are the "extremely uncomfortable" side-reactions mentioned in the reply?

A.—Although it was formerly believed that potassium salts were excreted too rapidly to produce any side-effects, more and more evidence has recently accumulated that such may occur, particularly with high dosage and in patients with cardio-renal disease. Symptoms described include gastro-intestinal irritation, paraesthesia of the hands and feet, cyanosis, prostration, irregularity of the pulse, heart-block, and even sudden death.

Septic Tonsils and Teeth

Q.—One often hears such expressions as "septic teeth," "septic tonsils." These diseases are not referred to in textbooks, at least in the majority of them. What exactly do the terms imply?

A.—The popular use of the term "septic teeth" refers usually to pyorrhoea which begins as an inflammation of the edge of the gums—marginal gingivitis. If unchecked the infection spreads, destroys the attachment of the mucoperiosteum to the neck of the tooth, and pockets of pus develop between gum and tooth. This condition is called pyorrhoea alveolaris. Another infection included in "septic teeth" is the apical abscess which follows dental caries. Here the infection spreads up through the pulp cavity to the apex of the tooth-root and attacks the periodontal membrane. An acute alveolar abscess may result; more often the sequel is a chronic apical infection which can only be certainly detected by examination.

The term "septic tonsils" is often used loosely to denote any obvious abnormality, particularly enlargement, of the tonsils. It should be restricted to those cases in which there is chronic infection of the tonsils—chronic tonsillitis. Affected persons have a history of recurrent sore throat, the tonsils are not as a rule obviously enlarged, the tonsillar glands are palpable, and foul-smelling exudate (not to be confused with the harmless cheesy material) can usually be squeezed from the tonsillar crypts. Such tonsils should be excised. Tonsillar enlargement is almost a physiological happening in children, and, far from being a liability, is probably an asset by acting as a front-line filter of pathogenic bacteria—and perhaps by manufacturing antibodies, for there is evidence that the lymph nodes take an active part in antibody production. Fortunately there is now a reaction against wholesale tonsillectomy among children.

The Injured Diabetic

Q.—I note that in "Any Questions?" (Oct. 9, p. 472) your expert advises: "If the diabetic is uninjured, deal with him like any other injured person, as he is very unlikely to be suffering from hypoglycaemia." Is it not a fact, then, that hypoglycaemic coma is likely to be brought on by severe mental and physical stress and pain, and is definitely more sudden in onset than diabetic coma? I should appreciate confirmation on this point.

A.—It is very unlikely that hypoglycaemic coma can ever be brought on by severe mental or physical stress and pain, because in these conditions it is believed that there is an outpouring of adrenaline to combat the condition. The adrenaline will inevitably send up the blood sugar and will therefore tend to prevent the onset of hypoglycaemia. All these three conditions are therefore much more likely to cause glycosuria. It is, of course, possible that a patient who has run to a shelter without having the carbohydrate of her meal, or who has taken a wrong dose of insulin, or who is liable to sudden attacks of hypoglycaemia, might develop an attack of hypoglycaemia during an air raid in spite of the outpouring of adrenaline produced by physical stress and pain. A "faint," on the other hand, may well be brought on, and the patient should, of course, recover quickly. It is most important to treat any diabetic person who becomes unconscious during an air raid as having hypoglycaemia and to give sugar to drink or, if necessary, intravenously. Hypoglycaemia always comes on very suddenly, and the point of distinction between it and diabetic coma is the well-being of the patient until just before the onset of unconsciousness. In diabetic coma, on the other hand, there is nearly always a history of an illness of twenty-four hours' or more duration, often, unfortunately, coupled with the omission of the insulin because the patient cannot eat any food. The onset of coma is always gradual.

Precancerous Stage

Q.—What is known of the precancerous stage of cancer?

A.—Cancer develops with high frequency in certain gross lesions which, commonly, are described as precancerous. In general the transition occurs abruptly in a lesion of long standing and it is not inevitable. Distinctive lesions, in the strict sense precancerous, which necessarily precede and always culminate in cancer, are hard to identify. In the experience of most investigators the first unequivocal evidence of the action of carcinogenic agents in experimental animals has been the development of minute tumours after a latent period of weeks or months during which the response of the tissues is not demonstrable by methods hitherto used.

Polyuria in Old Age

Q.—Is there a tendency to polyuria with increasing age? A man aged 68 has to urinate twice during the night. The urine is clear and perfectly normal, the stream good, and there is no difficulty in starting. There are no signs or symptoms of enlarged prostate except perhaps slight delay in finishing micturition. Blood pressure is 130/75. Little fluid is taken in the evening. The quantity of urine is rather large.

A.—A tendency to nocturnal polyuria with increasing age may be an early expression of diminution in either the cardiac or the renal reserve, resulting from arteriosclerosis. When the origin is cardiac there is usually oliguria during the day; the recumbent posture at night diminishes the venous engorgement of the lower extremities, with consequent elimination by the kidneys of occult oedema fluid which has accumulated during the day. The specific gravity of the nocturnal urine is high, and there should be confirmatory evidence of diminished cardiac reserve, such as diminished exercise tolerance. When the origin is renal, the polyuria compensates for diminished "flexibility" of the kidneys and is the result of arteriosclerotic ischaemic fibrosis replacing functioning renal tissue. A specific gravity concentration test shows inability to secrete a highly concentrated urine. There is some polyuria during the day and the nocturnal urine has a low specific gravity. In this patient—if it is assumed that the symptoms are not due to prostatic obstruction and there are no other symptoms which suggest an unduly diminished cardiac reserve—it is reasonable to regard

the cause as being arteriosclerotic diminution of renal reserve; as to regard the patient as having kidneys corresponding to Clifton Allbutt's description of a "starved but not a corrupt kidney sufficient for the smaller life of an elderly man."

LETTERS, NOTES, ETC.

Pruritus Ani

Dr. F. SUGDEN (Kingsclere) writes: With reference to the note on pruritus ani in the "Any Questions?" column of the *Journal* (Sept. 25, p. 410), might I recommend a treatment inaugurated by my partner, Dr. D. N. Philip, when he was H.S. at the Prince Beatrice Hospital? This consists of repeated painting of the affected area with Castellani's fuchsin paint. I have seen this clear completely several very severe cases of pruritus ani, and I have to see a relapse.

Mr. J. LIVINGSTON (Barrow-in-Furness) writes: Local application of calomel powder (plus scrupulous cleanliness) is one of the oldest and best remedies, and this treatment has been published in the *Journal* from time to time for years.

Dr. A. GREENE (Norwich) writes: I have had experience of the distressing complaint being cured by the application twice a day for a few weeks of ung. metallorum.

Nipples and Breast-feeding

Dr. MARY G. H. EDWARDS (New Milton, Hants) writes: I feel I must supplement your answer to the query on cracked nipples. I have learnt that these are due to allowing the infant to remain too long on the breast during feed-times for the first 2 or 3 days. Two minutes on the first day, three the second, five on the third are as much as a nipple can be expected to stand. Nipples can be hardened by leaving soap on them, from the seventh month rather than washing off the soap; but even untreated nipples will not crack if not over-used at first. Depressed nipples can, in extreme cases, be made to function by the diurnal use of a breast pump, from the third month of pregnancy if possible, and this treatment is far more efficacious than massage.

Treatment of Gonococcal Arthritis

Mr. J. F. PEART, F.R.C.S. (Sandbach, Cheshire), writes: In your issue of Aug. 28 a question was asked in connexion with the treatment of gonococcal arthritis. I noticed that prostatic massage was being carried out and recommended. As I pointed out in a paper read to the International Congress of Hygiene in 1928, the most satisfactory treatment of gonococcal rheumatism is vasotomy. It is also the rational treatment for the condition is evident when it is realized that the infection is lodged in the seminal vesicles. I consider massage of the prostate useless, if not actually harmful, likely to cause a dissemination of the poison, besides being painful for the patient when the prostate is tender. Massage of the vesicles would be more rational, but unfortunately it is impossible in many cases to reach the fundus of the vesicles, so that expression would be imperfect. In my experience these cases clear up after vasotomy has been performed, cessation of pain and gradual subsidence of the swelling in the joints resulting. That vasotomy may cause sterility is a myth, for I have had cases showing spermatozoa in their semen six months after the performance of double vasotomy.

Temporary Tonic Motor Paralysis

A paper by G. de M. Rudolf on a condition believed hitherto described has been deposited in the library of the Royal Society of Medicine. This paper may be consulted by any who are interested; but as the condition is probably of a psychological nature, it is considered unwise in the national interests to publish a description of it until after the close of hostilities.

Salmon in the Thames

Dr. HERBERT C. JONAS (Braunton) writes: The leading article in the *Journal* of the Rivers of England (Oct. 9, p. 457) once more refers to the story of the glut of salmon and the indenture of the apprentice. The author has clearly not read all the evidence. Frank Buckle wrote the final word. When he was inspector of fisheries he offered £50 for a copy of this much-quoted document. Once when in Exeter he heard of an old lady who actually had a copy. She lived in the middle of Dartmoor. Buckland hired a carriage and pair and drove off next day. He saw the old lady and asked to see the copy. Her answer was: "Wull, there now, durm me ef I do burn the thing last wick when I were spring clanin'."

Disclaimer

Dr. E. WRIGLEY BRAITHWAITE (Leeds) writes with reference to some press publicity following his letter in the *Journal* of Oct. (p. 433): What was made to appear as an interview with me in the columns of one paper was derived from a phone conversation only, in which I refused to make any statement and forbade a comment under my name on my letter. I subsequently refused to give any assistance or information on five occasions.

TREATMENT OF GUNSHOT FRACTURES OF THE LIMBS

BY

Prof. SERGEI S. YUDIN, F.R.C.S.(Hon.)

Surgeon to the Skljassovski Hospital for Traumatic Diseases, Moscow

General Considerations

The experience gained during eighteen months of the present war has revealed the advantages and disadvantages of the various methods of treatment for gunshot fractures of the limbs. From these preliminary data the results of therapy can be assessed, and general rules can be laid down for the treatment of these fractures, both in the field and at base hospitals.

The methods used are based on three main therapeutic factors: wide surgical excision of the wound; adequate local and general use of sulphonamides; prolonged fixation in plaster. These principles are indisputable, and surgical excision should not be replaced by chemical sterilization or the introduction of packing. In addition the application of dry sulphonamide powders is immeasurably better than the use of other antiseptics or repeated irrigations, and allows adequate splinting with plaster, which is essential for complete immobilization of the limb. This immobilization is of paramount importance in the case of gunshot fractures, especially of the femur, not only for procuring adequate union of the fracture and healing of the wound but for the survival of the limb and even the patient. Not only is immobilization in plaster the most important factor in the treatment but it is most suitable for the transport of the patient over long distances.

Immobilization by extension has undeniable merit. Its great advantage is its application to almost any case of fracture or dislocation, and by it satisfactory reduction can be obtained even after delay in therapy; but even in the treatment of closed fractures such procedures are impossible when the patient has to be moved repeatedly from one place to another. The amount of time and trouble expended in the autumn months of 1941 on moving patients to and from air-raid shelters was enormous and the effectiveness of treatment was greatly impaired. In addition in times of stress it is difficult, if not impossible, to use methods of extension at advanced casualty stations, and by the time such patients have reached a base hospital union is so complete that correction by traction is no longer possible. Moreover, with infected fractures it is difficult to secure adequate rest for the patient, and the healing of the wound and fracture is impaired by repeated dressings and movement in bed. This not only retards recovery but jeopardizes the final result, and the more rapidly healing occurs in both soft tissue and bone the greater preservation of function there will be. On the other hand, the slower the resolution of the infection the more scar tissue there will be, and final function will be less, particularly in the case of the knee-joint.

We do not consider it possible to procure adequate immobilization of the bone fragments and soft parts with hinged splints and other forms of apparatus; in fact, these defects are present to a greater degree with such apparatus than with skeletal extension, since they cannot be fitted securely enough and are apt to become displaced. Plaster-of-Paris bandages are applied direct to the skin and immobilize the whole limb, thus securing maximum rest and allowing easy transport; the nursing is thereby simplified and the work of the surgeons lightened.

Plaster Fixation

There are, however, some important defects and drawbacks in this method of treatment, and we would point out its limitations for general application. The three main drawbacks are: (1) the defective position of the bone fragments may not easily be seen and serious shortening of the limb may result; (2) contractions and stiffness of the joints may occur; (3) sepsis may progress unnoticed. I shall consider each of these drawbacks separately.

Shortening of Limb.—Should an unreduced fracture with serious displacement and shortening occur, it is not the fault of the method but of the surgeon who allowed this to happen during application of the plaster. In cases of gunshot fractures displacement of the fragments and shortening are as a rule slight, and good alignment is usually possible in any part of the limb after the excision of the wound. This, however, does not apply to fractures close to joints, in particular the knee-joint. In most cases a good position is obtained by manual reduction before the plaster-of-Paris is applied, but 20 to 25% of gunshot fractures of the femur show considerable deformity which cannot be eliminated in this way; in such cases a light extension apparatus with a screw extension is required.

The application of plaster-of-Paris necessitates a certain skill, and the successful use of an extension apparatus requires a knowledge of orthopaedic surgery, though not more than the use of weight extension.

There are still some cases in which one cannot avoid anterior displacement, and sometimes in order to avoid shortening it is necessary to insert a pin as well as using plaster. Such a method of forced extension and plaster in combination (as used by Winnett Orr) sometimes admits of correction of deformity even up to periods of three to six weeks after the injury. Even in such cases fixation in plaster has many advantages over skeletal traction by weights, as in the latter the amount of weight required is enormous and the length of time in bed much prolonged; in addition evacuation from one hospital to another is facilitated. Consequently the first alleged defect does not in fact exist.

Contracture and Stiffness of Joints.—The statement that plaster fixation causes contracture and stiffness of joints is wrong; immobilization by this means causes harm neither to joint surfaces nor to the healing process; the real cause of the contracture is scarring in the muscles as a result of injury and infection, and the adhesion of damaged muscles to the site of fracture and callus. In injuries to the femur the wound is generally in the quadriceps femoris, and this explains the frequency of extensor contracture of the knee-joint. All along, the quadriceps lies close to the bone, but the flexors are further away from the femur and thus are less often involved, consequently flexor contracture is less common.

I would also mention that gunshot wounds of the leg are treated in the same way. An extensor contracture of the knee-joint never occurs although immobilization may last for months, and this method of fixation cannot be blamed for the impaired function of the knee-joint, but indeed seems to be the best means of treating both the fracture and the muscle injury, and securing the least amount of deformity.

Suppuration beneath Plaster.—The most serious disadvantage alleged against plaster fixation is the impossibility of seeing the extent of suppuration under it. This, it is suggested, gives rise to the risk of neglecting appropriate treatment for the sepsis at any given time. Such fears are groundless in many respects; the degree of infection may be judged by the general disturbance, both subjective and objective, as well as by direct observation of the wound, and frequent dressings following wound examination

are harmful. Moreover, plaster bandages have proved themselves to be very absorbent. A great drawback is the odour, which is a small factor when it is compared with the advantages this method affords.

Procedure in Plaster Fixation

Anyone, in fact, who uses this method for gunshot fractures will never wish to return to any other. The condition of the wound and the granulation tissue which develops under the plaster are remarkable. I will not now endeavour to explain the wonderful reparative power of the tissues under such treatment, but will merely point out that no other method produces such rapid sterilization of wounds, granulation of cavities, and rapid epithelization. It should be emphasized, however, that the plaster must only be put on after wide excision of the wound and removal of all dead and damaged tissue. If this is not done, whatever the method of treatment used, fatal infection may occur; but, even under adverse conditions when such treatment is impossible, no other method has given results as good as immobilization in plaster. In this method all surgical procedures preparatory to fixation must be suitable for the application of plaster over them. The extent of the operative procedures varies according to the time of the operation after the initial injury—that is, in relation to the degree and spread of infection.

Early Cases.—If operation is performed early and the wound is not yet clinically infected—that is, on an average within six to eight hours—the procedure is confined to the removal of all large foreign bodies and blood-clot, and a thorough excision of all devitalized tissue. Bone fragments need much care, and only loose fragments should be removed. Bone still adherent to the periosteum or to muscle must be preserved. In such cases this operative procedure allows of relative sterilization of the cavity. Excision of the surrounding muscles should be sparing and only such muscular tissue be removed as is in danger of necrosis. After the excision no stitches should be used either in skin or in muscle, and the wound must be freely opened throughout to allow of free drainage of exudate. Hence there is no great need for accessory drainage through undamaged tissues. Next the whole cavity must be liberally filled with a sulphonamide powder, carefully ensuring that no part is missed. The limb is then encased in plaster over the open wound, no dressing being applied, and the healing of the wound should proceed without gross infection.

Cases in Later Stages.—In gunshot fractures of the thigh which are brought to operation at a later stage there will be found various degrees of infection. Some cases, though 24 to 36 hours may have elapsed from the time of trauma, are afebrile, show little clinical evidence of infection, and the discharge from the wound is not grossly purulent and has no smell. Other cases show purulent discharge, though the general condition of the patient is good and the infection appears localized. Both these types of case, if it be found at operation that the process of suppuration has not spread far beyond the wound, can be treated in the same way as the first group.

Suppurative Cases.—The third main group consists of cases which show gross infection spreading far beyond the wound itself. Under such conditions a wide excision to allow free access to the site of the fracture is absolutely necessary so that drainage is free. Lateral drainage may be needed in some cases if the wounds do not easily permit dependent drainage. The operation is designed to produce a funnel-shaped cavity with the summit at the site of fracture and the wide base on the surface of the thigh, and this should be established for both entrance and exit sites of the wound.

(I should here emphasize the preparatory cleansing of the wound with water and soap, which is widely used by English and American surgeons. We consider that adequate use of soap and water around and in the wound is of the greatest importance, and I will describe its use in detail at a later stage.)

This third group of cases consists of patients with severe suppuration at the site of fracture and spreading infection beyond the damaged area. They arrive for operation from the fifth to the fifteenth day after the fracture, showing not only local suppuration but severe signs of toxæmia. Until quite recently it was doubtful whether such cases should be treated by wide excision of all necrotic material or whether it was advisable to leave the wound completely

alone. After many operations it was found possible to put the limbs in plaster and treat them in the same way as the previous groups, and there is now no question as to the right course. The technique of wide excision down the site of fracture as previously described is of extreme importance, as is adequate use of a sulphonamide powder, both locally and by mouth. In such conditions immobilization in plaster is irreplaceable by any other means of fixation. In the present war, experience has shown that the majority of gunshot fractures have arrived for treatment when infection is far advanced. It has therefore been a matter of great importance to evolve this technique and to make available our present knowledge to all doctors dealing with Service cases.

Pre-operative Treatment

When the men first arrive at the hospital their general condition must receive attention. Many have had long journeys over bad roads; they are often physically exhausted, worn out by pain, and suffering from exposure to cold. They frequently show marked signs of shock and hæmorrhage. Many have not slept for several days and nights, and some are starving. Immediately on their arrival, therefore, general treatment must be started. The application of warmth is of great importance, and this factor is often not sufficiently appreciated. Operation may have to be postponed for several hours, during which time they are warmed and their shock is treated. Drinks such as sweetened tea, spirits by mouth, and the application of hot-water bottles and warm woollen or fur blankets often improve their condition enormously, and special resuscitation departments should be established in all base hospitals. Such departments have proved of inestimable value in the preparation of the patients for adequate surgical treatment. Blood transfusion or the infusion of glucose or saline solution may be required in a large number of cases, especially in conditions in which the blood pressure is much lowered, and a considerable blood loss.

Anæsthesia

The problem of anæsthesia must be considered in detail. It would be ideal if anæsthesia could be induced immediately after injury—that is, before first aid is applied—and continued during transit to hospital. There is no doubt that the administration of morphine, 10 mg., before first aid, and again before removal to hospital, would considerably ease the patient's discomfort and lessen the inevitable shock. This administration of morphine may again be necessary before surgical procedures are undertaken; but, if conditions permit, it is advisable to treat the shock and to undertake measures such as radiography and nursing procedures before starting any operative procedure. The operation will need complete surgical anæsthesia, and will have to be maintained during the application of the plaster while the patient is on an extension apparatus or an orthopaedic table. For the latter morphine may suffice. The time available and the order in which these procedures are undertaken determine the mode of administration of morphine and dosage. Thus, if time allows, subcutaneous morphine given a quarter of an hour before will suffice, but if anæsthesia is required urgently the intravenous injection of 1.5 to 2 c.c. of a 1% solution of morphine, or, better, the Kirschner mix (morphine hydrochloride 0.25 g., scopolamine hydrochloride 0.025 g., narcotine hydrochloride 1.25 g., ephedrine hydrochloride 0.25 g., and 0.75% sodium chloride 100 c.c.m.) give considerable analgesia and even sleep. If the operation requires the administration of a general anæsthetic preliminary medication will aid in the induction and reduce the amount of general anæsthetic required, and, moreover, lengthen the anæsthesia so as to allow ample time for subsequent drying of the plaster.

Local anæsthesia in cases of gunshot fractures of the limb has a very limited application. There is no doubt that injection of local anæsthetic into the fracture site and surrounding hæmatoma is of great value if it can be used, in the conditions under discussion it is sometimes very difficult to ascertain the exact site of the fracture without prolonged and careful examination, which is often impossible, and certainly undesirable. Secondly, with open fractures it is difficult to maintain the solution of local anæsthetic at the fracture site. In a few cases of closed fracture it may be of some value. Local anæsthesia for the excision of a wound is open to serious

jections. The injection at the local site is difficult, and in consequence it is often impossible to ensure anaesthesia. It is so often impossible to determine beforehand how extensive an excision will have to be, and so during the operation there may be constant delays while fresh areas are anaesthetized in order to complete the operation successfully. Moreover, the infiltration of the local anaesthetic conceals the natural appearance of the muscles and makes it difficult to determine how much muscle tissue has been damaged by the injury and in consequence how much muscle should be excised. We consider, therefore, that the use of local anaesthesia not only impedes an operative procedure but, in open fractures, restricts the accuracy with which one can assess the extent of the damage and infection in the tissues. There is yet another consideration. The patient after operation is in an uncomfortable position for a considerable time while the plasters are setting, whether he be on some form of extension apparatus or on an orthopaedic table, and this position is exceedingly irksome and tiring, particularly to patients who are exhausted even before the operation is begun. Under these conditions the surgeon may be tempted to allow the removal of the patient before the plaster is firm; this would entail considerable risk of soiling the plaster, and the whole process might have to be repeated from the beginning. It may often prove that, even after local anaesthesia, general anaesthesia would be required during this stage and the benefit of the former lost. Finally, local anaesthesia for such complicated operations is time-consuming, and under conditions of war it is unfair to delay so long, as many other operations of equal urgency may hereby be postponed, with grave risk to the waiting patients.

Ether, with preliminary administration of morphine, provides an excellent and simple method of anaesthesia and allows complete freedom for the operator, both in the extent of the operation and in the time required. There is, of course, no reason why local block in large nerve-trunks with novocain should not be employed in addition if thought necessary. Ether should not, however, be used if the patient is suffering from bronchitis, which is not infrequent during the autumn months. It is also necessary to take adequate precautions in case of fire.

Evipan intravenously is an excellent anaesthetic, but for prolonged use the services of a skilled anaesthetist are required. This is overcome to some extent by the use of a 2% solution instead of 10%; it can be given up to 200 c.cm. by subcutaneous injection. It is useful to bear this in mind if general anaesthesia is required during an operation begun with a local anaesthetic.

None of the previous methods offers such advantages or secures such adequate relaxation as spinal anaesthesia. This allows the most satisfactory conditions for reduction of the fracture, and adequate time for examination of the tissues and excision of the wounds and for the application and drying of the plaster. The great drawback of this method is the fall in blood pressure induced. This makes it unsuitable for patients suffering from shock and also for many others who have had considerable haemorrhage, and, since in the cases under discussion one or both of these conditions are often present, this method, although very satisfactory when used, may not be possible. Spinal anaesthesia is therefore of limited value in the early stages at casualty clearing stations, where shock and haemorrhage occur with such frequency. However, during the last 18 months experience has shown that many gunshot fractures of the thigh arrive in hospital at a late stage, and although there is often considerable infection in the wound, with signs of toxæmia, the initial shock has been overcome and the blood pressure is stable. Such patients are suitable for spinal anaesthesia. In fact, in many the condition definitely improves after induction of spinal anaesthesia, and the main difficulty encountered is the movement of the patient in preparation for the lumbar puncture. Great care must be taken in the movement of patients with fractures high up in the thigh, but we find it is possible to move them in most cases. In the last 300 fractures of the thigh which passed through our clinic we were able to use this form of anaesthesia in all cases, and I have had no difficulty with it even in front-line hospitals. A 1 c.cm. of 1% nupercaine (pericaine) and the Soviet preparation sovokain are excellent preparations. The anaesthesia takes place within a few minutes and lasts for three to four hours. This

allows the patient to be moved on to the extension apparatus without pain and also admits of adequate fixation or extension of the limb painlessly. After fixation in the extension apparatus the patient is washed with soap and water, and in the same position such operative procedures as are necessary are performed; following this, the plaster is applied. During the whole procedure the anaesthesia remains and there is no complaint of discomfort from the patient, and adequate time is available for the hardening of the plaster. If neither nupercaine nor sovokain be available, novocain, tropacocaine, or stovaine may be used instead in doses of 1.5 to 2 c.cm., but the anaesthesia will be of shorter duration. With the use of any of these spinal anaesthetics it may be necessary to inject subcutaneously 1 c.cm. of 5% ephedrine if an undue fall of blood pressure occurs.

During the last 43 years spinal anaesthesia has varied greatly in popularity. There is no doubt that the successful application of this method calls for considerable skill and experience, particularly if high anaesthesia is required, but lumbar puncture in the usual situation between the 2nd and 3rd or 3rd and 4th lumbar vertebrae, and the injection of the anaesthetic mixed with 1 to 2 c.cm. of cerebrospinal fluid, are adequate in these conditions and the patient placed again in the horizontal position. Although, therefore, spinal anaesthesia is considered inapplicable in cases with shock or following recent haemorrhage, it is of immense value during the treatment of open fractures of the thigh once shock has been relieved, even if there is well-marked infection of the wound.

Position of Patient and Cleaning of Wound

The patient should not be removed from the stretcher until anaesthesia has been induced. He should then be placed immediately on to the extension apparatus, and extension applied to both legs, with a narrow support under the sacrum. This position allows adequate access to all parts of both limbs. The first procedure is thorough washing of the skin not only of the operation field but of the whole limb. The entire area should be washed thoroughly with soap and water; any shorter method, such as painting the skin with alcoholic solution of iodine, is grossly inadequate. Some difficulties may be met with during this procedure. A fresh fracture needs much care during the cleansing, and the presence of other wounds on the limb requires special attention. We do not think it adequate to use soap and water on gauze or cotton-wool; the whole area should be scrubbed with a soft brush. By means of this the cleaning is done better and much more expeditiously. It is often advisable to protect wounded surfaces during this cleansing procedure. In suitable situations this can be done by packing with dry sterilized gauze, but in many cases it is advisable to close the wound temporarily with Michel's clips. This permits of more rapid cleansing of the skin surfaces. With skilled assistance washing can be completed in from 5 to 10 minutes, and this time includes shaving the limb if necessary. The limb is then washed with water and dried with a towel or with gauze and alcohol, and the whole operation field is painted over with iodine, the limb being isolated by means of sterile towels and any temporary stitches or clips removed. There are a few sites of injury which cannot be approached with the patient in the same position—mainly cases with wounds in the buttock and perineum. Such patients should be operated on first in the prone position, and only after completion of the operation there should they be transferred to the extension apparatus for the rest of the examination and treatment. We have, however, found that in many cases these apparently inaccessible sites are easily accessible with an operation table that admits of lateral inclination of the table itself. This has been found possible by fixing the extension apparatus to the operating table. We have designed a simple wooden stand which can be given a lateral inclination of 35 degrees. We have also designed a new model of a portable apparatus with a screw extension for both legs. These two designs form a good orthopaedic table for all the operative procedures on this type of injury.

Treatment of Recent Open Fractures of the Thigh

Even in extensive wounds with gunshot fractures of the thigh operative procedures which can be done within the first 8 to 12 hours must have as their purpose complete and thorough mechanical cleansing so that the whole wound and site of

fracture should be made sterile. To achieve this all foreign bodies must be carefully removed from the wound and a diligent search made for even the smallest fragments that may have penetrated the surrounding tissues. All damaged tissue must be removed and all blood clots, so far as is possible, taken out. This may entail a wide excision of the tissues and the removal of bone fragments. The only bone fragments which should be left are those still adherent to their periosteum. One should then take great care to ensure haemostasis. Finally, the cavity which is left should be of adequate size and situation to allow easy escape for the discharge of exudation into it.

Operative Technique of Recent Fractures

The excision of fresh wounds should be done under aseptic conditions and the operation should be carried out with strict precautions; there should be available a double set of instruments and gloves, so that a fresh set may be ready for use during the clean part of the operation when the infected tissue has been removed. The question of the excision, or otherwise, of various tissues in the wound depends on their naked-eye appearance. The light available must therefore be adequate and access to the deeper parts of the wound must be wide, so that this visual examination can be effectively made.

The approach to the fracture must then be decided. In the majority of cases adequate inspection and the provision of free dependent drainage can be procured through the wound sites. If this is not easily obtained the fracture should be explored and drained through an additional incision in a suitable area.

In cases of established infection quite small excisions of the wound may have to content the surgeon, because it may be necessary to establish lateral drainage quite apart from the main direction of the wounded surfaces; but with recent wounds this is not the case. In these circumstances there is no need for the preparation for drainage through the wound, and wide excision can be performed with impunity. There may, however, arise the question of lateral access to the fracture in order to allow adequate inspection of the tissues. If the wound cannot be extended owing to the proximity of important structures, then even with recent injuries it may be necessary to explore from another direction; such exploration should always be made from the lateral aspect of the limb. This should only be done in cases of strict necessity. In addition we believe that fresh wounds should not be stitched either in the muscles or in the skin. It is assumed that adequate treatment at this stage will prevent infection in the wound, and we need not discuss here the question of treatment of sepsis.

The amount of tissue removed depends on surgical experience and requires expert judgment. First the skin wound is fully excised; this is performed in such a way that the skin surrounding the wound can be dissected intact. From one end of the excision the skin is then dissected off with a scalpel and the subcutaneous tissues inspected; all damaged subcutaneous tissue is excised with the skin. The deeper layers of tissue are removed along with the deep fascia. Extensive removal of deep fascia is often necessary to permit adequate inspection of the muscles underneath. The opening in this deep fascia should be elliptic, with its long axis in the long axis of the skin incision, and its length only slightly less than the length of the skin incision and with the deeper-wounded structures in the centre. The incision in the deep fascia is made with a scalpel, through which the tips of Cooper's scissors are introduced; by means of incision with these scissors a wide opening in the fascia can be made and the muscle brought into view, and the wounds in the muscle can now be inspected.

When the skin and infected superficial and deep fascia have been removed the dirtiest stage of the operation is completed; fresh instruments and gloves should be used and adequate haemostasis must be secured in the freshly cut surfaces. Then all damaged and injured muscle tissue must be excised and wide access to the fracture allowed. All loose fragments and blood-clot are removed, and care must be taken to ensure that suitable drainage from the fracture site is possible through this aperture, making the wound, so far as practicable, cone-shaped, with its summit at the site of fracture and its base lateral or posterior in the limb. Sometimes this is difficult owing to the direction of the wound, but in most cases with an entrance-

and-exit wound one or other of the wound tracks can be chosen for dependent drainage. Thus, with the wide excision of skin, wide aperture in the aponeurosis, and the excision of adequate muscle tissue, not only is infection removed but adequate drainage is established. During the excision the muscle contracts, and therefore this is best performed with scissors, which tend to hold it as they cut through, when the use of the scalpel is made difficult by the retraction of the muscles as they are cut.

In deep cavities it is often difficult to distinguish the ends of wounded muscle the torn ends of which have retracted in all directions. In these circumstances the wound cavity must be stretched widely open and the main direction of destruction in muscle defined. The surgeon can then see more clearly which muscles are involved and whether their ends have retracted. If this be done systematically, from the most superficial muscles down to the most deeply situated, adequate inspection becomes possible and the surgeon can remove only destroyed muscle but muscle that may not survive owing to bruising or disturbance of blood supply. Normal muscle tissue can be recognized by the following characteristics: First, a normal colour; muscle which is dying has a dull colour, has lost its gloss, and is becoming bluish in appearance; secondly, a colour change resembling the difference between arterial and venous blood. Secondly, fresh blood exudes from the surface of a fresh incision into normal muscle, showing that the blood supply is intact. Thirdly, when the muscle fibres are cut they contract if their nerve supply remains intact. On these three signs it can be decided whether the muscle is sufficiently vitalized to be removed or not. While adequate excision is essential we must remember that all tissue, particularly muscle tissue, must be preserved if at all possible, as muscle cannot regenerate, although the remaining tissue may hypertrophy. Although this point should be emphasized it must not prejudice the principles of the excision of doubtful tissue to ensure adequate drainage. Thus it would be better to remove a part of some muscle than to endeavour to preserve necrotic tissue and it is better to make large drainage apertures through healthy tissue for the removal of blood-clot and damaged tissue than to risk leaving such at the bottom of an undrained cavity. There are, however, some limitations to the extent of excision of tissue. It is unjustifiable to expose extensive areas of either large blood vessels or nerve trunks, owing to the grave subsequent risk of haemorrhage or nerve complication. It is therefore necessary sometimes to preserve some damaged tissue in the vicinity of such structures. If these structures intersect the wound cavity an endeavour is made to clean the cavity around them, and then to protect them with a muscle covering produced with two or three fine catgut sutures or them.

Bone fragments present another problem. We have already made it clear that any loose fragments must be removed by a careful search made to ensure that none are left behind but that fragments of periosteum must in no circumstances be removed, though they may need to be replaced and the sharp edges may have to be rounded so long as the periosteal connexion is not damaged.

It is very difficult to give any definite indications with regard to the removal of fragments of bone with a dubious connexion to soft tissue. One should be careful to remove doubtful fragments so long as the amount removed does not prejudice bony union in the fracture. Provided that the rest of the operation has been done properly, it is unusual for an occasional necrotic fragment to produce a worse result than the formation of a sequestrum, which can be removed later. However, it be found impossible to perform adequate excision of the soft tissue, then it is imperative that all doubtful fragments should be removed and that great care should then be taken to leave undisturbed even the smallest portions of periosteum.

This procedure completes the operation. After this, haemostasis must be secured, and must be complete. Even the smallest bleeding vessel should be ligatured with fine catgut. The whole wound should be powdered with sulphamilamide or, better still, with a mixture of sulphamilamide and sulphathiazole. The wound should not be sutured. The plaster now applied as previously described without any dressing padding under it.

Operative Procedures in Late Cases of Gunshot Fractures of the Thigh

In this group of cases there are various types. Some do not show evidence of infection, but are assumed to be infected because of the long delay between injury and treatment. Such cases can often be treated as were those in the previous group. There are others in which wound infection is apparent but confined to the local area. Such a series also includes patients who have had an excision at an earlier stage and have been left with packing in the wound. For patients with local infection the treatment as previously described may be possible still; but if the infection is more widespread, then treatment must be different. The operation in this case is designed not for wide excision but for adequate inspection and cleansing of the site of fracture and the securing of adequate drainage from the wound cavity. In this connexion the situation of the wound is of great importance. Thus wounds on the outer side or on the posterior surface of the limb frequently permit of adequate dependent drainage, whereas wounds on the interior or anterior surface of the limb are often quite unsuitable not only for drainage but even for adequate inspection of the damaged tissue. Thus it is sometimes necessary to explore through an incision on the outer side of the limb and to establish drainage from the same direction. In these cases I would like once again to emphasize how important is the mechanical cleansing of the wound cavities and the surrounding tissue with soap and water, and how essential it is that the procedure previously described for cleansing the tissues should be undertaken in every case. The water must be sterile—boiled if necessary. The best soap to use is liquid green soap; ordinary soap, however, can be used in 0.25% carbolic, and such a solution, if made under unsuitable conditions, should be sterilized by boiling. All parts of the wound should be washed, including the actual site of fracture; and plenty of water should be used, so that mechanical removal of foreign bodies will take place at the same time. At the actual site of fracture the bone fragments must be washed very carefully, taking precautions against tearing any fragments of the periosteum. After long-continued cleansing in this way the whole wound is irrigated and washed carefully with normal saline. The wound is now re-examined and all the pockets and wound surfaces are irrigated with normal saline until they appear clean and the saline from the wound itself runs clear. As an example, in a splinter fracture with laceration the washing of the wound surfaces and the surrounding tissue should be continued for 10 to 15 minutes, and something like 5 litres of solution will be required for irrigation. This last procedure is not only valuable for the cleansing of the wound but makes the operation simpler and the recognition of damaged tissue easier.

It has been stated that these procedures are unsuitable because of the time involved for use in the front line. We would say that the additional use of the surgeons' time is adequately justified by the results, and in addition the actual operative procedure is rendered much quicker by the improved conditions. Another objection is the large quantity of sterile water, liquid soap, and salt solution required; and it is true that sometimes, with a large influx of such patients, this may present a serious problem. By adequate preparation beforehand such problems of supply can be overcome—on occasion sea-water has been used instead of saline with very good results; and all the difficulties and trouble are adequately compensated for by the improved condition of the patients. We believe that the application of this method is most valuable even in cases of gross infection; although it is obvious that one cannot sterilize gross infection by this means, it will wash out much foreign material, which will aid in the operative procedures, and remove the accumulation of pus and exudate. Indeed, in such cases it is often much more important, as only by so doing can one proceed to distinguish macroscopically between damaged and undamaged tissue. We do not mean to suggest that it is impossible to carry out the operation without this washing, but we maintain that it is made very much easier. We also feel that it is advisable after the operation to carry out irrigation again with saline before the application of sulphanilamide powder, to make sure that no tissue has been left which should have been removed. If additional incisions

have proved necessary for drainage, irrigation should be carried out through such an aperture as well. If the sides of the wound are gently wiped with soft gauze under the stream of saline it is surprising how much tissue and blood-clot are washed away which would normally be left in the wound cavity as necrotic material.

Operative Procedures for Severely Infected Wounds

In the previous world war the problem of gross sepsis in wounds was not solved, and even up to the end of that conflict most surgeons refrained from active surgical intervention in the presence of severe infection. Such wounds, and particularly gunshot fractures, are now being operated upon even after a long delay, and are treated in the same manner as we have described with recent ones. It appears that it is less dangerous to treat them in this way than to leave necrotic material in the wound to separate naturally. It was feared at first that damage to the defensive barrier which had been formed against infection would cause an increase of both the local sepsis and the general toxæmia. There is no doubt that the operative procedures described will remove this defensive area in many places and damage it in others, and will certainly introduce a large fresh wounded area where the struggle between the body defences and the bacterial infection will proceed; the operation will also often result in an increase in the toxæmia: all these things do in fact take place, but the increase in the general reaction has not proved serious, and the local condition has not deteriorated as might have been expected. The mechanical cleansing of the wound and the removal of dead tissue improve the defences of the body and the condition of the wound itself; and the surgical cleansing of the wound must be carried out most thoroughly—that is, on the completion of the operation all necrotic and infected tissue should have been removed. It would be ideal if all the excisions with the scalpel and scissors were made through undamaged tissue; this is rarely achieved in grossly infected wounds, particularly in the thigh, as in such cases the anatomical difficulties often render it impossible and the removal of fascial layers and large areas of muscle would make too great a sacrifice to warrant such a procedure. Under these conditions one must secure adequate drainage for the sepsis which cannot be removed surgically. We conclude that operative procedures can be undertaken with great advantage in cases of gunshot fracture of the thigh with gross sepsis. Excision of all infected or necrotic tissue should be undertaken if possible, adequate drainage must be established in either case, and sulphonamide preparations should be used both locally and orally; and, finally, complete immobilization of the limb should be procured by means of closed plaster.

We think that drainage is so important that details of the procedure are worthy of mention. There are three basic requirements: (1) incision and approach to the site of fracture from the lateral aspect of the thigh through the vastus lateralis muscle; (2) funnel-like excision of this muscle with the apex at the seat of the fracture; (3) suturing, if necessary, of the skin edges to the deep fascia.

I have previously suggested that the lateral aspect of the thigh is the site of election for the approach to the fracture, as it allows of adequate drainage, there are no large structures which impede one's approach, and it can be used throughout the length of the thigh from the trochanter to the external malleolus of the femur; only in cases of approach to the head or neck of the femur would it be necessary to extend the incision into the gluteal muscles. Only in exceptional circumstances, with wide destruction in the lower third of the femur, would the biceps femoris need to be incised. If the actual wound, either of exit or entrance, is on the lateral or the posterior aspect of the limb, it may be suitable for use as drainage without further incision. If the wound is not in this situation, then drainage must always be done from the lateral aspect. During the lateral approach great care should be taken at the actual site of the fracture, but drainage from the fracture site must be adequate, and small exposures are to be deprecated. This large exposure has the additional advantage of permitting adequate inspection. Muscle layers, however, adjoining the bone fragments must be carefully preserved at both ends, as the blood supply to the periosteum mostly passes through this site. Muscle must therefore never be

detached from the periosteum or from the ends of the fractured bone, and excision of muscle at this site must always be minimal. It is perhaps advisable at this stage to emphasize again that no periosteum should be removed; and even if some doubtful bone fragments insecurely attached to periosteum are taken away, the small, even minute, fragments of periosteum should be retained.

The object of suturing skin edges to deep fascia is to prevent premature closing of the wound cavity with consequent pocketing. The skin edges are sutured to suitable deep fascia, or often to muscle, by means of two or three catgut sutures on each side of the wound cavity. The elastic pull of the skin then tends to retract the deep muscle layer and thus prevent occlusion of the cavity deep in the limb. This suturing should not be undertaken until the wound has been amply treated with sulphanilamide powder. It is essential to prevent any infection under the skin flaps, and this is also guarded against by the use of catgut, which will absorb rapidly and enable the skin edges to retract later. This usually occurs in 7 to 12 days, during which time the success of the operation is being decided. This procedure also seems to reduce the depth of the wound and the depression of the scar afterwards.

Conclusions

I have described the aims and technique of the operations undertaken for gunshot fracture of the femur at various times after occurrence of the injury and with varied degrees of infection. It has been shown that when operation is undertaken within a short time the procedure is strictly confined to the removal of foreign material and damaged or devitalized tissue. In such cases additional drainage is seldom required, but the wounds should not be sutured. In treatment undertaken at a later time after the injury the method of choice is wide excision of infected and necrotic tissue and great care in mechanical cleansing, followed by free drainage.

I have concluded that adequate excision of muscle, so as to produce a funnel-shaped aperture for drainage, is of great importance. Adverse criticism has been expressed of this point of view. It is stated that this unnecessarily wide excision would cause an increase not only in the extent of muscle contracture but in the loss of power in the limb as a whole, and that it would increase the devitalization of the bone fragments with the risk of non-union of the fracture. I have never suggested that the excision should be excessively wide, and have pointed out the dangers of the removal of muscles with arteries traversing them; in consequence I have advocated the lateral approach through the vastus lateralis. In 350 cases of such fractures with gross sepsis upon which I operated I have not had one single case of non-union of the fracture. In addition, owing to the use of incision through the vastus lateralis and the technique of suturing the skin to the deep tissue, we have not seen defective movement of the limb as an after-result which can be attributed to post-operative defect in muscles.

I would like to remind readers that the first task in modern warfare in the treatment of a wounded man is to prevent the loss of the man's life and limb by infection. We believe that this is mainly achieved in the case of gunshot injuries of the thigh by the operative procedures described, prolonged immobilization in plaster, and the use of local and oral sulphonamide preparations. We admit that the procedures described are often tedious and time-consuming, and we have been told that such treatment cannot be used when the number of patients is large. We believe, however, that the methods described are irreplaceable by any other method of therapy, and by their means 95% of our patients with these injuries have their lives and limbs saved. Other methods, and splinting, though useful for transport, are unsuitable for immobilization treatment over any length of time and cannot replace the use of plaster. Inadequate excision and temporary splintings could only be justified under conditions of great stress, to enable the patient to be transported from the front line to hospital; we do not think that any considerations of time should weigh when the patient's life and the ultimate fate of the limb are at stake.

In view of the criticism that these procedures are prohibitively time-consuming I would like, in conclusion, to give an average estimate of the times which the various procedures take under our conditions.

The patient is put on the orthopaedic table, a spinal anaesthetic is given, the extension apparatus is applied, and the limb thoroughly washed. This work is mainly undertaken by one and the time required is approximately half an hour. The patient is helped by one assistant or an experienced sister, and a nurse attending to the instruments. If the knee-joint is opened and the wound has to be dealt with as described, the procedure would take approximately 24 to 25 minutes. The procedure involves the femur above the great trochanter, and partly into the hip-joint, the procedure will take from 40 to 60 minutes. If, however, the fracture is in any part of the shaft of the femur the work is easily completed in half an hour. The average length of this part of the operation is 30 minutes. The third part of the procedure—that is, the application of the plaster—is performed by trained nurses, usually two with a third for the bandages. The application of plaster, including a half-hour drying, takes 20 to 25 minutes, and 10 minutes is required for drying before the patient is moved. Thus three tables allow continuous flow of wounded. Each of these stages averages 30 minutes, and each patient therefore requires one and a half hours; but one patient is dealt with each half-hour, and in a 16-hour working day, with one hour for dinner, it is possible to attend to some 25 to 35 wounded men. This is the maximum but has been easily attainable under such a system. The team consists of 9 people, who work on three tables; there is one skilled surgeon in the team, and usually three experienced orderlies. In order that the work shall proceed continuously it is necessary to have another experienced doctor available for the sorting of the wounded as they arrive, directing for radiography or for other purposes as may be required, also choosing the next patient for operation. This same doctor could administer the spinal anaesthetics. This team is sufficient to deal with a large influx of wounded men, since there are a number of cases of femur fracture to 400 or 500 total wounded as a rule. Thus all the femur fractures among 1,500 wounded men can be treated in 3 days. Admittedly it is unwise to wait till the next day, but under conditions of stress this can be done successfully if the patient has been given sulphanilamide powder by mouth locally. We have found that in these conditions the proportion of dangerous infection is not higher than 2%. Up to 2% may show secondary haemorrhage, but in not more than 1% such cases is the haemorrhage likely to be dangerous. We can therefore, at least, say that 90% at least can be evacuated in excellent condition and the majority of these patients will have their wounds healed and the fracture consolidated before the first plaster needs renewal.

SOME THERAPEUTIC FALLACIES

BY

J. W. LINNELL, M.D., F.R.C.P.

Physician, Metropolitan Hospital; Consultant to the L.A. Hospital Service

AND

W. A. R. THOMSON, M.D.

First Assistant, Medical Unit, St. Thomas's Hospital
Physician, E.M.S.

A few years ago one of us had occasion to give a lecture in a London hospital to a number of general practitioners. In it he happened to question the value of the generally accepted forms of therapy, to be hotly attacked by a section of his hearers on the score that he was taking away their "treatment." It was in vain he protested that if this could be proved to be valueless it should be discarded. They were not to be pacified. Shortly after he had a similar experience in the Provinces. This owes its origin to these two incidents. It is not unexpected that all our conclusions will be accepted by readers. If they succeed in evoking a critical spirit alas! sadly lacking—in regard to present-day methods of treatment, we shall be content.

Essential Hypertension

The number of men and women in middle and late life who "suffer" from this condition is enormous. The number who are living full and vigorous lives in blissful ignorance of the fact that their blood pressures are abnormally immeasurably greater. Of those in the first category few have any symptoms referable to the condition if they have been informed by their doctors that they were ill.

complicated high blood pressure gives rise to no symptoms itself in the large majority of patients; few without knowledge of its presence complain of dizziness, a sense of fullness of the head, occipital headaches, and any others of the list of symptoms ascribed to it in textbooks of medicine. Such symptoms are nearly always due to an anxiety state largely dependent on knowledge of the height of their blood pressure.

Before criticizing the usual treatment of hypertension it is well to remember that its cause is quite unknown, even if numerable theories regarding it have been advanced at one time or another. In spite of common medical belief to the contrary, infections, whether general or local, auto-intoxication derived from the bowel, prolonged physical strain, and a high protein diet have, so far as is known, nothing to do with it. Nervous strain may raise it temporarily; there is no evidence that it can produce it. Endocrine disturbances are easy to name; they are harder to incriminate.

In view of these facts treatment must be unsatisfactory. It can be said at once that therapeutically we are powerless to reduce blood pressure save temporarily. Nevertheless, prolonged rest in bed, regular purgation, repeated venesections, and many descriptions, all manner of baths, scores of drugs and organic extracts, high-frequency currents, diathermy, and we know not what else are constantly being used by the over-enthusiastic therapist. The public also likes "treatment" and is willing to pay for it. In the present state of our knowledge is it not more logical for us to approach the question of treatment as philosophers? A patient who has been told that he has a high blood pressure often lives in constant dread of a "stroke." When why tell him when we discover it? If he has been told already, why not reassure him by telling him of people with blood pressure as high as or higher than his who are living full and active lives; that many of them will reach the allotted span; and that if we could bring down his blood pressure the chances are that he would feel the worse for it? In the case of his relatives, of course, the position is rather different, and they should be informed that the expectation of life is not so good as in an individual with normal or low blood pressure. So long as there are no complications the patient should not be allowed to consider himself an invalid; on the contrary, he should be urged to keep up his interests, though on general grounds he should be advised to avoid overstrain, both physical and mental. He should be encouraged to take moderate outdoor exercise: golf played in leisurely manner is—or, alas! was—he game *par excellence* for hypertensive patients. Often they sleep well. When there is insomnia sleep should be ensured by a nightly dose of a sedative, but no one should be initiated into the habit unnecessarily. He should be allowed an ordinary mixed diet, unless perchance he be obese, when his weight should, if possible, be brought down gradually to reasonable proportions by dieting. This last is a most important measure, for, one thing, there seems to be some connexion between obesity and hypertension; for another, it seems illogical to allow an already overworked left ventricle to be subjected to a further strain which is avoidable; and, for yet another, he raised diaphragm and its small range of movement present in obese people can only increase the heart's handicap. A hypertensive patient who has brought himself to submit to the loss of superfluous flesh is greatly gratified, as a rule, by the results of his abstinence.

Hypotension

Of recent years there has been an increasing tendency to diagnose a condition known as "low blood pressure." In consequence a new sword of Damocles has been hung over the heads of numbers of healthy people. A doctor, unable to find any organic cause for a patient's complaints, discovers in the course of his examination that he has a systolic blood pressure of something in the neighbourhood of 100 mm. Hg. He immediately fastens on this, with the result that a new invalid is created, to become almost inevitably the victim of polyvalent therapy.

Except in a very small and limited group of conditions such as shock, severe haemorrhage, coronary thrombosis, Addison's disease, and a severe infection such as influenza, hypotension is of no clinical significance. Our practice is, when we find a middle-aged man with such a blood pressure as we have mentioned and for which there is no apparent cause, to con-

gratulate him upon the state of it. Apart from aught else, such a man is almost certainly immune to hypertension.

Arteriosclerosis

For this there is no known treatment. Yet how much honest endeavour is wasted in striving to stay its progress and restore its ravages! Why pretend to achieve the impossible? Surely it is better to accept the inevitable. No useful purpose, however, is served by telling a patient that he has arteriosclerosis. That much can be done to help him and his relatives by advice and by the treatment of various symptoms as they arise is certain. Nevertheless, the chances are that he will profit most by encouragement.

Angina Pectoris

The number of drugs used to reduce the frequency of attacks of angina pectoris should alone make one suspicious of the efficacy of any of them. Evans and Hoyle (1933, 1934) in a fine piece of work tested a host of them—sodium nitrite, mannitol hexanitrate, erythrol tetranitrate, potassium iodide, luminal, chloral, morphine, papaverine, phenacetin, diuretin, euphyllin, belladonna, digitalis, lacarnol, and harmol—to find that none of them acted better than the placebo they used as a control. And yet there must be few of the thousands of victims of angina pectoris in this country who are not taking at least one of them regularly on the advice of their doctors.

Nitrites, particularly in the form of freshly prepared glyceryl tetranitrate tablets, dissolved rapidly in the mouth before being swallowed, are of inestimable value not only in cutting short individual attacks but also in preventing them if they are taken immediately before exposure to such conditions as are known by experience to be likely to induce them. So transitory is their effect, however, that to give them, say, three times a day—as is often done—to prevent attacks is even less reasonable, than to inject adrenaline three times a day to prevent attacks of asthma.

Cardiac Bruits: Simple Tachycardia

It would seem that to many practitioners the mere presence of a bruit is enough to warrant the administration of digitalis. The single indication for digitalis is heart failure in some degree, and this whether the bruit be or be not of organic origin.

Again, the mere presence of tachycardia seems still to many practitioners an indication for digitalis. It has no effect in simple tachycardia due to nervous, toxic (including thyrotoxic), and anaemic states. It is heart failure and not tachycardia which is the indication for digitalis.

Paroxysmal Tachycardia

An attack of paroxysmal tachycardia often arouses needless anxiety in patient and doctor alike, and recourse is straightaway had to a variety of drugs, including inevitably digitalis. The first thing is, naturally, to make an accurate diagnosis, for it is necessary to exclude an unusual degree of simple tachycardia, paroxysmal auricular fibrillation, and paroxysmal auricular flutter. An electrocardiogram taken during an attack is of great value, though not always essential. Paroxysms differ in origin and type and affect both healthy and diseased hearts. The treatment varies from type to type, and the prognosis from patient to patient, but there are a few valuable rules to keep in mind as regards both.

Sometimes the tachycardia is ventricular in origin. Here the prognosis is usually grave, as in the large majority of patients serious myocardial disease is present; most cases, indeed, follow an attack of coronary thrombosis. It is then vital to stop the paroxysm as soon as possible. Digitalis, however given, is almost certainly ineffective and in large doses may be positively harmful, whereas quinidine sulphate, whether given by mouth or intravenously, may produce some of the most dramatically beneficial results in medicine. Far more commonly the tachycardia is supraventricular in origin, either auricular or nodal. Here the prognosis is usually excellent, as in the large majority of cases the myocardium is healthy—it is, indeed, practically only in cases of very diminished cardiac reserve, whatever the cause, that the prognosis is doubtful. Paul White (1937) goes so far as to say that the condition is "usually unimportant." Unless the life of the patient is crippled through the frequency or the length of attacks, or the reserve of the heart is known to be already small, active treatment is

unnecessary. It is generally advisable for the patient to rest during an attack; otherwise, little is needed save strong reassurance as to its innocence. Moreover, a small percentage of patients can themselves stop an attack by pressing on the carotid sinus in the neck, holding the breath, inducing retching, adopting a certain posture, and so on. If it is deemed advisable or necessary to stop an attack on account of its long continuance a subcutaneous injection of acetyl-beta-methylcholine chloride is the procedure most likely to be successful, though it is one never to be hastily adopted, since its effects in other ways may be alarming. Digitalis neither stops paroxysms nor diminishes their incidence. Quinidine sulphate is reputed to do both occasionally, although this is not our experience.

As a toxic goitre is sometimes responsible for the disorder it is always wise to exclude its presence, since a subtotal thyroidectomy in such a case may be the means of dispensing with all other kinds of treatment.

Paroxysmal Auricular Fibrillation

Marvellous as is the effect of digitalis in most cases of established auricular fibrillation, it will not stop individual attacks of paroxysmal auricular fibrillation, nor is there any satisfactory evidence that its regular administration prevents such attacks. In themselves these are—contrary to general belief—usually surprisingly harmless, and there is, as a rule, no urgency to endeavour to stop one, as it may easily and spontaneously cease after a short time. If, however, it persists hour after hour to the great discomfort of the patient, or if the cardiac reserve is known to be small, and in any case if signs of congestive failure appear, it can usually be stopped by the oral administration of quinidine sulphate at frequent intervals. As one of the most fruitful causes of paroxysmal auricular fibrillation is thyrotoxicosis, and a subtotal thyroidectomy generally results in a complete cessation of attacks, in every case a goitre should be diligently searched for—even if mitral stenosis is present.

Shock

This is a result of vasomotor and not cardiac failure. Drugs such as digitalis and strophanthin, which are often administered, have therefore no place in its treatment. It should be remembered, too, that with a reduced volume of blood reaching the heart it is necessary for it to beat rapidly to maintain the circulation.

Bleeding

Calcium is widely used in the treatment of purpura, menorrhagia, haemoptysis, epistaxis, post-operative haemorrhage, and haemophilia. It is also often given before operation as a prophylactic against haemorrhage. Yet, according to Hunter (1938), there is no pharmacological evidence that it either increases the coagulability of the blood or shortens the bleeding time. In his opinion there is no justification for its use in such conditions as we have mentioned; and, as regards its use before operation, it is only of value in cases of obstructive jaundice, in which probably part of the existing blood calcium has become bound to the bile pigment and is thus unavailable for the process of coagulation. Even in these cases administration of vitamin K is more important.

Chilblains

The use of calcium salts in the treatment of chilblains and allied conditions is practically universal. Yet there are no sure grounds for its use. In all these conditions the serum calcium is normal.

Anaemia

Tens of thousands of people are treated for anaemia who are not anaemic. A clinical diagnosis of anaemia is apt to be fallacious. In the examination of any patient in whom anaemia is suspected an estimation of the haemoglobin should never be omitted. If anaemia is found to be present every endeavour should be made to discover its cause. This may be revealed in the course of a thorough clinical examination. Often a full examination of the blood is not only advisable but necessary.

Most cases of anaemia with a low colour index are benefited by iron if effective preparations are used in adequate dosage. It is, however, often discarded as useless after trial in perfectly proper cases simply because the dosage has been inadequate. In this connexion we consider the recent fashionable craze for

giving iron by injection deplorable. According to Witts (1930-1) the majority of ampoules of iron on sale contain infinitesimal amounts of the metal and are ineffective; the potent preparations cause much pain and occasionally iron poisoning. Vaughan's (1932) dictum that intravenous, intramuscular, and all proprietary preparations of iron are as useless as they are expensive is practically true.

Again, liver is not a panacea for every type of anaemia. It is, with rare exceptions, only of value in the treatment of pernicious anaemia and other megalocytic anaemias. As regards the method of its administration, on all grounds—cost, comfort, convenience, and effectiveness—parenteral therapy is infinitely preferable to oral; indeed, the latter method should now be considered archaic save in a few cases. Much has been written on the necessity for giving dilute hydrochloric acid as well as liver. It seldom relieves any accompanying indigestion; it has no effect on the anaemia.

Finally, there is no evidence that arsenic is of any value in the treatment of either microcytic or megalocytic anaemia.

Toxic Goitre

The truth of Joll's (1932) statement that subtotal thyroidectomy is "the method which most rapidly, most certainly and most safely restores the patient to a state of economic efficiency and involves least likelihood of danger of relapse" is now firmly established. Iodine does not cure. This truth cannot be stressed too strongly. In most cases, for reason not yet understood, it ameliorates the signs and symptoms, but only temporarily. Its administration for a short period before and immediately after operation has contributed not a little towards the extraordinary safety which now attends subtotal thyroidectomy when conducted by a team of experts. In our opinion its use should be restricted to these periods. The common practice of giving it for months and even years to end in the belief that it cures is strongly to be condemned. Thereby operation is often postponed till cardiac complications, extreme emaciation, or a psychosis supervenes.

The Common Cold and Influenza

The clamant demand of the layman for a cure of these, the banes of his life, would appear to have had such an undesirable effect on our profession that we feel it our duty to insist on the uselessness of preventive inoculation. In spite of the many large-scale investigations that have been carried out, not one of which has shown that any benefit accrues from such treatment, uncritical impressions still hold the field, and numberless patients are subjected year after year to prophylactic courses of vaccines.

Another point: sulphonamide compounds have no action on filter-passing viruses. It is unwise, therefore, to give them to patients suffering from uncomplicated colds and influenza. Moreover, to quote Beaumont and Dodds (1941), "the prophylactic administration of small doses of sulphanilamide against various types of infection, such as sore throats or colds, is useless."

Bronchitis

A diagnosis of bronchitis, whether acute or chronic, means almost invariably the prescription of an expectorant. The number of gallons of expectorant mixtures used in this country alone in any one year is enormous. That their action is beneficial is taken for granted. Yet it is doubtful if they do not do more harm than good. It seems not only a clumsy but a harmful procedure to try to increase bronchial secretion by irritating the vagal nerve endings in the delicate mucous membrane of the stomach through the administration of such nauseating doses of emetics. Nevertheless, this is how such expectorants as ipecacuanha, ammonium carbonate, and squill act—if they do act effectively when used in pharmacopoeial doses, which is not certain. The chances are that they do little more than cause gastritis. It may be said that this accusation cannot be brought against the iodides. Their action, however, has been found to be very variable, and is probably dependent on the sensitiveness of the individual patient to iodine. What is urgently needed, of course, is a complete reconsideration of the whole subject of expectorants. Unfortunately, as Clai (1937) says, the pharmacology of cough has scarcely advanced at all in the last half-century. We, for our part, have practical

SOME THERAPEUTIC FALLACIES

Nov. 6, 1943

even up expectorants in the treatment of bronchitis. In acute bronchitis—a condition which tends to spontaneous cure—we rely chiefly on rest in bed, an abundance of hot drinks, steam inhalations, and sedatives to control an irritating cough; in chronic bronchitis, on general measures as they affect physical condition, climate, environment, occupation, etc., and, since chronic bronchitis of any standing inevitably connotes bronchiectasis, we advise such patients as seem capable of it to practise postural drainage every morning and at intervals stretching himself across a bed or couch with the trunk hanging steeply over the side and coughing till no more sputum is produced.

Lobar Pneumonia: Bronchopneumonia

In spite of the amazing success of sulphapyridine (M & B 693) and allied preparations in this disease there is still need for the well-established non-specific methods of treatment: measures to achieve rest and sleep, good nursing, a sufficiency of fluids, and oxygen. Special attention has always been directed towards the heart. Most doctors seem to visualize a heart poisoned by infection gradually dilating as it becomes flabbier till in the end it fails. Yet seldom, even in fatal cases, are the classical signs of congestive heart failure seen. More over, in a radiological study of 119 hearts in pneumonia was witnessed in no more than three. It is not cardiac failure which is to be feared; it is peripheral circulatory failure. This is due to loss of contractility of the muscular coat of the peripheral arterioles, with consequent stasis of the blood in the capillaries.

If this be the case, the uselessness of so-called "heart tonics" is manifest, even if they can ever be proved to have any stimulating effect on the myocardium. Certainly alcohol, whatever its value as a food or a sedative, has no such action, nor have strychnine and camphor, while strychnine does not appear to exert any effect on the poisoned peripheral vessels. Digitalis—in popular medical opinion the most potent of all "heart tonics"—is, after all, a poison, and its beneficial effects must be very convincing to warrant the further poisoning of an already poisoned organ. As a matter of fact, its effect in lobar pneumonia has been carefully investigated by many workers, among whom Wyckoff, DuBois, and Woodruff (1930) concluded that its routine use was dangerous and in large doses increased the mortality; while Cohn and Lewis (1935) in an analysis of 1,456 cases found that it did not influence the course of events. Whatever be the value of expectorants under any circumstances, they should logically have little place in the treatment of lobar pneumonia unless there is an associated bronchitis, for most of the exudate is absorbed and not expectorated.

All we have said about the heart, the circulation, heart tonics, etc., in lobar pneumonia holds also in bronchopneumonia. The value of such preparations as sulphapyridine in the individual case is, however, much more a matter of trial and error. Success or failure probably depends on the extent to which the pneumococcus is responsible for the infection, and this is difficult to assess.

Constipation

Incredible quantities of purgatives are ordered daily by doctors, in most cases needlessly and ignorantly a marvellous first place to treat roughly and ignorantly a marvellous piece of mechanism like the intestinal canal, with its delicate epithelium, its wonderful secretory and absorptive apparatus, and its beautifully balanced rhythmic movements, is little less than an outrage. There is an ingrained belief in doctors and patients alike that manifold evils will result if the bowels are not opened once at least every twenty-four hours. Yet, as Gee insisted many years ago, this is not a natural law, and many people feel in better health when the bowels act once in every two or three days. There is little or no evidence to support the widely held opinion that auto-intoxication results from simple constipation: faeces are, after all, meant to dry in the distal colon, and toxic absorption is far more likely to derive from fluid faeces than from dry scybala. To quote Witts (1937): "Apart from mechanical distension, a constipated stool exerts little more influence on the patient in the colon than in the bed-pan." Again, in many people who complain

of constipation the faeces arrive normally at the pelvic colon, but subsequent evacuation is not adequately performed owing to loss of the conditioned defaecation reflex, generally caused by continued neglect to respond at once to the call to stool. It is, however, in the constipation met with in acute infections that purgatives may be definitely dangerous. Here constipation is chiefly due to dehydration, and to dehydrate further an already dehydrated patient seems hardly logical. Once more, though there has been of late a change of mind on the part of most surgeons as regards the preparation of patients for operation, the practice of preliminary purgation in all cases still obtains in some quarters. To dehydrate deliberately before operation and to use all kinds of ingenious means to rehydrate immediately after would seem to be the acme of illogical thinking.

We ourselves have less and less recourse to purgatives the years. Much can be done by stressing the harmlessness of constipation. "The ill effects of constipation are almost entirely psychogenic and due to worry over disturbance of habit" (Witts, 1937), and anxiety about the action of the bowel is probably in itself a fruitful cause of constipation. Much again, can be done by insistence on the necessity for cultivating a regular habit, diet, exercise, the provision of a low lavatory seat or the adoption of a squatting posture for defaecation, and the lubricant, liquid paraffin. There is seldom any urgency to open the bowels in acute infections under four or five days, and then this should be done by enemata and not by purgation. Enemata are almost certainly not used enough in the treatment of chronic constipation; a regular habit can often be regained by their daily use in constantly decreasing amounts.

Our thanks are due to Drs. John Parkinson, Donald Hunter, Hugh Dunlop, and Clifford Hoyle for their helpful criticism of various points we have tried to make in this very incomplete and discursive paper.

REFERENCES

- Beaumont, G. E., and Dodds, E. C. (1941). *Recent Advances in Medicine*, London.
Clark, A. J. (1937). *Applied Pharmacology*, London.
Cohn, A. E., and Lewis, W. H., jun (1935). *Amer. J. med. Sci.*, 189, 457.
Davies, D. T., Hodson, H. G., and Whitby, L. E. H. (1935). *Lancet*, i, 791.
Evans, W., and Hoyle, C. (1933). *Quart. J. Med.*, n.s., 2, 311.
— (1934). *Ibid.*, 3, 105.
Hunter, D. (1938). *Practitioner*, 140, 11.
Joll, C. A. (1932). *Diseases of the Thyroid Gland*, London.
Vaughan, J. M. (1932). *Lancet*, i, 122.
White, P. D. (1937). *Heart Disease*, New York.
Witts, L. J. (1930-1). *Proc. roy. Soc. Med.*, 24, 543.
— (1937). *Lancet*, i, 427.
Wyckoff, J., DuBois, E. F., and Woodruff, I. O. (1930). *J. Amer. med. Ass.*, 95, 1243.

OBSERVATIONS ON THE ACID HAEMATIN METHOD FOR THE ESTIMATION OF HAEMOGLOBIN

BY

C. A. ASHFORD, M.A., Ph.D.

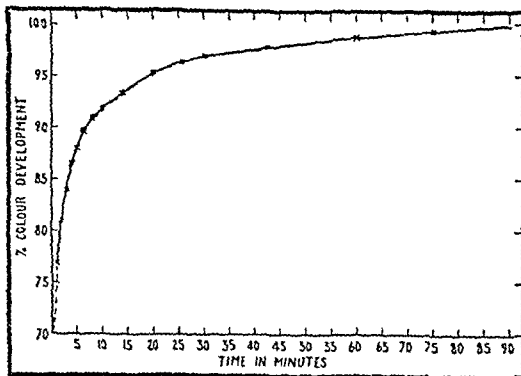
(From the Department of Physiology, University of Bristol)

The acid haematin (Sahli) method is one which is widely used for the estimation of haemoglobin, and is recommended (M.R.C. Report, 1943) for use when the Haldane method cannot be employed. Though not ideal, it has several points in its favour—e.g., the reagents are simple and independent of a supply of CO, and the colour obtained with 20 c.mm. of blood is strong enough to read easily in the Haldane type of haemoglobinometer tube. While the conversion to alkaline haematin has many advantages (Clegg and King, 1942) the colour produced in similar concentrations is much weaker, and consequently comparison, particularly visual, is more difficult. A serious disadvantage of the acid haematin method, however, is that the fluid is a suspension and not a true solution (Barcroft, 1928). Considerable sedimentation has usually been observed in 24 hours at room temperature in several hundred samples investigated in this department. Moreover, occasional samples of blood give suspensions of such turbidity that they are impossible to read.

A further disadvantage is the confusion which exists regarding the length of time necessary for colour development. This lack of uniformity is illustrated by the following examples: Myers (1924) and Beaumont and Dodds (1941) give 2 hours as the time necessary at room temperature, while Whitby and Britton (1939) give 30 to 40 minutes. Stewart and Dunlop (1937) say: "Compare after 2 minutes," while the University of Glasgow Standing Committee (1940), as in the original Sahli (1909) technique, recommend comparison after one minute. Smith (1941) considered 10 minutes a suitable time for clinical purposes, and Campbell (1942) reported agreement with the Haldane method by comparing after 7 or 8 minutes. No doubt other workers use different times. These and other points were commented upon briefly by Ashford (1942). Since complete colour development undoubtedly requires time, it follows that divergent findings must result from the use of different times before comparison with a permanent standard. The time would, of course, be immaterial if a sample of blood of known Hb content was similarly treated at the same moment as the unknown. When, however, a standard such as the Newcomer disk (1919) is used the result will be inaccurate unless comparison is made at the time for which it has been calibrated by the makers. It would appear that this instruction has not always been supplied, or, if it has, has been neglected by the user. It would be advantageous to have agreed uniform conditions, and certain recommendations in that direction are made in this communication.

The Time Relations of Colour Development

A. At Room Temperature.—In the following experiments a Hellige colorimeter was used, and the "standard" was either a coloured glass of the Newcomer type or, more usually, a solution of acid haematin made up some 18 to 24 hours previously and filtered before use if not absolutely clear. A stop-watch was started at the moment when the sample of blood (20 c.mm. or a proportionate amount) was delivered into 5 ml. of N/10 HCl and mixed. The standard being already in position, the fluid was transferred to the vacant cup of the instrument and readings taken as rapidly as possible. The temperature was that of the room (14° to 15° C.). In these and in many other observations no increase of colour was observed after 2 hours, and this value was accordingly adopted as "100%" and the intermediate figures calculated as fractions of it. A typical curve obtained with normal fresh human blood is reproduced (see Graph).



Graph showing rate of colour development at room temperature.
Fresh human blood.

It will be seen that the colour development is initially very rapid, reaching 75% in 1 minute and 88% in 5 minutes. Essentially the same kind of curve was obtained in a number of experiments with ox blood. (In a few experiments it has been noticed that the rate of alkaline haematin formation at room temperature is very much slower in ox than in human blood.)

Comment.—The rate is somewhat slower than that reported by Newcomer (1919), and it is presumed that his room temperature (not stated) must have been higher than those obtaining in this laboratory. Plesch (1941) claimed 88% colour development in 2 minutes; this is higher than either of our figures. It follows that if a solution is compared at 15 minutes against a standard calibrated for 5 minutes the result will be 4 to 6% too high, and after 2 hours some 12% too high. Moreover, owing to the varying time (50 seconds to 2 minutes in a series of observations) necessary to make dilution and comparison when using the simple haemoglobinometer technique, the time for reading should not be less than 20 minutes at room temperature, and the colour would then be only 95% of the final

(2-hour) development. It is difficult to see how times of 1 or 2 minutes can be employed with accuracy, owing to the rapidity of the increase of colour in the early stages. To obviate the delay and to obtain complete colour development in a shorter time the effect of temperature was studied.

B. Experiments at 40° and 100° C.—It was not practicable to maintain the stage of the colorimeter at 40° to 45° C. or higher. The samples were therefore usually measured into tubes containing the acid and fitted with air-condensers to prevent evaporation. The were immersed in the water-bath for the time shown in Table I, I

TABLE I.—Rate of Colour Development at Different Temperature
(The Figures are the Readings in mm. of the Colorimeter Scale, the "Standard" being Constant in Each Experiment)

Species	Temperature °C.	Time t	Reading at Time t (R _t)	Reading after 5 min. at 100° C. (R ₁₀₀)	Ratio $\frac{R_t}{R_{100}}$
Human	Room	2 hours	21.35	17.00	1.26
	"	2 "	21.30	16.80	1.265
	40-45	10 min.	21.30	16.80	1.29
	"	10 "	21.40	16.80	1.27
	100	5 "	16.80	16.80	1.265
Ox	Room	3 hours	24.00	19.15	1.25
	"	2 "	23.90	18.80	1.27
	40-45	5 min.	24.60		
	"	5 "	24.50		
	"	15 "	23.80	19.20	1.24
	"	15 "	23.60		

Where the experiment was carried out solely at 100° the value of R_t used that obtained at room temperature.

which two examples of results obtained with human and ox blood are given. Table II similarly reports an example of the course of the reaction at 40° to 45° C. The tubes were rapidly cooled melting ice before making the comparison. In all experiments sample measured with the same pipettes was allowed to stand 1

TABLE II.—The Rate of Colour Development at 40° to 45° C.
Ox Blood. (Readings of the Colorimeter Scale in mm.)

Temperature °C.	Time t	Reading at Time t (R _t)	% of Final Reading	Reading after 5 min. at 100° C. (R ₁₀₀)	Ratio $\frac{R_t}{R_{100}}$
Room	2 hours	29.92	100.0	23.3	1.28
42-45	5 min.	30.30	98.0		
	10 "	30.25	98.5		
	15 "	30.10	99.3		
	20 "	29.90	100.0	23.9	1.25
	5 "	30.60	97.6		
40-42	10 "	30.40	98.4		
	15 "	30.10	99.3		
	20 "	29.90	100.0	23.8	1.25
	5 "	30.60	97.6		

at least 2 hours at room temperature, and this value was used as the final, or 100%, figure. It thus appears that incubation in water-bath at 40° to 45° C. for 10 to 15 minutes gives results very close to that figure. As this was in a large volume of fluid in which the attainment of the raised temperature would be slower, there is little doubt that under the usual conditions of the estimation, where 20 c.mm. of blood is delivered into less than 1 ml. of acid, the reaction is at least 99% complete in 10 minutes. This technique has been adopted, with satisfactory results, for many rapid determinations in this laboratory. When the tubes fitted with condensers were immersed in a boiling-water bath for 5 minutes and cooled melting ice before reading, an increase of colour of about 25% was observed. This is indicated in Tables I and II by the ratio R_t/R₁₀₀ since the concentrations are inversely proportional to the colorimeter readings, the standard being at the same mark throughout each individual experiment. It was found also that this increased colour production was complete in 3 to 4 minutes. This finding is a further reason for the standardization of conditions and calibrations. It also conflicts with the statement of Berman (1919) that boiling for one minute over a free flame gives the same degree of colour as 15 minutes at room temperature. As the fluid obtained at 100° C. often rather turbid it is not suitable for use as a routine procedure.

Choice of a Standard

There is no doubt that for occasional routine estimation a permanent standard of the Newcomer glass type, properly calibrated and used under standard conditions, is the method of choice. Moreover, the tube employed should be rectangular in shape, since the standard has a plane surface; and it is an advantage if two pieces of glass, between which the unknown is placed, are employed. Furthermore, the tube should be graduated in terms of g. Hb per 100 ml. (or the Haldane scale) owing to the varying meanings which may be attached to the expression "100% Sahli" (see Ashford, 1942).

When a large number of estimations are to be made and a glass standard suitable for use in a colorimeter is not available, it is preferable to use a standard of blood of known Hb content similarly treated with acid. The standard made by dilution from a stock 3% solution of acid haematin (Cohen and Smith, 1919) has not been found entirely satisfactory, being usually more turbid than the fluid from a fresh blood, and the turbidity tends to increase with the age of the strong solution. As this is a thick suspension it is unlikely that the state of dispersion of the solution diluted from it would be identical with that of a freshly made suspension. The procedure therefore adopted was to prepare the acid haematin standard by appropriate dilution with N/10 HCl, from ox or human blood whose oxygen capacity had been determined when fresh by the Barcroft method, and which had been stored in the refrigerator, just before starting to draw the series of blood samples. This technique is justified by the observation that the rate of formation of acid haematin was unaffected by the storage of the blood, at any rate up to 2 weeks.

It has been further shown that it is permissible to use ox blood as standard when human blood is under test. Palmer (1918) stated that this was not so; but Cohen and Smith, who studied several species, did not agree with him. An example of our experiments is shown in Table III. It will be seen that

TABLE III.—Comparison between Samples of Ox and Human Blood. Ratios of Haemoglobin Content Calculated (a) from Total Oxygen Capacity, and (b) from Direct Colorimetric Comparison after Conversion to Acid Haematin

Species	g. Hb per 100 ml.	Ratios	
		(a)	(b)
Ox No. 2	12.35	1.00	1.00
" " 3	14.60	1.18	1.22
" " 4	13.00	1.05	1.03
Human No. 1 ..	16.35	1.32	1.36
" " 2	12.20	0.99	1.02
" " 3	10.50	0.85	0.855
" " 5	9.20	0.745	0.72
" " 6	10.40	0.84	0.83
" " 7	11.05	0.895	0.91
Mean of human figures		0.94	0.95

the ratios calculated from oxygen capacity and by comparison after conversion to acid haematin are very similar. The experiments have included "normal" and weaker samples of blood; none have been made in the presence of abnormal pigments—e.g., COHb or MetHb.

Discussion

The disadvantages of the acid haematin method have been summarized by Clegg and King (1942). Wu (1922) showed that the colour obtained depended on the plasma proteins, but concluded that in all normal samples variations in protein and lipid content were insufficient to cause an error. In fact, his figures showed that the amount of plasma could be increased 3 or 4 times above the normal ratio without causing an appreciable change, though there was a 20% deficit in colour when plasma-free Hb was used. His results were obtained with sheep's blood; if applicable to human blood they would suggest that the method can be used accurately over a wide range of anaemic bloods (cf. Table III). Nevertheless Wu favoured the conversion to alkaline haematin because abnormal pigments such as COHb, MetHb, and CyanHb gave a depth of colour in acid up to 15% above that of HbO₂. It does not appear likely, however, that the amounts of these pigments which may be present in human blood would appreciably affect the colour.

Summary

Formation of acid haematin from ox and human whole blood reaches completion at room temperature (14° to 18° C.) in 2 hours; the same depth of colour is obtained in 10 to 15 minutes at 40° to 45° C. The latter procedure is recommended for routine technique, and the permanent standard should be calibrated accordingly.

Heating at 100° C. for 4 to 5 minutes causes an increase of some 2% in colour. Boiling should therefore be avoided.

A standard obtained by dilution from a 3% stock solution of acid haematin was not found satisfactory. An alternative procedure is suggested.

Ox blood can be used as standard when human blood is being assayed.

My thanks are due to Prof. R. J. Brocklehurst for his interest in this work.

REFERENCES

- Ashford, C. A. (1942). *British Medical Journal*, 1, 163.
 Barcroft, J. (1928). *The Respiratory Functions of the Blood: Haemoglobin*, 2, 17, Camb. Univ. Press.
 Beaumont, G. E., and Dods, E. C. (1941). *Recent Advances in Medicine*, 10th ed., Churchill, London.
 Berman, L. (1919). *Arch. Intern. Med.*, 24, 553.
 Campbell, R. D. (1942). *British Medical Journal*, 1, 88.
 Clegg, J. W., and King, E. J. (1942). *Ibid.*, 2, 329.
 Cohen, B., and Smith, A. H. (1919). *J. biol. Chem.*, 39, 459.
 M.R.C. Report (1943). *British Medical Journal*, 1, 209.
 Myers, V. C. (1924). *Practical Chemical Analysis of the Blood*, 2nd ed., Henry Kimpton, London.
 Newcomer, H. S. (1919). *J. biol. Chem.*, 37, 465.
 Palmer, W. W. (1918). *Ibid.*, 34, 119.
 Plesch, J. (1941). *British Medical Journal*, 2, 859.
 Sahli, H. (1909). *Lehrbuch d. klin. Untersuchungen Methode*, 5th ed., p. 846, Leipzig.
 Smith, W. (1941). *British Medical Journal*, 2, 926.
 Stewart, C. P., and Dunlop, D. M. (1937). *Clinical Chemistry in Practice Medicine*, 2nd ed., Livingstone, Edinburgh.
 University of Glasgow Standing Committee on Laboratory Methods (1940). *Notes on Clinical Laboratory Methods*, 4th ed., John Smith, Glasgow.
 Whitty, L. E. H., and Britton, C. J. C. (1939). *Disorders of the Blood*, 3rd ed., Churchill, London.
 Wu, H. (1922). *J. Biochem.*, Tokio, 2, 173.

LOCAL APPLICATION OF SULPHANILAMIDE POWDER IN RADIOTHERAPY

BY

ALEXANDER A. CHARTERIS, M.B., Ch.B.,
D.P.H., F.R.F.P.S.

Radium Therapist and Donald Research Scholar for Cancer,
Western Infirmary, Glasgow

Sepsis presents a constantly recurring problem in radiotherapy, and its prevention or treatment merits the most careful consideration. Descriptions have previously been given of the antiseptic action of certain acridine compounds, and the success of proflavine in radiotherapy has been stressed (Charteris, 1937; Young and Charteris, 1940). In view of the increasing interest in local application of this substance, it is gratifying to find that my early estimate of its efficacy remains unchanged, and that its proper use makes various radiotherapeutic procedures possible and safe. This is especially true as regards superficial ulcerating growths, also tumours in the nose and its accessory sinuses, and in the realm of gynaecology. I have used proflavine oleate 1% in liquid paraffin, and the original preparation has been improved by the addition of enough oleic acid to produce complete solution.

There is a further important field for antiseptics, however, in the form of powder preparations where the parts must be kept dry, and this refers particularly to the after-treatment of patients, in contrast to their preparation and actual irradiation, when proflavine in an oily vehicle is usually excellent. For dry applications sterile sulphanilamide powder was chosen. It has been used in a large number of cases since early in 1942, and proved most satisfactory. There are three main kinds of application.

Methods of Application

The first and most general of these is in the care of unbroken skin undergoing a dry reaction after radiotherapy. If moist desquamation is to be avoided the skin must be protected against friction and pressure, besides being kept clean and dry. For the latter purpose powder dressings are excellent, and not only is sulphanilamide powder suitable in this sense but it also eliminates the risk of chronic pustules forming. A special use is found in the case of reactions about the vulva or anus, or in any place where apposition of the parts makes a more severe reaction likely, apart from any local variation in tissue sensitivity: regularly changed dry applications on gauze will at least limit desquamation in such situations if carried out two or three times in the day, according to circumstances.

Where it has been necessary to subject skin to something approaching maximal irradiation in order to deliver an adequate "tumour dose," moist desquamation is inevitable, and its treatment presents the dual problem of minimizing discomfort and diminishing post-radiational stigmata so far as is possible.

Bland oily dressings of some sort, or even tannic acid preparations, are much used, but I should now prefer dry sulph-anilamide powder from both standpoints. Its direct application is obviously impracticable; but the affected part is first covered with moistened protective gauze tissue, which is allowed to dry in position, and the powder is then dusted on. Dressings can be carried out as often as necessary without disturbing the protective layer, much after the style of some skin-grafting procedures. The outer surface can be gently washed, dabbed dry, and again dusted from time to time, the whole being covered by gamgee and a bandage.

Finally, there is the case of a superficial tumour with ulceration. Where some form of radium therapy is called for, the use of proflavine oleate as described will usually permit treatment to be carried through for at least a week without change of dressings. Sulphanilamide powder becomes useful, however, after irradiation is concluded, both to control sepsis and to limit reaction by keeping the part as dry as possible. Liberal application under a plain dry dressing is excellent, and changes are as a rule only necessary every three or four days, which is a consideration in a busy out-patient clinic. The absence of purulent discharge is often remarkable, in contrast to what is seen with some other forms of antiseptic treatment. When a small unbroken neoplasm is treated its surface will become a temporary ulcer owing to regression even when surrounding normal skin is unaffected by moist reaction, and the powder method is very helpful here. Its adoption immediately after treatment is finished usually results in a clean dry protective scab over the actual lesion, and on the face no dressing may be needed. This scab falls off, leaving a healthy patch of skin with little evidence of what was previously present. At a later stage, when all reaction has died away, any irradiated skin is often somewhat dry; there is no objection then to the use of a simple lubricant like lanolin or vaseline.

It is appreciated that the subject of antiseptics in radiotherapy is a large one, and that many different substances may prove helpful, but these notes are given in the hope that they may be of some practical benefit, since my own experience has led to the regular employment of the methods in my department.

I have pleasure in acknowledging once more Prof. C. H. Browning's helpful suggestions on the use of antiseptics.

REFERENCES

- Charteris, A. A. (1937). *Lancet*, 2, 627.
Young, Gavin, and Charteris, A. A. (1940). *British Medical Journal*, 2, 489.

THE RENAL FUNCTION IN MYXOEDEMA

BY

G. E. BEAUMONT, D.M., F.R.C.P.

Physician to the Middlesex Hospital

AND

J. D. ROBERTSON, M.D., D.Sc., D.P.H.

(From the Wards and Courtauld Institute of Biochemistry, Middlesex Hospital)

Means (1937) has stated that, except for albuminuria, the picture of nephritis is absent in myxoedema. Recently we (Beaumont and Robertson, 1943) described a case of pituitary hypothyroidism in which renal impairment was a marked feature, and we suggested that part of these renal signs might be due to the hypothyroidism. In the present paper seven cases of myxoedema have been studied. The findings are given in the accompanying Table. The second series of observations ("after thyroid therapy") were made three months after treatment was instituted, when the basal metabolism was constant on a maintenance dose of thyroid. In determining the basal metabolism the standards of Aub and DuBois (1917) were employed. The urea clearance of Möller, McIntosh, and van Slyke (1928) was confined to the maximum clearance in view of the errors consequent upon low urine output—i.e., all the tests were made during a diuresis. In carrying out the test of water excretion (dilution test) the subject drank a litre of water in a quarter of an hour, and the urine was collected over the next three hours. A series of five normal healthy subjects gave urine outputs of 840, 970, 1,370, 1,000, 920 c.cm.

with a mean of 1,000 c.cm. The urine concentration test was carried out according to the instructions of Fishberg (1939) a urine concentration of over 1024 is considered normal.

A study of the results in the Table shows that the ure clearance in myxoedema is low and rises significantly after adequate thyroid therapy ($t=6.05$; $P<0.001$). Of the case of treated myxoedema only one (Case 5) had a urea clearance within the range of Addis's normals (1917), and this was when she was still myxoedematous. It would appear that although thyroid medication improves the urea clearance, remains subnormal.

Table of Findings Before and After Thyroid Therapy

Case	Basal Metabolism		Urea Clearance (per cent. of Normal)		Urine Output (c.cm.) 3 hrs. after Drinking 1,000 c.cm. Water		Highest Specific Gravity Urine	
	Before	After	Before	After	Before	After	Before	After
1	-41	-1	49	85	800	1,230	1025	1021
2	-31	+8	38	56	660	815	1026	1021
3	-32	0	56	71	1,070	970	1026	1012
4	-32	-2	48	56	672	1,094	1025	1018
5	-37	-9	100	118	1,310	1,360	1027	1014
6	-33	-3	50	75	795	1,310	1021	1018
7	-42	+4	56	78	1,330	1,175	1024	1019
Mean	-35	0	57	77	948	1,136	1025	1018

The water excretion is normal in myxoedema, and after treatment with thyroid no significant change occurs ($t=1.98$ $P=0.1$).

Patients with myxoedema are able to concentrate urine as efficiently as normal people. Treatment with thyroid produces a significant change in the ability to concentrate urine ($t=3.55$ $P<0.01$). As these observations were carried out at least six months after treatment was instituted, and when the basal metabolism was steady, the low specific gravity herein reported does not appear to be due to the diuretic action of thyroid which is a feature when treatment is first begun.

No other evidence of renal impairment was found despite chemical and microscopical examinations of the urine. Albuminuria was not detected in any case.

Summary

The renal function of 7 cases of myxoedema has been studied before and after adequate thyroid therapy.

The urea clearance is diminished and rises after thyroid therapy. The urea clearance in treated myxoedema, however, still remains below normal.

The other tests of renal function, such as the water excretion and urine concentration, were normal.

REFERENCES

- Addis, T. (1917). *J. Urol.*, 1, 263.
Aub, J. C., and DuBois, E. F. (1917). *Arch. Intern. Med.*, 19, 831.
Beaumont, G. E., and Robertson, J. D. (1943). *British Medical Journal*, 2, 39.
Fishberg, A. M. (1939). *Hypertension and Nephritis*, 4th ed., Baillière, Tindall and Cox, London.
Means, J. H. (1937). *The Thyroid and Its Disorders*, Lippincott, Philadelphia.
Möller, E., McIntosh, J. F., and van Slyke, D. D. (1928). *J. clin. Invest.*, 6, 42.

Principles for the prescription of quinine in Germany (*Deutscher Arztblatt*, Nov. 1, 1942, 72) include the following: (1) Quinine must not be used as a prophylactic against influenza. (2) It is not to be used as an analgesic or tonic. (3) In the treatment of cardiac arrhythmia, and especially auricular fibrillation, quinine should be used so far as possible in the place of quinine. (4) The use of quinine as an "ecbolic" in midwifery can be continued. (5) So far as is necessary quinine can still be used besides the synthetic remedies for the treatment of malaria. (6) For the treatment of chills and influenza quinine is indispensable. There is no objection to the use of small quinine doses occasionally in influenza, in combination with ascorbic acid. (7) For the treatment of croup and bronchopneumonia (also whooping-cough) the injectable quinine preparations can be replaced by the sulphonamides. Only therefore, in isolated cases should bronchopneumonia be treated with quinine—for example, after operations or in whooping-cough. (8) In suppurating bronchitis and bronchiectasis the injectable quinine preparations are almost always replaced by guaiacol preparation or camphor in oil. Nevertheless, injectable quinine preparations can be used in isolated cases. (9) The use of quinine in sepsis, typhoid, and other general infections is now out of date and can be replaced by amidopyrine.

Medical Memoranda

Acute Dilatation of the Stomach

A case of this dangerous malady has just occurred in my hospital practice, and may prove of interest with reference to the article by Messrs. Lee and Somerville (1941) and the letter by Dr. Gustav Singer (1941), both in your columns.

CASE HISTORY

An otherwise healthy man aged 35 was admitted for pain in the abdomen, vomiting, and constipation. Examination showed marked meteorism, tenderness in the lower abdomen, and a ballooned rectum with fullness in the upper part of the recto-vesical space. Two enemata were without result. Then a spinal anaesthetic was given and a rectal tube passed, but without effect. The abdomen was opened by a right paramedian incision, and a volvulus of the sigmoid colon was reduced easily, by hand, within the abdomen. The tube was guided up into the descending colon, and gas and some faecal matter were passed on the table. The sigmoid colon which was very mobile, was stitched to the lateral parietal peritoneum with two catgut sutures passed through one of the longitudinal muscle bands. One stitch fixed the colon to the abdominal wall above the iliac crest, and the second attached it to the peritoneum just above the external iliac vessels. It was difficult to place more sutures because of the distension, and the bowel remained in good position. After a gentle general routine exploration the abdomen was closed in layers, with the addition of three tension sutures passing through all of them. The operation took 55 minutes, and the patient left the theatre in very good condition.

Morphine gr. 1/4 was given some hours later, during the night, and the patient drank some glucose water. There was no nausea or vomiting. Twenty-four hours later there was still constipation, distension was much increased, and there was pain in the epigastrium with slight hiccup. Enemata, intravenous pituitrin, flatus tube, and eserine failed to have any effect; the pulse was slightly accelerated.

Fearing acute dilatation of the stomach, I passed a Ryle's stomach-tube and applied a syringe. About five pints of the typical pea-water contents was withdrawn. This was run into the rectum slowly, but most of it was rejected. Auscultation of the abdomen revealed faint peristaltic noises, but, as constipation was persistent and pain and distension increasing I prepared to operate. As a last conservative measure, however, morphine and a spinal anaesthetic were given, and the patient was turned on his face in the Trendelenburg position. Within a few minutes a large loose fluid motion was passed with much flatus. He was returned to bed, and in the morning there was no distension and his condition was quite satisfactory. Except for slight wound sepsis he made a perfect recovery.

COMMENT

There seems still to be a lack of uniformity of opinion as to the pathogenesis of acute dilatation of the stomach. From the above case it appears to me that Rokitsky's theory cannot, in all cases, represent the initial cause, for the patient was lying on his side with the foot of the bed raised when the symptoms began, and the dilatation of the stomach appeared as a sequel to the lower abdominal meteorism.

I suggest that there was interference with the normal co-ordinated action of sympathetic and parasympathetic nerves controlling the stomach and bowel, brought about either by toxæmia or by trauma; that is to say, a fault of neurogenic origin. This resulted in an overaction of the gastric secretory function and in non-relaxation of the lower bowel sphincters. The eserine failed to stimulate the parasympathetic nerves to the large bowel sufficiently to cause relaxation of the sphincters and evacuation, perhaps because it was given in too small a dose, and the incoordination was relieved only by the spinal anaesthetic, which, while causing a temporary paresis of the lower spinal nerves generally, also inhibited sympathetic efferent impulses which passed in the sacral nerves to the presacral plexus and which caused contraction of the lower bowel sphincters.

Acute dilatation of the stomach therefore appears to me to be a manifestation of a general tendency to a sympathetico-tonic state or to incoordinated overaction of the sympathetic, and in future cases I shall consider the use of spinal anaesthesia in the treatment of this condition as well as the usual methods of posture and gastric aspiration.

I think that I made the error, in this case, of not leaving the flatus tube high in the descending colon, for adequate drainage of the bowel might thereby have been facilitated and the gastric complication have been avoided.

R. D. MACRAE, M.B., F.R.C.S.Ed.,
Lieut.-Colonel, I.M.S.

REFERENCES

- Bailey, Hamilton (1940). *Emergency Surgery*, Bristol.
Lee, M., and Somerville, E. (1941). *British Medical Journal*, 1, 751.
Singer, G. (1941). *Ibid.*, 1, 945.

X-ray Diagnosis in Pulmonary Tuberculosis

The following case record may be of interest to many readers in view of the prominence given to mass radiography of the thorax.

CASE HISTORY

A single woman aged 40, a cardboard-box maker, was admitted to this hospital on Dec. 16, 1942, in a state of confusion with much restlessness and agitation. She was very resistive to attention in all forms. Physically she was an extremely poor specimen; her weight on admission was only 4 st. 4 lb., and her height scarcely 5 ft. The thorax was very narrow and the chest mechanism poor, giving a small tidal-air content. The breath sounds were rather harsh and there was a slight dullness towards the right base. She had a definite enlargement of the thyroid gland.

Blood examination showed: red cells, 4,200,000 per c.mm.; Hb, 80%; colour index, 0.95; white cells, 3,100 per c.mm.—lymphocytes 57% (1,767 per c.mm.), polymorphonuclears 43% (1,333 per c.mm.); halo reading, 4.7%. The blood sedimentation rate was: 1 hour, 29 mm.; 2 hours, 65 mm.; 4 hours, 78 mm. Blood Wassermann: \pm 3 M.H.D., — 5 M.H.D. Examination of the cerebrospinal fluid resulted as follows: Wassermann test, negative; gold colloidal test, negative; protein, 30 mg. per 100 c.cm.; cell count, 3.3 per c.mm. Urine examination showed a normal specimen.

The sputum could not be examined, as no cough or expectoration was present. The faeces, however, were tested for tubercle bacilli, but a negative result was obtained. The temperature chart was quite atypical.

From a radiograph taken Jan. 26, 1943, the lungs seemed then to be quite clear. It was assumed, however, that there was a tuberculous focus somewhere in the lungs, and she was treated accordingly. At intervals she refused food, and in spite of all possible care and attention she died on April 16, 1943.

A post-mortem examination showed extensive infiltration and part coagulation of the middle and lower lobes of the right lung. Apart from an enlarged and cystic right lobe of the thyroid all other organs were in a fairly good condition, confirmed by histological examination.

SIGNIFICANCE OF THE THYROID

The thyroid activity was determined by estimating the iodine elimination by the urinary route. This gave almost 1 mg. excreted as iodine during 24 hours. About one month later a similar estimation was carried out, 0.61 mg. of iodine being recovered. Both of these figures are much in excess of normal. The fall in iodine excreted in the second instance was accompanied by a further loss in weight. Increasing mental and physical deterioration was also manifest at this period.

The thyroid gland was examined for iodine after the necropsy. The figure found was below normal. This is to be expected when the general pathology of the case is taken into account. Concurrent exhaustion of the gland would now be in progress. Histologically there was much evidence of past activity—more so in the left lobe. The right lobe showed marked fibrous degeneration. The history of the case revealed that the enlargement of the thyroid was first noticed about fifteen years ago. The whole gland weighed 54.86 g. This would indicate scarcely 50% increase.

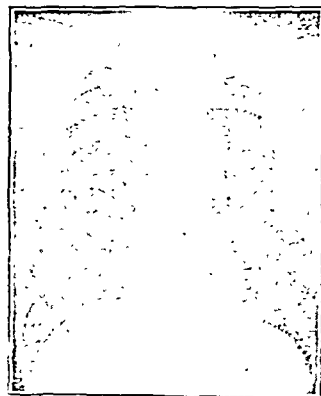
COMMENT

In view of the above findings it is possible that the thyroid activity may have been a factor in accelerating or aggravating the tuberculous process in the lung to a rapidly fatal termination. There is no doubt that hyperactivity of the thyroid would cause increased pressure on an already strained metabolism.

Although the B.S.R., the leucopenia, and the slight dullness around the base of the right lung were individually not diagnostic of pulmonary tuberculosis, yet the combination pointed strongly in that direction. The radiograph, taken only two months before the death of the patient, was not of any diagnostic value. As a matter of fact, it was rather misleading in this case. It might be argued that further positioning should have been adopted, as, for example, lateral views; but as the A.-P. seemed to be within the bounds of normality this was not thought necessary. In mass radiography an A.-P. picture as obtained here may be thought sufficient for diagnostic purposes, but, as has been shown, this is not so.

The obvious conclusion, therefore, is that radiography is not the final court of appeal—at least in the early stages of the disease.

Staffordshire Mental Hospital, Stafford. J. S. SHARPE, M.B., Ch.B.



Radiograph of case

Reviews

INTERSEXUALITY

Hermaphroditos: the Human Intersex. By A. P. Cawadias, M.D., F.R.C.P. (Pp. 78. 15s.) London: William Heinemann, 1943.

In this, expanded version of his Thomas Vicary lecture Dr. Cawadias combines classical learning with modern endocrinology and morphology. He discards the label of hermaphroditism as too involved in mythological associations, and prefers that of intersex, which he defines as a morbid exaggeration of a normal process. He reminds us that sex is antenatally determined by the genes, the gonads being important executives. But the gonads of each sex carry vestigial remains of the opposite one, and experimentally we can inhibit or exaggerate the characteristics of each. He proceeds to a useful classification of types of intersexuality, though naturally there are varying degrees of overlap between them. There are: (1) The *gonadal*, in which the normal balance of the male and female elements in the gonads is upset. A virilizing tumour of the ovary is an instance of this. (2) The *genital*, in which there is a variable amount of malformation of the external and internal generative organs, which are normally moulded from a plan common to both, under the organizing influence of the original sex-forming impulse in the genes. This type then is due to an embryological fault. (3) The *morphological*, in which the secondary sexual characters and general bodily conformation resemble that of the opposite sex. This may be powerfully affected through the endocrine system; thus cortical adrenal tumours may cause virilism in women, while male subjects of hyperthyroidism may have feminine traits. Recent work on the excretion of androgens and oestrogens by both sexes, but in different amounts, proves that there is a bisexual basis here, the balance of which may be upset. (4) The *psychological*, affecting temperament and emotion. It will be seen that this classification allows for various degrees of intersexuality, while, so far as the last factor is concerned, environment may have considerable influence. Parents who are disappointed by the birth of a girl when a boy was desired not infrequently do the child life-long damage by attempting to mould her into something as much like a boy as they can.

Dr. Cawadias in his account of androgynoidism and gynandroidism emphasizes the view that it is the mild intersexes that are the most interesting, while the very rare monstrous ones, the so-called pseudo-hermaphrodites and hermaphrodites of our fathers, are useful principally for the understanding they afford the extremely frequent milder forms. Though space prevents his of his interesting discussion on "pragmatic sex" and "etic sex," the foregoing summary will make clear his use of these terms. When this lecture was originally delivered it gave rise to some controversy, as some thought that endocrine treatment of these disorders was regarded too optimistically. In the book before us not much objection can be taken on this score, even if some developments referred to belong to the future rather than the present. The rapidly increasing price of books is a disturbing phenomenon. This book of 78 pages costs 15s.

VIRUS DISEASES

Virus Diseases. By T. M. Rivers, M.D., W. M. Stanley, Ph.D., L. O. Kunkel, Ph.D., R. E. Shope, M.D., F. L. Horsfall, jun., M.D., and P. Rous, Sc.D. (Pp. 170. 52.00 or 12s.) New York: Cornell University Press; London: Oxford University Press, 1943.

Beyond the Microscope. By Kenneth M. Smith, F.R.S. Pelican Books (Pp. 112. 9d.) Harmondsworth: Penguin Books.

Two books have appeared recently which admirably present the achievements of virus workers to different classes of reader. For the initiated there is *Virus Diseases*, by six members of the staff of the Rockefeller Institute—not a textbook, but the publication in book form of six lectures given at Cornell University. Each of these is a fully documented monograph on a subject with which the author is closely identified, and represents an important advance, the scale and significance of which may surprise even the well-instructed reader. W. M. Stanley, who startled the world of microbiology some years ago by reducing the virus of tobacco mosaic disease to crystalline form, reviews further progress in the physical and

chemical study of plant viruses. Tobacco mosaic virus is now known to be a conjugated protein: it contains 15 amino-acids in accurately ascertained proportions, while four others are known to be absent. Chemical differences between different strains have been identified, and further study on these lines bids fair to demonstrate the chemical basis of mutation. The all-important question whether animal viruses, like plant viruses, must be considered non-living is discussed by Rivers and receives a qualified answer. His subject is the virus of vaccinia, the particles of which when photographed with the electron microscope have somewhat the appearance of dice—rectangular masses with darker spots on them. Kunkel's contribution on "New Hosts as a Key to Progress in Plant Virus Disease Research" tells a fascinating story of transmission experiments, in which aphides and other natural vectors are shown as far superior to the mechanical methods of the experimenter. Transmission to another host is often desirable because the natural plant host may be too unwieldy or slow of growth for experimental purposes, because it is desired to ascertain the resistance of the virus to heat by infecting a plant which itself resists very high temperatures, or—as in the case of one whole genus—because every plant of every species is infected and a normal natural host is therefore not available. Shope tells of swine influenza, discussing its possible origin in the human influenza pandemic of 1918, and describing how the virus is now known to have a cyclic existence, being conveyed annually from pig to earthworm and back by the swine lung-worm, of which the earthworm is the intermediate host. Horsfall contributes a statement of the present position in the study of human influenza, and Rous admirably summarizes the recent work, to which he himself has contributed so largely, on the part played by viruses in producing tumours. These are the high lights of modern virus work, and they are here presented in a form which makes good reading both for the expert and for the novice.

Beyond the Microscope, by Kenneth M. Smith, is a book on viruses in the Pelican series, and succeeds well in the difficult task of presenting highly technical material in a generally intelligible and attractive way without resort to the sensationalism which so often mars books of this kind. It might be expected that an authority on plant diseases would over-emphasize this aspect of the subject, but a nice balance is maintained between plant and animal pathology, and in treating some aspects of his subject the author deals with both types of virus together. This book shows that the subject can be made to have a wide popular appeal; apart from the romance of deadly if unfamiliar diseases such as yellow fever and hydrophobia it touches ordinary life at many points, both in the virus causation of common ailments and in such matters as colour change in wallflowers and the danger to tomato plants of smoking cigarettes in the greenhouse.

MEDICINE IN CHINA

China's Health Problems. By Szeming Sze, General Secretary, Chinese Medical Association; Editor, *Chinese Medical Journal*. (Pp. 60. 51.00) Washington: Chinese Medical Association, P.O. Box 6096.

The author of this, small volume was educated at a public school in England and at Cambridge University, and later had a distinguished career at St. Thomas's Hospital, whence he qualified. He then went out to China to dedicate himself to the Chinese medical profession. This book is the outcome of the information he has gathered on health problems and medical organization in that country. It can be said with truth that these problems are terrific and will take many years to settle. With the morbidity rate of 4% there are some 16,000,000 persons sick on any one day. In the whole country there are only 12,000 doctors and 38,000 hospital beds. On the basis of the usual medical standards China should have at least 266,000 doctors and 2,000,000 hospital beds. A large proportion of the population still rely exclusively on native medicine and native empiric methods of treatment. It will thus be seen that medicine in China is still in a very backward state; but, as the author shows, there is an active National Health Administration and Health League, both of which bodies are steadily working towards improvement. There are ten chapters, each dealing with a different health problem. The pros and cons are clearly and ably stated, and the work is a distinct contribution to this vastly important subject.

Notes on Books

Towards the end of 1934 the secretary of Grith Pioneers asked Dr. MARJORIE FRANKLIN whether a pioneer camp could be used to benefit youths whose behaviour problems unfitted them for normal society but who were suitable for environmental treatment and did not need specialized individual therapy. To answer this question practically, "Q Camp" was founded, and in 1936 the society opened Hawkspur Camp, near Great Bardfield, Essex. Annual reports have given some account of its activities; it had to be closed in 1940, but the society remains in being and is anxious to start again as soon as conditions allow. Meanwhile it has published the full story of *Q Camp*, its internal government, daily life, practical work, and a summary of what it accomplished. The community started in a field under canvas, and gradually housed itself in wooden buildings. Members came through physicians, the courts, social agencies, and other channels. They were a difficult party. Most of the selection was done at the Institute for the Scientific Treatment of Delinquency. Camp economics was an important instrument of treatment: it included wages, charges for board, lodging, clothing, and taxes, and a poor-rate to support non-workers. The staff regarded affection as the most potent factor for the readjustment of members, and used intelligently the phenomenon of transference. Punishment was limited to small fines imposed by the camp council. Three medical psychologists and an educational psychologist advised constantly on all aspects of behaviour. Government evolved by stages, including one of anarchy, into a genuine

democracy. In all 56 youths went through the camp. The authors candidly refused to be definite about results, or to attribute all the improvement in any case to the camp alone. They claim, however, that most of the members were helped to become happier and to have a better relation to society, to acquire a steadier and more genuine maturity and a sense of security, to lose much of their crippling guilt-sense, to turn their ill-regulated energies into useful and creative channels, and to improve their total personalities. Many ex-members have since done well in the Forces and in civil life. The report, price 1s. 6d., can be had from the secretary of the Howard League, Parliament Mansions, Victoria Street, S.W.1.

Social Therapy: An Introductory Study, by Lieut.-Cmdr. M. B. HALE, R.N., and S. M. HALE, a psychiatric social worker, is published by Williams and Norgate, price 5s. The authors are former members of the staff of the London Charity Organization Society, and they attempt to give an idea of social case work to anyone whose duty brings him into close personal contact with his fellow-men. It is firmly based on practical experience, and much of it has already been used as lectures to probation officers in training. It is more particularly intended to give material for discussion to first-year students at schools of social science and to workers in official and voluntary relief organizations. The authors discuss the main aspects of social work—buildings and equipment, interviewing, background, visiting, treatment, conference work, and records—from the standpoint of field workers whose attitude is rooted in Catholic religion tempered by a real acceptance and comprehension of modern psychology, particularly that of C. G. Jung.

Preparations and Appliances

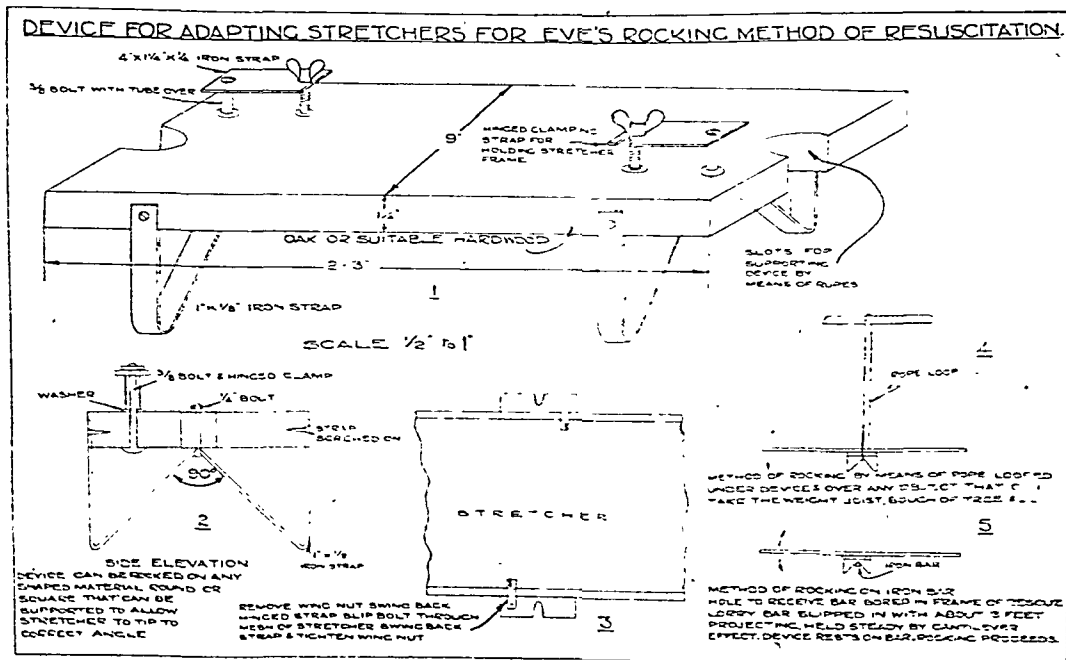
ROCKING DEVICE FOR STRETCHER

Dr. J. L. BARFORD, Medical Officer i/c Casualty Services, Surrey Control, Region XII, writes:

Increasing interest is shown in Dr. F. C. Eve's rocking method of resuscitation, but the various devices illustrated or suggested in your columns have not always been clear or easily adaptable to "incident" conditions and Civil Defence equipment.

device can be secured in a minute on to the stretcher which, already blanketed, is ready to receive the casualty.

The stretcher may be rocked either (1) suspended by a length of rope from a beam, etc., above; the loop of the rope fitting into the end slots in the wood block (Fig. 4); or (2) supported from beneath on almost anything, round or square—a trestle, crowbar, scaffold pole, 4 in. \times 4 in.-beam, etc., or an iron bar fitted in the undercarriage of the rescue lorry (Fig. 5).



Mr. R. Harris, Instructor at the Surrey County Council Rescue School, Leatherhead, has constructed a device (a print of which I enclose) for use with the Civil Defence stretcher, in almost any circumstances. It consists of a block of good hard wood (2 ft. 3 in. x 9 in.) slotted at each end (Fig. 1) and fitted on its under surface with two metal straps bent to 90 degrees in their centres (Fig. 2). The block is fitted on the under surface of the C.D. stretcher by means of hinged clamps (Fig. 3). The

In either case, the stretcher should be some 2½ ft. to 3 ft. from ground level.

I have seen the device in action and have 'satisfied myself as to its usefulness and extreme adaptability. It is easily made by a handyman, costs decidedly under 10s., and, apart perhaps from the block of hard wood, demands no controlled material. Surely all rescue service lorries might be equipped with this device and one made to form part of the equipment of every first-aid post.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY NOVEMBER 6 1943

PENICILLIN IN THE U.S.A.

Penicillin is being manufactured on a large scale in the United States under a contract with the Office of Scientific Research and Development, and the study of its therapeutic use is in the hands of 22 groups of investigators appointed by the National Research Council. Their combined results in a total of 500 cases have now been published¹ in summary form, and papers on the treatment of individual conditions and giving more details are foreshadowed. This laconic and formidable report does not greatly amplify knowledge except in one particular; but by sheer weight of numbers it carries penicillin treatment to a more assured position than it possessed before, and to anyone who has not followed the progress of this work it must seem even more impressive. Of seven conditions chosen for treatment the first was staphylococcal septicaemia: 91 cases have been treated, in 54 of which there was complete recovery or striking improvement. That there should have been 34 deaths may seem disappointing, but some of these cases were inadequately treated either owing to shortage of supplies or because dosage had not then been defined, and some had complicating conditions such as extensive burns, endocarditis, uraemia, and cancer. Among 137 cases of staphylococcal infection without bacteraemia were 55 cases of osteomyelitis, the others having empyema, burns, and various infections of skin and subcutaneous tissues. Of these 109 recovered or improved, but this series cannot be fully appraised in the absence of information about the form of treatment and dosage. It

easy but extravagant to cure a localized infection by systemic treatment, and difficult but praiseworthy for its economy to do so by local application: how many of these cases had local treatment only is not stated. The results in 33 sulphonamide-resistant streptococcal infections, mostly due to *Str. pyogenes* and varying greatly in nature, were generally favourable: this series is small, and again details of treatment are necessarily lacking. There were 76 cases of pneumococcal infection, and perhaps the most encouraging feature among these is the response of sulphonamide-resistant pneumonia to moderate doses—less than 100,000 units given over a period of only 2 or 3 days. There were only 7 recoveries among 21 cases of pneumococcal meningitis, but some of these appear to have been treated before it was understood that penicillin does not enter the cerebrospinal fluid from the blood stream, and that intrathecal injection of penicillin solutions is safe and effective.

There remain two conditions in which the treatment was respectively a dismal failure and a success more complete than in any of the infections hitherto mentioned. Only 17 cases of subacute bacterial endocarditis were treated: 4

patients have died, 10 were unaffected and therefore presumably will die, while of 3 who showed improvement 2 relapsed soon after treatment was stopped. It seems that endocarditis of whatever kind is an unfavourable field for penicillin treatment: 9 cases of staphylococcal septicaemia with endocarditis all died, and of 6 having pneumococcal endocarditis only 1 recovered. In contrast to these depressing findings are the results which have been achieved in gonorrhoea. It was made known in the observations published from Oxford two years ago that the gonococcus is very highly susceptible to penicillin *in vitro* and clinical trial has been deferred in this country only because other conditions than gonorrhoea have an immeasurably greater claim on the scanty supplies available. We now have the answer to this question in quite unequivocal terms. Only sulphonamide-resistant cases were treated, to the number of 129: with the exception of 4, which apparently relapsed later, these cases were all cured by a few intramuscular injections of penicillin. Whether about 10 moderate doses or only 3 large ones are preferable has not yet been decided, but in any case the treatment takes not more than 48 hours and not more than 160,000 units of penicillin: even less time and material may serve the purpose.

A practically certain, very simple, and exceedingly rapid cure for the most difficult case of gonorrhoea seems almost too good to be true, but one could wish that it had been found in the shape of almost anything but penicillin. A demand from this quarter competing with the claims of antiseptics in battle wounds must present a dilemma of peculiar difficulty. There is so little immediate prospect of securing adequate supplies of penicillin that every addition to its uses must create further disappointment and increase perplexity in its allocation.

HOSPITAL PARTNERSHIP FOR SCOTLAND

North of the Border the question of hospital provision brings in rather different considerations from those which rule in England and Wales. For one thing, Scotland has a different tradition of local government; independent powers have been more freely entrusted to small municipalities. Scotland has also a peculiar distribution of population. Thus a division into five hospital regions, pivoting on the four medical schools and Inverness, is more or less accepted; but one of those regions, the south-west, contains more than half the total population of Scotland, and includes the most densely crowded Scottish city as well as almost the emptiest of its Highland spaces. Perhaps native circumspection has also to be considered. At all events the collaboration of voluntary and local authority hospitals in Scotland is nothing like that obtaining in some areas of England, and both sides approach the matter with caution. On the other hand, the Scottish characteristic of thrift has not manifested itself to any great extent in the form of the contributory schemes movement, and, again, Scottish voluntary hospitals do not generally attempt to recover treatment costs from their patients.

Last year a committee under the chairmanship of Sir Hector Hetherington was set up by the Secretary of State

for Scotland to consider the post-war development of a comprehensive hospital service on a regional basis. The main task of the committee, which has now reported,¹ has been to work out a method of partnership between voluntary and statutory hospitals. It is assumed that the dual system will continue after the war, but closer co-ordination will be needed if the comprehensive hospital service available to all, which the Minister of Health announced two years ago as the Government policy,² is to come about. To fuse into a coherent whole a local authority system, with its elected representatives and its public finance, and a voluntary system, with privately governed units, is no simple task, but it is assisted by the likelihood, as the committee judges it, that voluntary hospitals after the war will not be able to continue to offer the volume and range of their former service on the financial resources then available to them. They will need public grants, and a condition attaching to such grants will be that they must consult any regional body which is set up and adapt their programmes to a regional policy.

Many meanings attach to the word "voluntary." This committee defines a voluntary hospital as one which is not governed by any agency of central or local government, though it immediately goes on to describe as an encroachment on the voluntary principle the tendency of industrial contributors to seek representation on hospital boards—a form of consumer representation—which on this definition still does not make the hospitals any less "voluntary." One difference between the two types of hospitals is that voluntary hospitals do not as a rule pay their senior medical staffs, though, again, this tradition of honorary service is thought by the committee unlikely to persist: it would be an impediment to any partnership to have one set of hospitals continuing to work with an unpaid and the other with a paid medical staff. On the other hand, the committee thinks that the organization of local authority hospitals is in need of review. They should assign full clinical responsibility to the heads of their several clinical units, and the senior medical staffs should have independent corporate access to the governing body. In other words, let the voluntary hospitals treat their staffs financially in the same way as local authority hospitals, and let the latter accord to their staffs the status now enjoyed by the staffs of voluntary hospitals.

In addition to providing for interhospital co-operation, the Hetherington Committee has had to think out means for the collaboration of local authorities, for in the west of Scotland at all events no local authority, except Glasgow, is sufficient unto itself. The answer is found in the establishment of regional councils, which the committee thinks should be advisory bodies, though the Scottish Committee of the British Medical Association and the Scottish Branch of the British Hospitals Association hold that they should have executive powers. But the part taken by regional councils in hospital administration must not be regarded as unimportant nor reference to them as a matter of perfunctory routine. The committee suggests councils having equal numbers of representatives of local authority

and of voluntary hospitals, with an independent chairman and a salting of medical and medical-educational interests. The councils will first study reports on the needs and resources of their regions and the schemes propounded by the local health authorities, and will formulate a plan on which the Secretary of State will give his decision. Other functions of the regional councils will be to set up admission bureaux, under medical direction, to distribute patients among the various hospitals, to keep statistical records and to influence the filling of the more permanent medical appointments. It is suggested that the final appointments should remain with the governing body of the hospital but the governing body would receive a short list of candidates from a regional appointments committee, which would have enough prestige to make its recommendations acceptable. Altogether, the regional councils are to have such power that it is difficult to see how they can be purely advisory.

To finance the hospitals the committee proposes a compulsory contributory system. A payment of threepence a week is suggested, but this would meet only a fraction of the requirement and would need to be supplemented by Government subsidy. In this way it is reckoned that 60% of the total cost could be met. A central hospitals fund would be established and allocations made by the Department of Health both to local authority and to voluntary hospitals. The local authority hospitals would obtain the rest of their money from rates and Exchequer grants. The voluntary hospitals should be able to make up the difference as to three-fifths from their "voluntary" income and endowments, and as to two-fifths from public funds.³ The committee is anxious to preserve what may be called the "stimulus value" of the voluntary income which has supported up to now a couple of hundred voluntary hospitals in Scotland. But unconditional gifts and legacies cannot be expected to continue if their only object is to ease the local rates; they must be made to serve a distinctive purpose in hospital economy. It is suggested, therefore, that upon this voluntary income should be thrust the responsibility of providing funds for development. The shaft of the knife will be the allocated income from public funds, but the cutting edge will be the charitable contributions. It is felt that it should be left to the voluntary hospital to dispose at its own discretion of a substantial proportion of its voluntary income upon new enterprises. One passage in the report is very illuminating. In arguing that the voluntary principle, as expressed in the contributions of the charitable and the public-spirited, should be conserved for objects in line with the traditions of voluntary hospitals, the committee says:

"One of the main virtues of the voluntary system, and one which it is in the public interest to preserve, is the comparative freedom with which it can try out new techniques, new equipment, and new methods of

³ Estimated annual post-war expenditure of 219 voluntary hospitals in Scotland		
Payment from central hospitals fund (60%)	£1,500,000	£3,000,000
Interest on endowments (part)	£500,000	
		£2,160,000
Grants from local authorities and maintenance payments		£340,000
Voluntary income, free legacies, and endowments interest (part) (at hospitals' discretion for new development)		£504,000

¹ Report of the Committee on Post-war Hospital Problems in Scotland. Cmd. 6472, 1943. Edinburgh: H.M.S.O. (9d.)

² House of Commons, Oct. 9, 1941.

treatment which are promising but which have not reached a stage at which a public authority can or ought to be readily induced to incur the expense of introducing."

One hardly expected to find in a report which seems rather inclined towards the public authority point of view such a testimonial to private enterprise and such an implied criticism of the unadventurousness of official medicine.

MATERNAL AND CHILD HEALTH

Prof. James Young has surveyed the wide field of maternal and child health in the Honyman Gillespie Lecture he delivered at the Edinburgh Royal Infirmary last July.¹ Among other matters he emphasized the need for a much closer liaison between university medical schools and the public health services. Edinburgh has led the way in this respect, for a Chair of Child Health and Life was established in 1931 with Prof. Charles McNeil as its incumbent. Durham has recently followed suit. But London with its teeming millions and many medical schools has lagged behind. Were not traffic lights, trolley buses, etc., introduced in smaller cities some years before they appeared in the Metropolis? It is this cloak of conservatism hanging over the premier city of the Empire that irritates and at times exasperates the visitor. The idea of the combined school of maternal and child health is one which should be supported widely. The maternity hospital is preferably associated with the general hospital with all its ancillary services. This unit should be the common meeting-ground for teachers of obstetrics and child health. The proper study of the child is the child and the woman who bears and rears that child. The welfare of the mother during pregnancy is of paramount importance. After birth the health of the mother during lactation and later will profoundly influence the well-being of the child. Thus maternal and child health are indivisible and the professors of both subjects need to collaborate over a large common field, including nutrition, mothercraft, and the various social services that relate to family life and stability.

The paediatrician should be welcomed in the obstetric unit—in fact, invited to supervise and be responsible for all the infants. Yet there are still maternity units where he is looked upon as an intruder. It is more usually the senior sisters, inflexible and obscurantist, who are to blame in this respect. So often the paediatrician is called in when the infant is moribund. If there is to be any diminution in the annual wastage of infant life in this country (about 18,000 neonatal deaths and 25,000 stillbirths) then the paediatrician must have full control over the infant, normal and abnormal, from the hour of its birth. He must formulate the procedure for the feeding of the infants, for the care of the premature and the treatment of the infected babies. It must no longer be left to sisters and junior residents to make weighty decisions of this kind. We cannot hope for any improvement without combined operations on the obstetric and paediatric fronts.

Many will agree with Prof. James Young in his plea for the representative of the local authority, the medical officer

of health, being included on the academic council. In this way all the health services in a given region could be unified with benefit to all groups. A mass of clinical material which is not now utilized for teaching and research would thus be made available. By this arrangement the professors of obstetrics and child health would be made responsible under the medical officer of health for the clinical care and control of the mother and children of the area. A new era in the history of the medical schools would emerge, since all those wide social activities of the health authority that are related to the mother and child, such as mothercraft, nutrition, health education, etc., would be linked up with the teaching centre. For too long has there been a divergence between the workers in the municipal clinics and those in the hospitals. All too often does one hear of lack of cohesion. The artificially fed baby leaves hospital on a particular feeding regime and then is put on an entirely different one at the welfare clinic. The hospital has one system for ante-natal supervision, the municipal clinic another. The mother leaves the hospital where she has been confined and is examined post-natally by one who has no knowledge of her previous obstetric history. All this could be avoided if there were a common directorate and more team-work. There should be an exchange of duties so that, as Prof. McNeil has aptly said, the deadening effect of the treadmill of clinics could be avoided.

Under a partnership between university and local authority what a vista opens out, and what could be achieved for the benefit not only of mothers and children but of all members of the community! Prof. Young's plan is not premature, but it will need assistance in its delivery, which should not be too difficult unless obstructed.

"BRITISH JOURNAL OF INDUSTRIAL MEDICINE"

In January of next year we hope to add to the specialist journals published by the B.M.A. one which many felt should have been among the list of medical periodicals long before this—a journal of industrial medicine. Many informal talks on the need for such a journal have taken place during the past few years, and the final stimulus to action came in the shape of a formal request to the B.M.A. from the Association of Industrial Medical Officers, a body which has worked valiantly to promote the interests of industrial medicine. An editorial board was formed, and the names of five or six men put forward who would be willing to act as editors, under Sir Henry Bashford as editor-in-chief. For nearly a year Sir Henry has in fact been hard at work in preparing the ground, and more recently in assembling material for publication in the first issue, to appear in January, 1944. In view, however, of his new appointment as Medical Adviser to the Treasury he finds himself unable to continue the task of editor-in-chief, and it is anticipated that Dr. Donald Hunter will step into his shoes. Sir Henry will remain associated with Dr. Hunter in the editorial work, together with Dr. A. J. Amor, Dr. M. W. Goldblatt, Dr. D. C. Norris, Dr. Donald Stewart, and Mr. R. W. Watson-Jones. A distinguished and representative editorial board will support the editor with advice and encouragement and assist them in the formulation of policy.

¹ *Edinb. med. J.*, 1943, 50, 474.

One of the benefits of war to medicine is that it uncovers effects, whether in administration or in knowledge, and stimulates the medical profession to make these good. Apart from the devoted work of the medical inspectors of the Factory Department of the Home Office, the doctor has been a stranger in the world of industry in this large industrial country, possibly because the medical profession itself has been too preoccupied with the treatment of disease in the individual to the neglect of the wider questions of preventive medicine, both in the community generally and in industry in particular. With some notable exceptions, industrialists have been unimaginative in the matter, and only lately have realized the money value to industry of good health in the worker. Since 1939 the country has been overwhelmingly conscious of the extent to which it owes its safety to the health of the worker in industry; and in preserving this medicine must needs be of first account. Industrial medicine is not just industrial toxicology; in fact, industrial toxicology is but a small part of its subject-matter. There is a whole range of problems facing the worker, the management, and the doctor: the effect upon the worker and his work of temperature and humidity, of the intensity and direction of illumination, of posture and change of posture, of rest pauses and recreation, of washing facilities, of canteens, of an efficient accident service—not to mention the important psychological problems of monotony, relationship between foreman and worker, selection for work, and so on.

The value of the doctor in industry is now past dispute, and the future will probably see a rapidly growing body of knowledge coming from industrial medical officers, for they have an unrivalled opportunity for watching the effects of environment upon health, and also of teaching the people of this country the elements of hygiene—and if there was ever doubt about the need for this, experience during the war has dispelled it. From industrial medicine we shall hope to see a steady flow of original observation and research that will enlarge the frontiers of medical knowledge. Much of this work will, we hope, find its way into the columns of the *British Journal of Industrial Medicine*.

COCCIDIOIDOMYCOSIS

Coccidioidal granuloma (coccidioidomycosis), discovered by Rixford and Gilchrist in California in 1894, following a similar discovery by Wernicke and Posadas in Argentina in 1892, is a chronic granuloma-forming disease, sometimes presenting massive hypertrophic lesions of the skin or large subcutaneous cold abscesses. The lungs are very frequently involved; the spleen, liver, and osseous system, less frequently; and the genito-urinary and central nervous systems, occasionally. In its clinical features and morbid histology the disease resembles tuberculosis, the place of the tubercle bacillus in the lesion being taken by the large coccidium-like parasitic sporangium of the causal fungus, *Coccidioides immitis* (Stiles, 1897). For nearly half a century the disease was recognized only in the coccidioidal granuloma form, which is almost invariably fatal. It has an endemic distribution in small areas in the south-western States of America, about 89% of the cases occurring in California, where since 1928 the disease has been notifiable. About 46 new cases of coccidioidal granuloma are reported in the State annually, and the San Joaquin Valley is one of the worst endemic centres. There is little precise knowledge of its epidemiology, but the disease is not ordinarily transmitted from man to man, and infected migrants from endemic centres do not cause new foci of infection. Rare sporadic infections of cattle, sheep, and a dog have

been recorded, but are regarded as accidental. The frequency of pulmonary involvement points to infection by inhalation, and the relatively high incidence of the disease among agricultural workers and the remarkable skin lesions may suggest infection through the skin. Both these views are consistent with the discovery of the fungus in the dusty soil of a Californian ranch by Stewart and Meyer¹ in 1932. The recent notable advance in knowledge of the disease dates from 1937, when Dickson² identified in the "valley fever" of the San Joaquin Valley a relatively mild and hitherto unrecognized early stage of the coccidioidal disease. The symptoms are chiefly referable to the respiratory system, with fever, sweating, malaise, debility, and in some cases an exanthem like erythema nodosum. The incubation period, as shown by a group of people who contracted the infection during two days' exposure in an endemic area, is between 9 and 14 days. This early stage, in which recovery may be spontaneous, responds well to chemotherapy. The name "coccidioidomycosis" has been adopted, as coccidioidal granuloma is only a late and usually incurable stage of the disease.

The use of the "coccidioidin" dermal hypersensitivity test has carried the epidemiological study a stage further and shown that between 70 and 80% of apparently healthy persons who had lived for ten years in the San Joaquin area were specifically sensitive. The diagnostic value of the test is not proved, and confirmatory clinical, mycological, or radiographic evidence is desirable. Using this test, Aronson and his associates³ in 1942 got positive reactions in 90% of 141 Red Indian school children in the San Carlos Indian Reservation, Arizona, where coccidioidal granuloma was not known to occur. Following this discovery, Emmons and Ashburn⁴ in 1942 examined the desert soil in the San Carlos area and isolated *C. immitis* from 5 out of 150 samples taken from three widely separated sites. However, the high pathogenicity of the fungus for man and its rather meagre distribution in the soil pointed to something more than a wholly saprophytic existence in the desert, and attention was directed to the possibility of a reservoir of the infection in the small burrowing desert rodents common in the area, some of which were known to be susceptible to experimental infection. Among these the naturally acquired coccidioidal disease was identified microscopically and by culture in two species of "pocket mice" and one species of "kangaroo rat." These rodents seem to form a reservoir of the disease from which the soil is continually contaminated. In the wet season the fungus vegetates saprophytically in the soil, and in the dry season the wind-blown spore-laden dust carries the infection to man.

The new light on the epidemiology of the disease and the discovery of an early and curable stage have greatly improved the prospect of the eradication of coccidioidal granuloma.

Many members who are in touch with Headquarters will have heard already that Dr. G. C. Anderson had a severe and very painful heart attack on Oct. 23 and was taken from B.M.A. House to hospital, where he must remain for some time to come in absolute quiet. Dr. Anderson deeply appreciates the many messages of friendship and sympathy that are reaching him, but he may see no visitors at present and is forbidden to attend to any business until he is well enough to return to duty.

¹ *Proc. Soc. exp. Biol.*, New York, 1932, 29, 937.

² *Calif. West. Med.*, 1937, 47, 151.

³ *Arch. Pathol.*, 1942, 34, 31.

⁴ *Publ. Hlth. Rep.*, Wash., 1942, 57, 1715.

Reports of Societies

THE DOCTOR IN THE STATE: ANCIENT AND MODERN

The presidential address in the Section of Epidemiology and State Medicine of the Royal Society of Medicine was delivered on Oct. 22 by Sir WELDON DALRYMPLE-CHAMPNEYS, who gave a historical survey of the place of the doctor in the State from ancient times to the present day. Among those present were the Minister of Health (Mr. Ernest Brown), the Presidents of the Royal Colleges of Physicians and of Surgeons (Lord Moran and Sir Alfred Webb-Johnson), the President of the Royal Society of Medicine (Sir Henry Tidy), and the President and the Chairman of Council of the British Medical Association (Lord Dawson of Penn and Dr. H. Guy Dain).

Sir Weldon Dalrymple-Champneys began his survey with the "primitive" "medicine man." Most of them, he said, were inclined to despise this father of the craft, but Sir James Frazer, author of *The Golden Bough*, considered that, taking it all in all, he had done more good than ill to medicine and surgery. It was in this most primitive form of organized society that the doctor occupied the highest position in the whole of history, and yet never was choice of doctor less free! In the early stages of Chinese civilization the profession was at first represented by priests and sorcerers, but the medical student must ever bear China a grudge for having invented (tenth century B.C.) medical examinations. Babylonian medicine was mainly demonistic, but it had a remarkable scale of rewards and punishments, as witness the code of Hammurabi. The ancient Persians also had a scale of charges and bribes for doctors, and medical students were urged to "get their hand in" by practising surgery on unbelievers. In India the status of the physician was refreshingly elevated, especially during the Brahmanic period. In Egypt one of the remarkable features of its early civilization was the manner in which the details of public and private hygiene were regulated by ordinance. Moses not only adopted the numerous Egyptian dietetic rules but carried out careful researches of his own which he embodied in his code, to the great benefit of the Israelite people.

Sir Weldon then came to the fascinating spectacle of medicine in Greek civilization. Homer told how doctors were held in high esteem in the earliest days of Greece. The original Greek doctors were the priests of Aesculapius. In the fifth century B.C. arose the superb genius of Hippocrates, the first to trace disease to recognizable and intelligible causes. After referring to the famous school of Alexandria with its unique library, he referred to the medicine of ancient Rome, which provided a much poorer soil than Greece for the cultivation of medical practice. At the beginning of the Augustan age doctors still occupied a lowly place, and Rome was a happy hunting ground of quacks, but by the time of Constantine court physicians had become established, and there were medical officers for each district of the city, as well as for special classes—the vestal virgins and the gladiators. Of Arabian medicine he said that one of its great services was the establishment of well-ventilated hospitals, the first of which was in Baghdad. It was in the Middle Ages that an important change affecting medicine was brought about by Christianity. Even Hippocratic rule enjoined the doctor not to treat the incurable case, but Christianity reversed that.

After touching on the sources of medical learning in mediaeval Spain and Italy, and giving some account of the school at Salerno and the guild of physicians and apothecaries established at Florence in the twelfth century, Sir Weldon sketched the story of English medicine from the foundation of Oxford and Cambridge. The Royal College of Physicians was founded in the tenth year of the reign of Henry VIII, but even in those relatively enlightened days the apothecary was still a variety of grocer, the surgeon a variety of barber, and the physician just ceasing to be an ecclesiastic.

And so to the General Practitioner

The general practitioner of the eighteenth and nineteenth centuries in England was a man of keen observation, great independence, and one intimately acquainted with the life of his patients. In modern times two great changes had profoundly affected the life and work of the general practitioner—namely, the inventions and discoveries in physics and chemistry which had a bearing on practice, and the awakening of the social conscience to the demands of public health, with, in consequence, the ever-increasing concern of the State for the preventive aspects of medicine. Probably the most radical of these changes from the general practitioner's standpoint was that effected by the introduction of national health insurance in 1911. What was surprising was that a system which aroused such antagonism at its beginning should have now established itself so firmly in the affections of the profession in the course of 32 years

that a large section regarded the extension of its provisions to practically the whole population as the best way of bringing about a comprehensive medical service. It was generally agreed that the separation of much of the work done at clinics from the general supervision of the family doctor was unfortunate. The ideal arrangement would be continuous medical supervision of the individual from conception to death by the same person, and the preservation of the family unit as the basis of the general practitioner's work.

In conclusion Sir Weldon Dalrymple-Champneys pointed out certain lessons which were to be learned or certain warnings to be heeded from the survey of history. One of these was that decadence in medicine had coincided with the rising of specialties based on insufficient knowledge. Was it certain that this might not recur? Even in these enlightened days they knew of manufacturers launching new remedies on the markets, backed by extravagant claims not justified by scientific investigation, and doctors snatching at them in the hope that they might benefit a patient whom nothing else seemed to cure or even alleviate. The only sure defence against overspecialization was to give the general practitioner a dominant share in the care of the patient, but to fit him for that position he must be rightly educated.

The prevention of disease had a compelling appeal if presented by teachers who had the right outlook on health and disease. He refused to believe that the medical student of to-day—the brother of the radioclonologist—was incapable of feeling the fascination and satisfaction of detecting the first glimmering of ill-health in a patient and of adjusting the patient to the environment with the same pride and accuracy as the skilled member of the R.A.F. maintenance crew adjusted his instruments. No one expected the general practitioner to be an expert in environmental hygiene or in epidemiology, though he should be familiar to some extent with those subjects. But if he was to do his duty as the guardian of the patient's health he must know three things: his patient's heredity and environment; his medical history and present condition; and all the agents, including not merely methods of treatment but also the public and private organizations, which could be invoked to restore him to a normal or at least to a better condition. "I am convinced that the medical practitioner to-day is presented with a wonderful opportunity, which if neglected may never recur, of occupying a key position in medicine and in the State, and from that position, of exercising an incalculable influence for good on the health and happiness of his fellow-countrymen and winning for himself an abiding interest and satisfaction in the greatest of all professions."

Correspondence

Stomach and Mind

SIR.—The facts of the incidence of peptic ulcer and dyspepsia in the Army so ably presented by Sir Henry Tidy (Oct. 16, p. 473) are of the highest interest to clinicians and epidemiologists. They indicate most effectively how these disorders can be comprehended, treated, and prevented only if a psychological approach is employed to supplement a physical approach. The real conclusion of the paper—namely, the need for psychosomatic medicine—is not, however, mentioned by Sir Henry, who fails to emphasize (surely not to recognize?) that an isolated somatic approach to these disorders neither fits the facts nor works in practice—indeed, is not scientific in that by itself it can never make sense but only a kind of nonsense. Thus we find Sir Henry recording his experience of treating dyspepsia in such sentences as: "It is most important that these men should not be sent to hospitals or to specialists—procedures which are apt to convert a transient into a chronic dyspeptic and finally into a useless soldier"; and, again, "The longer the period in hospital the shorter is the interval to the next recurrence." In the absence of any qualifying psychological interpretation these extracts sound very queer indeed—the first like a passage from a manual of Christian Science and the second like an authentic quotation from *Alice in Wonderland*.

Yet the facts provided by Sir Henry do make a lot of sense when, and only when, a psychosomatic viewpoint is introduced. No more than a mere indication of this can be given in a letter, but observations such as the following would allow the facts to fall into place and permit of an interpretation which is coherent and not incoherent.

In civilian practice (and indeed in one's own personal life) sudden changes in climate, personal surroundings, food, and

degree of bodily exertion are frequently associated with disturbances of the gastro-intestinal tract, which represent the adaptation of the organism in both its physiological and psychological aspects to a new total situation. Sir Henry's observation that the treatment of such disturbances in hospital or by medical specialist serves to fix the symptoms and induce invalidism suggests that in adaptive dyspepsia psychological factors are on the average of greater aetiological importance than physical factors.

The gastro-intestinal tract may be profoundly disturbed in its function (and this in its end-results may bring about organic change) in the course of deep-seated emotional experiences. This has been beautifully demonstrated by Wolf and Wolf (*J. Amer. med. Ass.*, Oct. 31, 1942) in their account of the changes in stomach function directly observed in a man who had a gastric fistula. When this individual was free from upsetting emotional states, the appearance and secretion of the gastric mucosa could be described as normal; when he was under the influence of fear and sadness, the gastric mucosa was pale, with inhibition of secretion and contraction; but when he was involved in moods of anxiety or resentment, there was accelerated acid secretion with hypermotility and engorgement of the mucosa resembling hypertrophic gastritis. If the latter moods were sustained the vigorous contraction of the stomach frequently induced small bleeding-points. It is obvious, therefore, that the appearance of the stomach as seen by the gastroscope may depend on the inner emotional state of the patient at the time of examination, and that the findings of gastroscopy may be anomalous in the absence of psychological understanding of the patient.

Psychosomatic research has shown that the aetiology of peptic ulcer cannot be understood if psychological investigation is omitted, and that treatment which ignores psychological factors is impotent to prevent recurrence. It has also been shown that persons developing peptic ulcer tend to have particular characteristics—notably that of being unduly susceptible to threats to their emotional security, as is instanced by the occurrence of ulcer at times of occupational, financial, and domestic embarrassments. (Such threats are intense in the Army considered as a social field.) As regards epidemiology, it is also known that many "psychosomatic disorders" have shown a remarkable increase since the last war. This was demonstrated in the morbidity statistics of the insured population of Scotland, when not only peptic ulcer but also neurosis, gastritis, pseudo-rheumatism, etc., showed a remarkable relative increase as a cause of chronic incapacity (Halliday, *British Medical Journal*, July 2, 1938). The upward trend of those affections may be attributed to the increase of the noxious factors of social environment during the period. There are reasons to believe that these factors affected males relatively more than females (see Mittelman *et al.* in *Psychosomatic Medicine*, Jan., 1942).

To conclude, Sir Henry's record of the incidence of dyspeptic disorders in the Army is a valuable contribution to psychosomatic and to social medicine in that it demonstrates in respect of these affections how a purely "somatic" approach is inadequate as a method of interpretation, and how, if uncomplemented by a psychological approach, this outlook *per se* proves ineffective as a guide to therapeutic and preventive measures.—I am, etc.,

Glasgow

JAMES L. HALLIDAY.

D. and V. and Mastoiditis

SIR.—Dr. P. W. Leathart (Oct. 23, p. 526) has allowed his enthusiasm to outstrip his logic. He says: "In all cases in which bacteriological examination of the faeces proves the absence of a specific organism the diagnosis is incorrect and that of mastoiditis should be substituted." There seems to me more of dogma than of science in this confident assertion. The implications are that (a) all pathogens are demonstrable by routine bacteriological technique, and (b) where none is detected then mastoiditis exhausts the possible causes of D. and V.

Now with regard to (a), what would Dr. Leathart think of a police officer who said: "Sir, though you assert that you have been burgled that is quite impossible, since all the thieves known to us are accounted for and we have caught nobody?"

A virus would not be discovered in a plate culture made from faeces. Secondly, despite negative bacteriology, "non-specific" gastro-enteritis is an infectious disease. Few with experience of infant welfare would deny that it can spread through a ward or nursery almost as quickly as the common cold, which, for all Dr. Leathart or I know to the contrary, may well be due to the same agent. I do not understand how a germ can hop from one baby's mastoid to another's.

As for (b), without doubt violent gastro-enteritis with ulceration and destruction of large areas of gut does occur in many "non-specific" cases. Is Dr. Leathart acquainted with the cause or causes of ulcerative colitis? And would he recommend mastoidectomy for the relief of arsenical poisoning? The not unreasonable supposition that the mastoiditis may be secondary to an infection of the nasopharynx or to the act of vomiting, whereby septic fluid is squirted into the middle ear, seems to have been ignored, and as for the "parasympathetic reflex," why does this fail to manifest in mastoiditis complicating measles, etc.? Certainly the statement that otitis media with or without inflammation of surrounding bone does occur in association with D. and V. is not impugned, nor do I comment on the desirability of operation in such cases; but I must point out that the precise role of this factor in the total symptom complex has not yet been accurately assessed.

There is much fog about, but let us keep our heads. Fanaticism no less than apathy can lead us on to the rocks.—I am, etc.,

Grove Hospital, Tooting.

J. B. ELLISON.

Contraception and Sterility

SIR.—If the case that contraception induces sterility is based on the theory that certain methods may prevent absorption of semen from the vagina, we should surely consider this to be equally an argument against the "long engagement," which is so often the alternative to marriage with contraception; and indeed against the practice of pre-marital celibacy at all.

The contention that seminal absorption is necessary for stimulating fertility in some women is interesting, although there seems nothing in the breeding habits of the animal world to support it. Its verification would clearly rest with the research worker and statistician. I do, however, feel that the evidence Mr. Green-Armytage adduces could hardly be accepted as final. Some recent animal experiments he describes have been "unchallenged"—but there is not likely to be a plethora of workers with similar facilities eager and able to check up such matters. Nor, necessarily, is the quotation of views—from mainly American sources—to be taken as final arbitration. A similar number of opposing views, with or without context, can naturally be cited.

If any physician were to tell his patients that, say, the ingestion of tinned food is responsible for increasing sterility, there might well be none ready to enter the lists of experimental challenge. This would not imply that the doctrine was correct or generally accepted, yet the view would spread rapidly among the lay public, and would doubtless be still prevalent in twenty years. Mr. Green-Armytage is teaching his medical students and patients that contraception impairs fertility, and an anxiety is being fostered which is spreading rapidly, and which it is nobody's business to prove or disprove.

If it appears essential that data on this matter are produced, I am told that the Family Planning Association might be willing to accept the onus. Among its contraceptive clinics there are some hundreds of thousands of case records from which part, at least, of the data could be deduced. Taking multiparous women who have given a history of "no previous methods of contraception used," the time from the date of marriage to the first childbirth could readily be found. Others who give a history of previous contraceptive methods could, as they attend the clinics, be asked how many months had elapsed since their disuse and the subsequent conception. A few hundred records could be collected quite shortly, although the investigation would entail work and expense. If Mr. Green-Armytage would like himself to choose the statistician, I am sure the Family Planning Association would be in every way agreeable.

I do not find it possible to agree about the valuelessness of small clinics for advising on involuntary sterility. Mr. Green-

Armytage enjoys the facilities of a fully equipped central hospital, but this cannot solve the problem of the provincial or country woman whose vicinity very frequently offers no facilities at all. The increasing demand for this service throughout the country will obviously be met, sooner or later, by the equipment of proper "sterility units" in all provincial hospitals. But at the moment such facilities are sadly lacking. In many localities arrangements for seminal examination are absent or little short of archaic, and when abnormalities are found the "andrologist" who takes an interest is simply non-existent. Such conditions will doubtless be remedied within a few years. Meanwhile the small clinic, though its scope may often have to be limited, is giving a very real service to barren women, and one which it seems entirely unfortunate to disparage.—I am, etc.,

London, N.W.1.

JOAN MALLESON.

Sterility and Artificial Insemination

SIR,—Now that your columns are so full of letters on sterility, subfertility, and their treatment, it would appear to be opportune to point out that all the necessary investigations can be done in the out-patient department without giving the woman an anaesthetic—a fact which does not seem to be appreciated by a number of doctors.

Patency of the Fallopian tubes can be ascertained either on the x-ray table after injecting lipiodol, or on the couch in the out-patient department by utero-tubal insufflation without any previous preparation. The days immediately before or after menstruation should be avoided. Likewise with the patient on the out-patient couch an endometrial biopsy can be taken or cervical secretion aspirated for examination for live spermatozoa. It is as well to have a room available where the woman can wait for a few minutes should she feel any temporary discomfort.

Regarding artificial insemination, much has been said from the woman's point of view, and Dr. Pearse Williams (Oct. 16, p. 496) has mentioned the husband's point of view when he finds his wife is sterile, but little has been said from the husband's point of view when he finds that he is incapable of giving his wife one of her greatest desires. I have on several occasions been approached by the husband to ask if an artificial insemination could be performed on his wife from a donor, because he cannot bear the fact that he is the cause of his wife's disappointment, and he argues that he would rather have a child who has a 50% chance of possessing something of his wife than adopt one that possesses nothing of either of them. Granted it is not every woman who would prefer artificial insemination to adoption, but in cases such as this, surely there can be no psychological trauma to the child, and he woman, being satisfied, would be more likely to be drawn to her husband for gratifying her desire than estranged from him.—I am, etc.,

London, W.1.

M. MOORE WHITE.

Cos and Hippocrates

SIR,—It is with some hesitation that I venture to disagree with the distinguished medical historian who wrote the note on Cos and Hippocrates (Oct. 16, p. 492), but certain facts must be brought into the light.

The existence of Hippocrates is proved not only by the Dialogues of Plato but also by many other testimonies. He was considered a very great physician and universally honoured. Even the writings of later authors are sufficient evidence: (1) because they had documents which we do not possess; (2) because tradition in ancient Greece was a reproduction passed from brain to brain with far greater accuracy than has been necessary since the introduction of printed communication. We can see this high accuracy in the transmission of the poems of Homer, which were passed from brain to brain throughout the centuries and written only much later.

I agree with your contributor that there is no testimony that Hippocrates wrote the works known as the Hippocratic Collection; but certainly some other physician, probably of the same name, has given us the splendid writings which, to the reader with a medical, not philological, spirit, are remarkable (with the exception of two or three articles representing the teachings of other schools) for their unity of doctrine and

method, which represent distinctly a development of those previous medical schools, particularly Croton and Agrigen.

I cannot agree that the medical man of those centuries was regarded as a craftsman, an assertion which does not correspond with the facts. The Greeks, and Hippocrates himself, always distinguished between the craftsman (for which I must say with some shame, they had no great respect) the artist, a word which, in Hellenic mouths, indicated something very great. The physician in particular was very highly honoured. Homer speaks of him as "worth many other men." Nearly two centuries before Hippocrates three great Greek cities disputed the honour of having the physician Democritus within their boundaries, and prominent physicians received the highest civic honours. To-day the modern Greeks honour physicians above others, and the title of "Excellency" is given in modern Greek not to Cabinet Ministers or Ambassadors but only to physicians, and not only to the Athens professors but also to the highly respected village practitioners.

As for the relation between Hippocrates and the temple of Asklepios, the following are the facts: These temples were centres of religious psychotherapy. The Greek physicians were keen and unbiased observers, respected the power of this form of psychotherapy, and in the same manner the priests of Asklepios—prominent and cultured citizens—knew the importance of organic medicine. The relations between these kinds of healer were harmonious. Physicians usually frequented places at which there were shrines of Asklepios, medical schools were established near these shrines for the simple reason that in the absence of large hospitals the abundant sources of clinical material were the shrines of the god of medicine, where patients streamed from all parts of Greece.

After the first known Greek medical schools of Croton, Agrigentum, and Cyrene, there arose others at Cos, Cnidus, and Rhodes. The school of Cos is probably the most celebrated. Its teachings are concentrated in Hippocrates, who gave the highest intellectual and moral standards to our profession, and whose doctrine and method are influencing practice even to-day. Let us hope that the Greek flag will fly once more over the island, which, notwithstanding the attempts of the Italians during the last 25 years, has not lost its Hellenic spirit, and that again a wind from Cos will vivify our great art.—I am, etc.,

London, W.1.

A. P. CAWADIAS.

Intercellular Hormones

SIR,—The research of Loofbourow and his colleagues discussed in the leader in the *Journal* of Oct. 16 (p. 487) throws light on the way in which ultra-violet rays used for treatment produce their beneficial effect. It is recognized that the dose must be such as to produce damage of the living cells of the deep layer of the epidermis, resulting in desquamation.—I am, etc.,

St. John Clinic, S.W.1.

LEONARD HALL

Adolescent Spondylitis

SIR,—I was very interested in Dr. C. W. Buckley's excellent paper on spinal arthritis in young subjects (July 3, p. 30). Some of the issues raised are very thought-provoking and deserve further research and investigation into a subject bristling with so many difficulties, both as regards diagnosis and treatment.

The late Dr. Gilbert Scott¹ has done a tremendous amount of original research into what he preferred to call "spondylitis adolescens," and his conclusions after the investigation of patients merit the attention of all workers in this field. I rather surprised that Dr. Buckley entirely ignored it, for he could not possibly have been unaware of the research on spondylitis which was carried on at the Charterhouse Rheumatism Clinic under the auspices of the Nuffield Wide-field X-ray Research.

Real advances in the diagnosis of this crippling condition began with the discovery of the changes which take place in the sacro-iliac joints 5 to 7 years before the onset of spondylitis in the young athletic male. In this pre-spondylitis

¹ A Monograph on Adolescent or Ankylosing Spondylitis, 1942, London.
² Bulletin of Wide-field X-ray Radiation, Research Report, 1939-40.

age treatment by wide-field x-ray therapy offers the best chances of an early arrest and symptomatic improvement. Out of 432 patients with adolescent spondylitis treated with wide-field at the above clinic 57.1% were much improved and symptom-free, and 15% were improved.

The results obtained by wide-field x-ray therapy offer a far more favourable prognosis than with any other methods of treatment—e.g., rest in plaster case combined with masterly inactivity—and I think that Dr. Buckley's outlook on treatment is rather too pessimistic. I can fully confirm the results obtained by Dr. Scott with wide-field x-ray therapy, but during the last 3 years I have combined the above with local x-ray therapy plus analgesic injections into the painful areas, and with some shortening in the length of treatment and more rapid amelioration of symptoms.

Diet, rest, physiotherapy—all have a place in the treatment of spondylitis, but with the addition of x rays (local and wide-field) to our armamentarium we have acquired a very powerful weapon in our fight against a very crippling disease. I hope soon to publish a paper on spinal arthritis with special references to wide-field and local x-ray therapy.—I am, etc.,

Capetown.

ARNOLD RAFF.

The Returning Service M.O.

SIR,—With regard to the recent correspondence on specialist and refresher courses for Service M.O.s, I feel that Dr. E. M. Leyland's letter (Oct. 9, p. 466) has described most clearly the difficulties and ambitions of many hundreds of the younger members of the profession who are serving in the Forces. I am certain that many, quite apart from any desire to specialize, feel the urgent necessity for further hospital experience on demobilization, but are worried as to how they will be able to obtain this with house officers' remunerations as low as they are at present.

Some of your readers may have noticed a report (*Times*, Oct. 14) on the comprehensive scheme of post-war aid which has been adopted by the Law Society. I think that the Law Society is to be congratulated on its planning and vision in devising a scheme which has these three main objectives: (1) to provide at the end of hostilities lectures and courses for the legal re-education of solicitors and articled clerks who have been out of touch with the law while on service; (2) to find employment for qualified men as soon as possible after demobilization; and (3) in the meantime to give those serving men who have time available all possible help to keep themselves up to date or continue their studies. A questionnaire has been sent to all known serving solicitors to ascertain their post-war needs.

The suggestions of refresher courses for Service M.O.s is but a facet, though a very important one, of the whole question of professional demobilization, which, it seems, has been somewhat neglected in the discussions taking place on the future of the profession as a whole. If the B.M.A. has a committee dealing with demobilization problems it is very silent about its activities, and if it has no such committee, I feel that the sooner it is constituted the better. The objectives of the Law Society post-war aid scheme might well be adopted, with some modification, by any such committee. The questionnaire idea will appeal to many.—I am, etc.,

R. E. OLIVER.
Ft. Lieut., R.A.F.V.R.

Arsenical Encephalopathy

SIR,—It is regrettable that Capt. C. B. Ainscow in his letter (Oct. 9, p. 465) disagreed with so much of our article on arsenical encephalopathy (May 29, p. 661). It is difficult in a letter of reasonable length to correct him on all the points raised. However, we hope the following will help him to a clearer view of the treatment of venereal disease.

Arsenical therapy is undertaken in pregnant syphilitic women in order to treat the foetus; treatment of the woman herself is left till after parturition. We quote the first two authorities to hand—namely, Harrison, chap. 21, and Earl Moore, chap. 19—in support of our methods. Capt. Ainscow suggests that our case of arsenical encephalopathy which recovered might well have been an eclampsia or other toxæmia of pregnancy. We stated in our article that this diagnosis was considered, but

the trace of albuminuria and the very slightly raised blood pressure were against it. The consulting gynaecologist who saw the case had no doubt that there was no toxæmia of pregnancy, and we prefer his opinion.

Capt. Ainscow's objections to the treatment of the only male in our series were met by Dr. A. O. F. Ross in a letter in the issue of the *Journal* of June 19 (p. 771). This case had been treated by Dr. Ross as an out-patient, and was sent into our wards actually comatose. It was explained in that letter that in spite of the history of a penile ulcer in 1910 the case was regarded as one of primary syphilis mainly because of the rapid changes in the Wassermann reaction. Capt. Ainscow apparently did not see this letter, and therefore we would like him to read it, and to inform him that Dr. Ross is chief V.D. officer to this city and can be fairly regarded as a venereologist of repute. We cannot accept Capt. Ainscow's view that the cases we described were examples of Jarisch-Herxheimer reactions. We have always understood that these reactions occurred within a few hours or at most within a day or two after the first injection. The changes we described occurred about the tenth day, and there were no untoward symptoms till almost immediately before coma; indeed, in the case of the male nearly three weeks elapsed before disaster occurred.

In our article pathological appearances of the brain were described in the cases which came to necropsy. We could not supply similar evidence in the case which recovered, even to satisfy Capt. Ainscow's curiosity.

We would like to assure Capt. Ainscow of our gratitude to him for reading our article, but would like to suggest that he should read it again.—We are, etc.,

F. GLYN-HUGHES.
R. B. NELSON.
C. MCGIBBON.

Liverpool

Pelvic Flexibility

SIR,—I am interested in the case of manual dilatation of the pelvis (Oct. 16, p. 484) as it draws attention to the cardinal fact that the mother's pelvis expands at the three joints—sacro-iliac and symphysis (at the same time the foetal head packs up at the sutures). The pelvis is expanded in the act of squatting much as the chest is expanded in the act of breathing, there is a pull on all the joints, and the area enclosed is increased.

But much better than any manual dilatation are ante-natal exercises designed to stretch the pelvic joints, ligaments, and perineum in preparation for the act of birth itself. This will be easier in the natural position—squatting or kneeling—right up to the last moment, when the mother can lie down for the actual delivery. Daily squatting for defaecation during pregnancy is a great help in avoiding constipation; at the same time it makes for pelvic flexibility, not only as regards childbirth but it keeps the athlete in trim. No first-class dancer, footballer, or rowing man has a pelvis with stiff joints, or he is old before his time; and a woman with a stiff and unyielding pelvis cannot hope for an easy labour.—I am, etc.,

London, N.W.11.

KATHLEEN VAUGHAN.

H11 for Cancer

SIR,—I have read with interest the various letters and articles regarding H11, especially as I have given a long trial to this preparation. The laboratory reports make interesting reading, but are they really important at this stage? What does it matter whether H11 checks or does not check growths in various mice in various laboratories if it is successful in the treatment of our patients? Let us hear, therefore, more about clinical results, and leave the laboratories to themselves for the moment.

My own experience of H11 is summarized by stating that I have had many failures and a few striking results, and the latter cannot be explained by mere coincidence. Herewith short details of one:

The patient was a woman of 58. Both breasts had been removed five years previously for carcinoma. Recurrence took place in the liver, orbit, and spine, and a huge mass grew out from the body of the ilium. She became blind in one eye, paraplegia developed, and she was rapidly going downhill. X-ray treatment was refused and only H11 in its original form was given. General improvement

began to show after a month's treatment, and within six months the liver had shrunk to half its previous size, the blindness was passing off, the paralysis was no longer present, and the mass in the ilium had disappeared entirely. The patient, who had been bedridden for months, was able to get up and lead an ordinary quiet life, spending part of the summer in the country sketching. She died two years later from what appeared to be a cerebral tumour. No one could fail to be impressed by such a result, especially when taken in conjunction with others.

At the moment I can only consider H 11 to be an adjunct to other forms of treatment, surgical and radiological. It appears to be an agent which, when certain unknown factors are present, can retard or even stop altogether the growth of malignant tumours. It is relevant to call to mind the stages of the treatment of diabetes by pancreatic preparations, and menopausal conditions by ovarian extracts. Successful results were few, but sufficient to induce further and patient experiment until to-day we have insulin and stilboestrol. So with H 11. There is enough evidence of success, I think, to demand from the profession a complete investigation into the possibility of developing this substance into a reliable remedy. In conclusion I would say that a visit to the Hosa Laboratories will quickly resolve all doubts as to the earnestness and importance of the effort that is there being made to solve one of the world's most serious problems.—I am, etc.,

London, S.W.7.

J. W. BARNETT.

Management of Acute Pleural Empyema

SIR.—The answers to Mr. Harold Burrows's questions (Oct. 9, p. 463) are to be found in my original paper (Sept. 25, p. 383). Dealing with non-localized empyemata, I said: "In such circumstances repeated aspiration of infected pleural effusion may be necessary. . . . In certain cases the same conditions may call for a water-sealed intercostal drain." Both these methods are effective and I use them frequently. The treatment of localized empyema may be by either open or closed drainage. Both these methods are, of course, satisfactory in the hands of those who are trained in their use. I do, in fact, frequently employ closed drainage. The point that I hoped to make was that perfectly adequate treatment could be given with the simplest possible equipment. When empyemata are being treated in general hospitals or under war conditions, often by those who have no great experience, I feel that the importance of adequate drainage by simple means cannot be over-stressed. The more we become specialized the more do I feel that we should try to simplify surgery rather than complicate it.—I am, etc.,

Leeds.

P. R. ALLISON.

Desert Sores

—The article by Dr. J. M. Henderson (May 29, p. 657) on the relationship of sunlight to desert sores prompts me to put forward a possible aspect of this relationship which has exercised my mind for some time.

The effect of the ultra-violet rays of the sun in decreasing the polymorphs, increasing the lymphocytes, and causing a "shift to the left" in the polymorph nuclei, has been shown by several workers. Shaw (1936) demonstrated the latter in Egypt and Kennedy (1935) in Iraq. Pellicciotta (1939) found neutrophilopenia and lymphocytosis with a shift to the left among white residents in Africa. Stammers (1933) says: "It is an established fact that ultra-violet irradiation leads to lymphocytosis." Does it not seem probable, then, that a neutrophilopenia due to solar irradiation, further increased in many instances by the common custom among the troops of sun-bathing, may underlie the reduced resistance to infection of some trivial injury? It is interesting to note that Corkill (1939) in the Sudan recorded a relation between increased insolation and increased incidence of cerebrospinal meningitis. Although he postulated a vitamin deficiency as the connecting link, I feel that diminution in the polymorphs might have something to do with it.

As regards the treatment of desert sores, I should like to suggest the application of a wad of gauze soaked in sterile peptone broth as used in the bacteriology laboratory. Applied night and morning for a week or two it often works wonders in cleaning up dirty ulcers and promoting healing. Its efficacy

makes me wonder whether the so-called "ultra-virus" preparations may not owe their action not so much to the product of bacterial growth as to the peptone broth which forms their basis. In some cases, after initial improvement an ulcer will again become "indolent," in spite of continued use of the broth. This accords with the experience of Rapport (1942) who, from his experience of treating desert sores, found that it was not advisable to persevere for longer than two weeks with any particular treatment, as the sores tended to acquire a tolerance to it. How the broth acts I do not know; possibly peptone water, or meat extract, or even saline dressings would work equally well. I have not access to sufficient cases to determine the question.—I am, etc.,

The Public Health Laboratories, Cairo.

B. R. SANDIFORD.

REFERENCES

- Corkill, N. L. (1939). *Lancet*, 236, 1203.
Kennedy, W. (1935). *Trans. roy. Soc. trop. Med. Hyg.*, 28, 475.
Pellicciotta (1939). Abstract in *Bull. Inst. Past.*, 37, No. 13-14, 798.
Rapport, H. M. (1942). *British Medical Journal*, 2, 96.
Shaw, B. (1936). *J. Path. Bact.*, 43, 165.
Stammers (1933). *J. Physiol.*, 78, 335.

Dentistry as a Specialty of Medicine

SIR.—Reading in your advertisements of whole-time posts for school and assistant school dental surgeons to the councils of large counties for which about £10 a week is offered, I feel the time has come for a discussion of the following questions.

1. Is the importance of first-rate work in dentistry for children of school age as part of preventive medicine realized by the authorities or ourselves? Can such work be done by the inexperienced or the out-of-date dental surgeon? Or whom otherwise do authorities wish to attract by such salaries?
2. Is there any reason, apart from custom, to look upon dentistry as anything but a fully equal partner among the specialties into which modern medicine and surgery necessarily subdivide?
3. Is it not time that the calling of the dental practitioner is put on an equal level with that of any other branch of medicine in its curriculum, medical and social standing, and its remuneration?
4. Would it not be essential to include a dental practitioner in any experiment with group practice that may be under way?
5. Would it not be in the interests of a profession which is charged with the maintenance of health in all its aspects to end the seclusion of one branch which requires, if practised at its best, as much knowledge, skill, and disinterested work as any other?
5. Should not medicine as a profession help in removing such outlived drawbacks of and prejudices against dentistry as still exist?
7. Have not the last twenty years or so given growing proof of the importance for health of good teeth and gums and of the significance of bad teeth as indicators and causes of disease elsewhere?
8. Should not the existing professional organizations unite in consultation and action on such questions of scientific, educational, organizational, and health-political interest as constantly arise at present?

My reason for writing is this. We need more dental doctors and more of them who attain the highest standards. We cannot expect to get them unless we give this medical specialty the honour which is its due, and the partnership which, on theoretical and practical grounds, it deserves. Dental medicine and surgery are doing good work. Witness the collaboration of dental surgeons with plastic units or the outstanding book on *The Principles of Dental Medicine*, by F. W. Broderick. I myself am neither a dental surgeon nor related to one.—I am, etc.,

London, W.1.

L. MICHAELIS.

Hospital Posts under Local Authorities

SIR.—The letter from Mr. Edgar W. Thomas (Sept. 25, p. 405) on appointments to hospital posts strikes a sympathetic fibre in my being. For years have I, in and out of season, striven to bring before the profession the iniquitous system of selection perpetrated on unsuspecting aspirants for appointments to the staffs of provincial hospitals.

Mr. Thomas says: "This system whereby lay committees appoint medical men to hospital and other posts is both ridiculous and demoralizing." I would point out that the fault does not lie with the lay committee: they merely go through the form of making the appointment; their crime is one of ignorance. The real appointment is made by the medical committee of the hospital; they are the "bandits behind the

CORRESPONDENCE

Nov. 6, 1943

scenes," who have their own nominee incubating and all ready to burst forth from the egg of vested interest as assistant physician or surgeon. He is generally a junior partner or a man who has bought the practice of a member already on the local staff: he has "bought himself in."

For years I have pointed out the injustice of this system of staff appointments and how it has grown to be a racket which brings neither honour nor efficiency to our hospitals. I agree with Mr. Thomas that the system is both ridiculous and demoralizing and a few more things as well. "Local politics" do not enter into it, but "graft," yes; and it is the medical men who are to blame. In order to break this disreputable trade in medical appointments the matter should be taken out of the hands of local committees, lay as well as medical, and placed with the Ministry of Health or other impartial body.—I am, etc.,

Bournemouth.

VINCENT NORMAN.

The Classics in Medical Education

SIR.—I trust you can give me a little space to protest against Prof. Major Greenwood's conditional plea for making Latin a compulsory subject of medical pre-education (Sept. 18, p. 375). If there is any of that increasingly precious commodity time to spare, in Heaven's name let it be spent in preparing the student in a realistic way for the problems he is likely to meet. Surely a course on scientific method is likely to be much more valuable than acquiring the ability to construe the Latin authors, and, in fact, has been left far too long out of the curriculum.—I am, etc.,

London, W.1.

FREDERICK DILLON.

Unity in the Profession?

SIR.—My letter (Sept. 25, p. 405) makes it perfectly clear that it is to Dr. Buchan's views on State medicine (Aug. 28, p. 278) that I am opposed. I do not possess Mr. McCurich's knowledge (Oct. 17, p. 496) of his activities in the discussions with the Government. I am quite aware that he was chosen by the Society of Medical Officers of Health—a component of the Representative Committee. I carefully made no reference to his having been chosen by anyone. The B.M.A. did choose at least one member of that Society and others whose views in the past have closely corresponded with those of the M.O.H. group. I still maintain that men with such views should not be elected to the future negotiations committee. It seems ludicrous to have them when unity of outlook and purpose is essential on so vital a committee.

The drawing of his obviously false inference gave Mr. McCurich the opportunity to write a letter in which he lifts the edge of the veil which, I believe, perhaps in ignorance, is still tightly drawn over the discussions between the Representative Committee and the Government. I wonder who authorized this? Mr. McCurich complacently states that "they [M.O.H. group] presumably will let the G.P.s settle what they want." Will they? I glean from Dr. Buchan's letter that the M.O.H. group desires full State medicine and to control it, but there is no need for haste. I would be among the first to agree with Mr. McCurich concerning Dr. Buchan's knowledge of his job and of the administration of Government Departments. The overlappings and confusion in these various Departments should be straightened out, in spite of the fact that they are notoriously jealous of the scope of their administration.

It is not with the integration of the various Departments and the Public Health Services that I am particularly concerned. I would leave that to Dr. Buchan and others like him who know about it and who are capable of dealing with it. Such men should be on the Government side of the fence when negotiations begin. It is in the future position and status of the general practitioner consultant group that I am interested. Their representatives on any future committee should be "elected"; and to give doctors a proper opportunity of voting correctly candidates for election should issue a manifesto stating clearly their views. The present official position of any doctor or surgeon in any society should not make him *qua non* a member of this vital committee.

It is quite possible that by holding such elections some experienced men may be passed over, but a committee so

elected, with a clear policy and backed by the profession, will be able to negotiate with strength. So it seems to me now the discussions are over.—I am, etc.,

Bradford.

DONALD WATSON.

The Human Side of Medicine

SIR.—So generous was the review of my book *The Future of Medicine* (Oct. 23, p. 513) that I hesitate to disagree with it in any way, but there are two points I think I ought to make clear. Dr. Alfred Cox speaks of "the somewhat inhuman attitude of the convinced Socialist," and against this I must protest. If there is one thing which marks the Socialist case off from others it is the fact that it is more human and more humane than any other. Writing a very small book on such a large subject one necessarily has to compress, but I thought I had managed to make my writing reflect my own intense desire for an improvement in the general conditions of the great majority of individuals who comprise the community we call Great Britain. Dr. Cox can be assured that I have tried out the ideas expressed in *The Future of Medicine* on many audiences of ordinary common folks in Lancashire, Yorkshire, and many other parts of the country, and I have never met with anything but the most enthusiastic support.

A second minor point is that Dr. Cox puts into quotation marks the phrase "more likely to be treated as a human being than in a voluntary hospital," and says that I made the statement on page 42 about the patient in a public hospital. I cannot find these words on page 42, or on any other page of the book. The phrase, which he has evidently paraphrased, was a quotation from the well-known report of P.E.P., which actually stated that in the hospital of a local authority a patient "is treated less as a case and more as a human being."

These two points are not so far divorced as one might imagine: they are both concerned with the human side of medicine, and it is obvious that observers differ as to their interpretation of what is human treatment. I believe that the change over from an individualistic system of medicine to a comprehensive national service will give us the opportunity to humanize completely the relationship between patient and doctor, and at the same time to raise the efficiency of our medical services to a point where our existing knowledge can be fully applied.—I am, etc.,

Richmond, Surrey

D. STARK MURRAY.

Obituary

ERIC PRITCHARD, M.D., F.R.C.P.

Eric Pritchard, who died at Exmouth on Oct. 20 after a long illness, was widely known for his work, extending over thirty years, in the cause of infant welfare. He was a pioneer in many aspects of child hygiene, a brilliant organizer of infant care, and a lecturer and writer of distinction, but his crowning work was his fourteen years' medical directorship of the Infants' Hospital, Vincent Square, Westminster. This post, to which he was appointed in 1922, was rather an uncommon one in British hospitals. It was created to meet the need for a hospital dealing exclusively with children, which, like other hospitals of the kind, had suffered from the diversion of public attention during the years of the last war. When, owing to Pritchard's efforts and those of the generous friends whose sympathy he enlisted, an annexe was opened, bringing up the accommodation to 100 beds and the new out-patients to 3,000 a year, it claimed to be the largest hospital of its kind in the British Empire.

The Infants' Hospital remains in a sense Pritchard's monument. Those who went round the new extension under his guidance were impressed not more by the originality of the design and planning than by the enthusiasm of the medical director. The arrangements for ensuring light and ventilation and avoidance of cross-infection, the open-air balconies to which every ward and wardlet had access, the provision of a locker for each infant, with all toilet requisites and thermometer, the clinic for deaf and partially deaf children, everything from the special floor to the special ceiling betokened Pritchard's mind. Most of all he delighted in the lecture hall.

This was a very unusual apartment, presented by Sir Robert Mond as a psychological experiment in the influence which beautiful surroundings might have upon the words of a lecturer, and especially upon the responsiveness of his audience. It had exquisitely carved panelling, fretted roof, and delicately traced lattice windows, and Pritchard confessed that when he first saw it the attractions of its rostrum for teaching purposes contributed largely to his acceptance of the post of medical director. Here for fifteen years he gave postgraduate lectures in connexion with the Fellowship of Medicine and the London Public Medical Service—three courses a year, each course consisting of at least twelve lectures. Before this, from 1909 to 1922, he had given short courses at the Queen's Hospital for Children, Bethnal Green, to which he was consulting physician, and even earlier still, in 1906, he had begun similar courses of lectures at St. Marylebone General Dispensary, where he was first medical officer to the first infant welfare clinic in London to be started by voluntary effort. Altogether he claimed to have given at least 1,500 lectures on child care.

George Eric Campbell Pritchard was born at Freshwater, Isle of Wight, in September, 1864, the son of the Rev. Charles Pritchard, D.D., Savilian Professor of Astronomy at Oxford. From Clifton College he went on to Oxford, where he took his B.A., with first-class honours in physiology, in 1887. He went for his medical training to St. Mary's Hospital, London, where he held a university scholarship, and qualified in 1892. In 1899 he proceeded M.D., and in 1926 became Fellow of the Royal College of Physicians. He also spent some time in study at the University of Berlin. Quite early in his career he devoted his attention to paediatrics, and for three years he was medical inspector of schools for the L.C.C. In due course he became a consulting physician in Marylebone and held several hospital posts. For some years he was paediatrician to Queen Charlotte's Maternity Hospital. Another post he greatly valued was that of consulting physician to the Sunshine Homes for Blind Babies, a project of the National Institute for the Blind.

It is not easy to catalogue the work of a more public kind which Eric Pritchard carried out for the medical supervision of the child in sickness and the preventive programme of the child welfare services. The steady decline in infant mortality during the last thirty years cannot be ascribed to one cause, and certainly not to one man, but among the names of those, apostles, educators, organizers, who helped to bring it about, that of Pritchard would be conspicuous. The offices he held at one time or other, to all of which he gave fully of his energetic and conscientious personality, show the concentration of his interest. He was honorary secretary of the National Association for the Prevention of Infant Mortality and of Child Welfare, chairman of the Association of Infant Consultations and Schools for Mothers, and of the executive committee of the National Baby Week Council, president of the British Paediatric Association, and vice-president of the Child Study Society. He had been president also of the Section for the Study of Disease in Children of the Royal Society of Medicine; and in the British Medical Association, of which he had been a member for nearly twenty years, he was vice-president in 1923, and president ten years later.

Pritchard's literary output was considerable. His *Physiological Feeding of Infants and Children* passed through several editions, and he wrote other books. After his retirement he published *The Infant: a Handbook of Modern Treatment*, written for occasional reference by the general practitioner. "Infancy" he interpreted as meaning the first five years of life. He never hesitated to be unorthodox if he thought that the principles of child health demanded it. His instructions to nurses and to "nannies" may sometimes have been resented as "new-fangled notions," but those concerned came to admit that there was a great deal in "what Dr. Pritchard said." He was specially interested in the work of the Wellgarth Nursery Training College in seeing that those who had to deal with babies and young children received adequate training in nutrition and hygiene. He himself was not only learned in the principles of paediatrics, but he had a remarkable "way with children" which accounted in no small degree for his success.

A correspondent writes: Of Eric Pritchard the clubman, the bridge player, the *bon viveur*, some brief record should remain. To this side of life he brought an unflinching zest; if his bridge calls were on the side of undue optimism, he was never cast down by defeat, and his glee was manifest when he did pull off a slam bid, especially if it was accomplished through a lucky opening lead or a series of bold finesses. He had a schoolboy flair at inventing nicknames for his fellow clubmen, and these had a habit of sticking; they often embodied personal peculiarities; but the victims rarely felt annoyed, as they were obviously concocted in a spirit of good-natured fun. His judgment of vintage port was retained into old age. Occasionally hot-tempered, and apt to be both mordant and emphatic at such times, he could always be placated by a soft answer.

A. PIRIE WATSON, CH.M., F.R.C.S.ED.

We regret to announce the death, at his home in Douglas Crescent, Edinburgh, on Oct. 22, of Mr. A. Pirie Watson, for many years a leading surgeon and teacher of surgery in the city. He had been on the honorary staff of the Edinburgh Royal Infirmary since his election as assistant surgeon in 1911 and only two days before his death he was re-elected to the Council of the Royal College of Surgeons of Edinburgh, of which he became a Fellow in 1911.

Alexander Pirie Watson was born at Aberdeen in 1880 and was educated at Trinity Academy, Leith, and Edinburgh University, where he graduated M.A. in 1903, M.B., Ch.B. in 1905 and Ch.M. with gold medal in 1911, in which year he won the Syme Surgical Fellowship and the Chiene Medal in Surgery. From 1908 to 1914 he held junior posts at the Edinburgh Royal Infirmary, and for 14 years he was assistant to Prof. Alex. Thomson in the department of surgery at the university. Mr. Pirie Watson was closely associated with the Leith General Hospital during the past 24 years, where he was successful pathologist, assistant surgeon, and surgeon. He had held commission in the Territorial Army for years before the last war, and in 1915 went over-seas with the 52nd (Lowland) Division. He served with the 4th Royal Scots throughout the Gallipoli campaign; later he became A.D.M.S. of the Division and took part in Egypt in the defence of the Suez Canal and thereafter in the Palestine and Syria campaigns. He was present at the capture of Jerusalem and commanded a mobile unit, and for his services in the campaigns he was twice mentioned in dispatches and received the O.B.E. (Mil.). On returning to civil life he was promoted lieutenant-colonel in command of the 11th (2nd Scottish) General Hospital in 1925, and later colonel and A.D.M.S. of the 52nd Division, and received the Territorial Decoration.

Early in his career Mr. Pirie Watson made a close study of the treatment of fractures. He contributed articles on the treatment of injuries to Murphy's *Practical Encyclopaedia*, to fractures and dislocations to Sorapure's *Dictionary of Therapeutic Agents*, and on amputations to Miles and Wilkie's *Operative Surgery*, also a number of papers to the *Edinburgh Medical Journal*. He had been a member for many years of the British Medical Association, and of the Edinburgh Medical Chirurgical Society and the Edinburgh Pathological Club, and he was a Fellow of the Association of Surgeons of Great Britain and Ireland.

Dr. WILLIAM ROLLAND died at Bolton on Oct. 15 at the age of 59. By his death the town and the Royal Infirmary sustain the loss of a practitioner who had played a most important part in the medical life of the community. Owing to the fact that he had been an assistant to Prof. Muir of Glasgow he was able in 1911 (when appointed to the honorary staff of the Bolton Royal Infirmary) to start the pathological department, which has grown from its humble one-room beginning to the up-to-date laboratories which house its activities to-day. Rolland also initiated the medical side of the hospital and acted as honorary physician; there also he worked hard and showed himself to be a careful and conscientious clinician; but he was also a pathologist, and perhaps especially as a bacteriologist that he achieved an almost unique position. Lancashire has now and then produced, in its provincial towns, a doctor of distinction; everyone remembers Mackenzie of Burnley, and one ventures to think that Rolland of Bolton is equally entitled to remembrance for the great work he did in making the pathological service of the Royal Infirmary the foundation for all the clinical progress that has since been made there. During the last war he served from 1915 to 1918 as pathologist at No. 24 General Hospital, France. He leaves a wife and a son, Charles, who is a final-year medical student; his young son, Graham, was killed recently on active service in the R.A.F.—J. L. F.

Dr. WILLIAM STEVEN of Featherstone, nr. Wakefield, died on Oct. 15 at the age of 81. He was a native of Forfarshire and graduated M.B., Ch.M. at Edinburgh in 1886. Fifty-seven years ago he went to Featherstone as assistant in the practice of which he later became the head. No one was better known in the district or among his professional brethren than he. He was M.O.H. for the district and took a very keen interest in all public matters connected with his profession. For fifty years he was an instructor and examiner for the Order of St. John of Jerusalem, and at the time of his death was an Officer.

Dr. Mary M. Patterson writes: As a colleague of Dr. HANNAH PERRY ANDERSON, whose obituary notice appeared in the B.M.J. of Oct. 23, I would like to add a word of appreciation. Dr. Anderson was a remarkable woman in many ways. She did not enter the medical profession until she had reached an age when less active and alert women are contemplating a life of leisure and retirement. Already she had lived through a very full life, and had travelled all over Europe when she accompanied her husband, Professor Anderson, to his many and varied scientific gatherings, when she met most of the leading scientists of the beginning of the century. When Dr. Anderson became a widow she at once commenced her medical studies with the ardour and enthusiasm of youth. It was a new adventure to her, and to the last hour of her life it remained an adventure. She was eager and ready for any phase of her work and enthusiastic in the work and aspirations of the younger members of the profession. Her breadth of view, her wholesomeness, her joyous optimism, inspired patients and colleagues alike. Like many another, I mourn the loss of a brave, staunch, and trusty friend.

Neonatal Discharge.

2.15 p.m., at the College.

The following having satisfied the Censors:

Members of the College:

Enid I. M. Addenbrooke, M.B.; C. Beattie, M.D.; J. A. Black, M.B.;
Joyce E. Chamberlain, M.B.; P. J. Colhard, M.B.; A. H. C. Couch, M.B.;
L. M. Dunlop, M.D., F.R.C.P.E.; F. Foran, M.B.; O. F. Garai, L.R.C.P.;
D. Greenfield, M.B.; P. Harvey, M.B.; V. H. Helms, L.R.C.P.;
P. Jones, M.B., R.S.; H. A. Leppitt, M.D.; V. C. Madvel, M.D.; F. T.
Farr, M.B.; J. A. Fraser Roberts, M.D., D.Sc.; A. Wardale, M.B., F.R.C.S.
D. Weisman, M.B.

Licences to practise were conferred upon the following 197 candidates (including 24 women) who had passed the Final Examination

in Medicine, Surgery, and Midwifery of the Conjoint Board and have complied with the necessary by-laws:

A. R. Anderson, P. R. Apperly, P. G. Arblaster, P. E. Baldry, M. A. Basker, K. H. Bassett, J. S. Battersby, W. C. H. Bell, S. B. Bennett, W. E. J. Bennett, L. Bernstock, G. E. R. Bibbings, H. R. Blades, R. A. Blyth, L. S. A. Boothroyd, M. P. Bourke, W. M. de C. Boxill, R. S. Bradbrook, P. R. Bromage, V. S. Brookes, D. H. Broughton, A. E. Brown, W. F. Buchanan, Dora Buckley, R. R. Burn, D. Canter, A. H. D. Capper, Eileen M. Carey, R. M. Chambers, F. B. E. Charatan, P. A. H. Clements, E. R. Cole, Lorna Cooke, Margaret L. Cox, K. D. Crow, S. M. F. Curé, M. J. Cutler, P. Dawson-Edwards, R. F. A. Dean, E. W. Deane, F. Denny, C. J. Dewhurst, R. I. Dixon, K. W. Dodd, M. C. H. Dodgson, C. Dryburgh, D. J. Du Toit, G. C. D. Dutton, J. R. Dyer, C. G. Edwards, E. M. Edwards, A. G. Ellerker, L. Erin, M. Ernest, D. H. L. Evans, Elinor M. Evans, R. H. J. Fanthorpe, S. C. Farman, A. D. J. Farquharson, D. A. Fermont, J. H. Ferries, J. J. Fleming, Mary Francis, G. J. F. Fryer, C. O. Fung-Kee-Fung, Y. Y. Gabriel, R. B. Gaze, S. Gee, L. M. Gerlis, E. C. Gibson, K. L. G. Goldsmith, R. A. Goodbody, L. N. Gould, M. G. Gould, K. T. Graham, G. Grant, C. J. S. Green, Sheila M. E. Grew, G. A. Griffin, E. G. Hall, T. Hanley, F. S. Harlow, A. D. Harris, J. N. Harris-Jones, R. H. Hepburn, A. J. H. Hewer, Eva M. I. Hick, Reba N. G. Holloway, J. C. S. Holmes, J. W. Honey, J. E. Hotchin, Sheila M. Howarth, Lilian Howell, R. A. Hudson, P. H. Huggill, J. R. Ivey, R. F. Jackson, H. B. Jacobs, B. R. James, G. M. L. James, F. W. Johnson, G. T. Johnson, D. G. Jones, P. F. Jones, P. H. Jones, W. K. Jones, A. J. Jordens, E. C. B. S. Keat, H. B. Kelly, P. H. Keppich, Irene S. King, A. Knight, T. Koonvisal, R. H. N. Lake, Joan E. M. Lambert, P. G. Large, B. M. Laurant, M. S. Laurie, S. Levy, Ninian Lewis, W. D. Linsell, Patricia M. Lloyd, J. A. Loveless, Margaret E. Lowry, G. MacGregor, B. H. McGuirk, K. M. Mackenzie, R. M. Mackenzie, Anne I. Mackessack, S. A. Marsh, W. E. S. Marshall, R. G. May, J. R. M. Miller, K. H. Miller, R. D. Millward, M. E. Minchin, Ruth S. Mitchison, G. O. Morgan, J. F. K. Muir, N. I. Nash, E. Nassau, G. A. Neil, M. S. Novis, J. E. Oliver, J. M. Pallot, Diana G. Paradise, J. P. Partridge, A. D. Payne, J. O. Pearson, B. J. Peck, H. P. Phillips, R. M. Phillips, Pauline M. Philpott, Mildred I. Pott, C. A. Pragnell, J. E. L. Price, V. W. Pugh, Denise A. Pullen, Celia M. Rapport, D. A. C. Reid, J. I. Rivlin, J. W. Robb, D. G. Roberts, M. M. Rose, D. Rosenberg, M. H. Russell, N. H. Seaton, D. L. Scott, M. Seifert, J. C. Seines, J. H. Sherry, L. S. Simons, K. H. Smith, W. H. Smith, J. L. Souster, Ethel M. Spedding, I. F. R. Sutherland, C. E. Sweetnam, K. B. Thomas, D. W. Townley, J. K. Trounce, K. A. D. Turk, H. R. Vincent, B. A. Ward, J. S. Watson, W. A. Watson, P. L. Watts, J. Wedgwood, G. P. West, R. G. White, T. A. White, K. C. Willett, H. B. L. Williams, O. H. E. Williams, T. C. P. Williams, A. M. Wood, C. F. Zervogel.

Diplomas in Child Health (eighteen) were granted, jointly with the Royal College of Surgeons of England, to the candidates whose names appear in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of Oct. 30 (p. 562).

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At the annual meeting of the College held on Oct. 20 the following office-bearers were elected for the ensuing year: *President*, Prof. R. W. Johnstone, M.D., F.R.C.O.G. *Vice-President*, Mr. J. W. Struthers. *Secretary and Treasurer*, Mr. K. Paterson Brown. *President's Council*, Mr. James M. Graham, Sir John Fraser, Bt., Mr. A. Pirie Watson, Dr. G. Ewart Martin, Mr. Francis E. Jardine, Mr. W. Quarry Wood. *Representative on the General Medical Council*, Mr. Henry Wade. *Convener of Museum Committee*, Mr. W. Quarry Wood. *Librarian*, Dr. Douglas Guthrie.

The following candidates, having passed the requisite examination, were elected Fellows:

W. Cowell, E. Griffiths, W. G. Holdsworth, A. M. Howard, S. L. Mann, A. G. C. Neill, St. J. G. O'Connell, C. C. Slack, H. B. Young.

The Services

Lieut.-Col. H. H. Elliott, C.I.E., M.C., I.M.S., has been appointed Surgeon on the personal staff of the new Viceroy of India, Lord Wavell.

Capt. (temp. Major) A. Cregar and Capt. L. Herbert, J. E. Miller, and E. L. Moore, R.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in Sicily.

The Efficiency Decoration of the Territorial Army has been conferred upon Lieut.-Col. (temp. Col.) (local Brig.) A. H. Whyte, D.S.O.; Lieut.-Cols. (temp. Cols.) A. T. B. Dickson, O.B.E., and I. M. Pirrie, M.C.; Major (temp. Lieut.-Col.) (acting Col.) A. H. Macklin, O.B.E., M.C.; Majors (temp. Lieut.-Cols.) J. B. Forsyth, R. M. Gordon, A. B. Kerr, W. R. Logan, R. W. Power, and W. B. Sprunt; Majors W. C. Armstrong, R. E. Holme, W. H. M. Jones, W. L. Lamb, M. Stoddart-Scott, C. M. Willcox, and J. Wright, R.A.M.C.

The Commander-in-Chief of Bomber Command has commended the action of a medical officer, Flying Officer A. R. H. Mills, in swimming a river to the rescue of some stranded airmen. When a bomber crashed by the side of one of the main rivers of the Midlands F.O. Mills entered the water and swam across in the dark. He managed to release the dinghy, and first ferried the fit members of the crew across. He then procured stretchers and safely transferred three injured men to an ambulance.

CASUALTIES IN THE MEDICAL SERVICES

Lieut.-Col. Stewart Brown, R.A.M.C., was killed in action at the age of 31 in the Central Mediterranean area while tending wounded. He was educated at George Watson's College and the University of Edinburgh, where he graduated M.B., Ch.B. in 1935. At the Army Medical College, Millbank, he was medalist in

military medicine, then saw service on the North-West Frontier, later in Palestine and Egypt. He was promoted major and to the 51st (Highland) Division while being re-formed in this regiment went over-seas again with the Division, and served all through campaign in North Africa to Tunis. He was then promoted colonel and given command of the City of London Unit in the Middle East.

Wounded.—War Subs. Capt. J. H. F. Brotherton, R.A.M.C. *Previously reported missing, now officially reported a prisoner of war*.—Capt. G. F. Allan, R.A.M.C.

Prisoners of War.—Fl. Lieut. R. A. Cumming, R.A.F., Fl. Lieut. W. N. Riley, R.A.F.V.R.

Killed.—Capt. H. G. Greeves, R.A.M.C. *Killed on active service*.—War Subs. Capt. R. E. K. Lee, R.A.M.C.

Officially reported died on active service.—Capt. I. G. ... R.A.M.C.

Medical Notes in Parliament

Mass Radiography

Mr. JACKSON asked on Oct. 14 at what intervals Mr. Brown advisers considered it necessary to examine people by mass radiography to be satisfied that they showed no early traces of tuberculosis. Mr. BROWN said signs might pass from the radiologically imperceptible to the perceptible state in the interval between two examinations, however short the interval, and frequency of examination could give complete security. The practical question now and for some time to come must be how to make best use of the resources available. Miniature radiography units had been supplied in England to the Councils of London, Lancashire, Middlesex, and Surrey, and to the Staffordshire, Wolverhampton, and Dudley Joint Tuberculosis Board. Another unit had gone to Scotland. One was on the point of delivery to the Welsh National Memorial Association.

Repatriation of Disabled Prisoners

On Oct. 19 Mr. LAW made a statement on the repatriation of disabled prisoners of war. He said that two agreements had been reached with Germany which covered all those members of the armed Forces of the British Commonwealth and of the United States who had been passed by medical authorities for repatriation under the Geneva Convention. In all, there were over 3,000 seriously sick and wounded, the great majority of them members of the United Kingdom Forces, who were coming home from Sweden, as well as 1,200 or more officers and other ranks, including doctors, chaplains, medical orderlies, and stretcher-bearers. They would leave Gothenburg on Oct. 20 or 21. In addition, more than 1,000 men, members of the Dominion or Colonial Forces, would be brought from Germany to Barcelona. Nearly half of these were sick and wounded. The total number of prisoners of the British Commonwealth and Empire who would be repatriated under the present agreement was about 5,400. This number included about 170 sick merchant seamen and about 100 sick interned civilians. So far as he knew, every single prisoner eligible under the Geneva Convention was being repatriated in this exchange. He did not think that any man who had been passed by medical authorities would have been left in Germany. Between 5,000 and 6,000 German prisoners of war were being sent back to Germany by the British Commonwealth and the United States.

Representative Committee

Dr. RUSSELL THOMAS inquired on Oct. 21 how many doctors represented the medical profession in the recent negotiations in regard to the future of medical practice, and how many of these act or acted as members of any advisory or other committees or in any collective or individual capacity in connexion with the Ministry of Health or any other Department. Mr. ERNEST BROWN replied that a Representative Committee of 42 members was selected by the B.M.A. in collaboration with the Royal Colleges. His information did not enable him to answer the last part of the question exhaustively, but of the 42 representatives chosen by the profession, ten were also members of his Medical Advisory Committee. An additional three representatives assisted his Department as members of advisory committees or in an individual capacity.

Distribution of Doctors

In an answer to Mr. Henry White on Oct. 21 the MINISTER OF HEALTH said the Central Medical War Committee and its local committees, in selecting doctors to make up the quota required by the Forces, did their best to maintain an adequate medical service for the civilian population, but in some areas there must inevitably be a heavy burden on the remaining

EPIDEMIOLOGY SECTION

Nov. 6, 1943

vectors and some inconvenience for the public. For the areas
ost in need of help arrangements were being made through
e C.M.W.C., in accordance with a recommendation of the
Committee presided over by Sir G. Shakespeare, for employ-
ment of suitable doctors as assistants in general practice. These
ould be chosen mainly from those found unfit for service
the Forces, and the powers of direction under the Defence
regulations would be used so far as appropriate for this
purpose.

G.M.C. Representatives

Mr. HUTCHINSON asked on Oct. 21 why the Government had
vised His Majesty to continue unchanged for a fourth year
the composition of the General Medical Council, as provided
by the General Medical Council (Temporary Provisions) Order,
1943. Mr. ATTLEE said this Order related only to those members
of the General Medical Council elected by medical practitioners,
owing to continued absence with the Forces or on other forms
of national service of a substantial proportion of the electorate.
An election at present would present great practical difficulty
and would imperfectly represent the views of those entitled to
vote.

Equipment for Gas-and-oxygen Anaesthesia

On Oct. 21 Major C. TAYLOR asked what number of hospitals
dealing with maternity cases were equipped with gas-and-
oxygen anaesthetic appliances. Mr. ERNEST BROWN said 47
local supervising authorities in England and Wales provided
the apparatus, in some cases for domiciliary use. Of the 88
emergency maternity homes under the Government evacuation
scheme 60 had been supplied with machines for the administra-
tion of gas-and-air anaesthesia. He had no information as to
the provision of this equipment in voluntary hospitals.

Cholera and Deaths from Famine in India

Mr. AMERY stated on Oct. 21 that cholera had been reported
in various parts of India, but he had so far no indication of
any widespread outbreak, nor of special difficulties experienced
by Provincial Governments in dealing with outbreaks of this
or of any other disease. He had no recent report of shortage
of drugs or medical supplies for civilian use. As regards deaths
by famine, figures were incomplete and unreliable. In Calcutta
mortality was reported to be twice the normal for the time of
year. Between mid-August and mid-October about 2,000
persons suffering from malnutrition died in Calcutta hospitals.

Typhus in North Africa.—During last typhus season in North
Africa there were 20 cases among British troops, of which six
were fatal. No cases have been reported from Sicily during opera-
tions in that area. Some 30 cases of typhoid fever have been
reported from North Africa.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales notifications of scarlet fever and measles
continued to mount, by 75 and 94 cases respectively, while
decreases were recorded for diphtheria 25 and dysentery 10.
The largest local increase for scarlet fever was in Staffordshire
with 31 more cases, and for measles, in Norfolk, also with 31
more.

The total number of cases of dysentery is still high—253.
The largest of the new outbreaks was in Bedfordshire, Biggles-
wade R.D. 15. In Kent notifications fell from 59 to 12, and
in London from 52 to 46. Several areas recorded rises, impor-
tant centres of infection being Yorks West Riding with 26,
Lancashire 22, Middlesex 22, Somerset 19, Warwickshire 13,
and Leicestershire with 10 notifications.

In Scotland diphtheria went up by 31 cases, scarlet fever by
31, and acute primary pneumonia by 23; dysentery was down
by 34, and whooping-cough by 24 cases. The higher incidence
of diphtheria was confined to the western area; the rise in
scarlet fever and pneumonia was fairly general. Almost half
of the cases of dysentery were reported from the two cities of
Glasgow 14, and Edinburgh 13.

In Northern Ireland there were 23 more cases of scarlet
fever: 82 of the 118 notifications were recorded in Londonderry.
The principal centre of diphtheria infection was Londonderry
C.B., where 30 of the 37 cases occurred; this city is experiencing
the worst outbreak for ten years.

In Eire the incidence of diphtheria remained high with a rise
of 6 cases; 26 were reported in Dublin C.B. during the week.
The higher figure for scarlet fever was due mainly to an out-
break in Tipperary, Roscrea R.D. 14.

The Week Ending October 23

The notifications of infectious diseases in England and Wales
during the week included: scarlet fever 3,317, whooping-cough
1,459, diphtheria 725, measles 546, acute pneumonia 579,
cerebrospinal fever 46, dysentery 249, typhoid 7.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital
Statistics in the British Isles during the week ended Oct. 16.
Figures of Principal Notifiable Diseases for the week and those for the corre-
sponding week last year, for: (a) England and Wales (London included), (b)
London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

**Figures of Births and Deaths, and of Deaths recorded under each infectious disease,
are for: (a) The 126 great towns in England and Wales (including London)
(b) London (administrative county), (c) The 16 principal towns in Scotland, (d)
The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.**
A dash — denotes no cases; a blank space denotes disease not notifiable or
no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	37	11	17	2	2	59	6	20	2	—
Deaths ..	707	31	198	99	37	971	53	218	85	25
Diphtheria ..	7	—	2	2	1	15	1	4	—	—
Deaths ..	253	46	62	—	1	165	18	78	—	—
Dysentery ..	—	—	—	—	—	2	1	1	—	—
Deaths ..	5	—	—	—	—	—	—	61	4	—
Encephalitis ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Erysipelas ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years ..	58	10	8	35	7	55	7	11	98	4
Deaths ..	675	49	55	18	—	5,796	291	353	45	18
Measles ..	87	5	19	2	—	92	3	17	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Ophthalmia neonatorum ..	3	—	—	—	—	6	1	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever ..	—	—	—	—	—	608	32	2	1	1
Deaths ..	569	33	6	—	—	17	1	1	1	—
Pneumonia, influenza* Deaths (from influ- enza) ..	18	5	5	—	—	—	—	139	21	4
Pneumonia, primary ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Polio-encephalitis, acute ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	19	3	—	—	—	24	3	2	22	—
Polio-myelitis, acute ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	153	4	19	—	—	133	5	15	4	2
Puerperal pyrexia* ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	3,324	321	416	69	118	2,703	175	430	81	35
Scarlet fever ..	2	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Smallpox ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Typhus fever ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	1,482	121	157	13	15	907	50	34	61	8
Whooping-cough ..	297	45	73	51	23	359	31	69	49	23
Deaths (0-1 year) Infant mortality rate (per 1,000 live births)	4,107	603	621	197	141	3,880	535	542	201	113
Deaths (excluding still- births) Annual death rate (per 1,000 persons living)	6,415	841	972	292	286	6,033	727	945	377	252
Live births ..	—	—	—	—	—	—	—	—	—	—
Annual rate per 1,000 persons living ..	232	19	33	—	—	202	18	44	—	—
Stillbirths ..	—	—	—	—	—	—	—	—	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	—	—	—	—	—	—	—	—

* Includes primary form for England and Wales, London (administrative
county), and Northern Ireland.
† Includes puerperal fever for England and Wales and Eire.
‡ Owing to evacuation schemes and other movements of population, birth and
death rates for Northern Ireland are no longer available.

Medical News

A meeting of the Middlesex County Medical Society will be held at the West Middlesex County Hospital, Isleworth, on Tuesday, Nov. 9, at 2.45 p.m., when a clinical demonstration will be followed by papers by Mr. W. J. Ferguson on treatment of haematemesis and melaena in cases of recently perforated peptic ulcer, and Mr. D. M. Stern on treatment of stress incontinence in women. Visitors, including members of the U.S. and Canadian Forces now in this country, will be welcome.

A lantern lecture on "The Use of Plant Growth Substances" will be given by M. A. H. Tincker, D.Sc., at the house of the Pharmaceutical Society of Great Britain, 17, Bloomsbury Square, W.C., on Thursday, Nov. 11, at 7 p.m.

The London Women's Parliament is calling its fourth session on Sunday, Nov. 14, at the Bedford Theatre, Camden High Street, N.W.1. The object is to find how best to minimize the strain of war work while still maintaining production. Three subjects will form the basis for discussion: (1) Health in the factory, with special reference to hours worked, health committees, extension of welfare and medical care, ante-natal supervision. (2) Health in the borough, with emphasis on maternity provision, including more maternity beds, home helps, midwives, and maternity benefit; improvement of local health services, and a demand for a national health service as recommended in the Beveridge report. (3) Housing, with a demand for immediate control of all rents, including furnished premises, effective requisitioning of empty houses, billeting, repairs of houses, extended building programme, and an acceptance of the L.C.C. Plan.

The programme of lectures arranged by the Royal Institution, 21, Albemarle Street, W., includes two Friday evening discourses at 5 p.m.—one on Nov. 26 by Sir Joseph Barcroft, F.R.S., on the preservation of foods by drying, and another on Dec. 10 by Prof. H. W. Florey, F.R.S., on the development of penicillin for medical uses. A course of lectures on progress in the treatment of infections is being given by Sir Henry Dale, P.R.S., on Tuesdays, Nov. 9 and 16, at 5.15 p.m.; and at the same hour on Nov. 23 and 30 and Dec. 7 and 14 Prof. J. C. Drummond will give a course on food problems of the post-war years.

The names of Dr. Irene Marie Holden MacAdam, wife of Dr. W. MacAdam, professor of medicine at Leeds University, and of Dr. Joseph William Silversides, honorary secretary of the Leeds Joint Council of Industrial Medicine, have been added to the Commission of the Peace for Leeds.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Members' subscriptions should be sent to the Secretary of the Association.

TELEPHONE NO.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES.—EDITOR, *Atiology Westcent*, London; SECRETARY, *Medisera Westcent*, London.

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Cause of Cancer Cachexia

Q.—The wasting in malignant disease is far in excess of the extent of the growth, which suggests a toxæmia. Has a toxin been yet discovered?

A.—A toxin has not been discovered. The important known causes of cachexia are sepsis and interferences with organic functions, as, for example, by pressure or obstruction.

Rapid Loss of Hair

Q.—A man aged 32 complains that his hair is falling out at a prodigious rate. The baldness is "natural" in distribution, being situated over the crown of the head, and it has not the patchy appearance of alopecia areata. But the extreme rapidity with which it is being lost leads me to suspect an underlying factor. He has grown perceptibly balder in the two months I have known him.

The scalp appears normal, and the patient is in excellent health. There is no indication of myxoedema, but I wondered if small doses of thyroid extract might benefit the condition. At the present of loss he should be quite bald in six months. Up to four months ago his hair was extremely thick and strong. Could you advise as to any treatment, either local or general, that might benefit the condition; and also give me some idea of the possible cause?

A.—It is possible that the loss of hair described is the result of febrile illness—e.g., influenza—about two months before the hair was noticed. If this is the case the hair will almost certainly return satisfactorily in a few months. If there has not been illness, probably the trouble is a form of alopecia areata, in which case some "exclamation mark" stumps may be discovered. Small doses of thyroid are not likely to have any effect unless there is definite thyroid deficiency. Ultra-violet light, either locally to the scalp or general to the whole body once or twice a week, might be tried.

What to do with Diphtheria Carriers

Q.—Is it necessary to isolate every diphtheria carrier who has been discovered? As the number of immunized people rises, the number of carriers must rise, and isolation and cure will become a problem of much difficulty.

A.—The handling of the diphtheria carrier is a controversial subject. The procedure should vary according to (1) the environmental conditions, (2) the nature of the carrier state, and (3) the laboratory facilities available.

1. If a diphtheria carrier is discovered in a family or close community where there are other susceptible children, it is wise to remove the carrier until the other children have been protected by active or combined active-passive immunization. On the other hand, isolation of the diphtheria carrier in a day-school where a high proportion of the children have been immunized is probably unnecessary, particularly if the children are under regular medical supervision.

2. The carrier state is with many children a transitory phenomenon, and children with healthy mucous membranes in the nose and throat are not likely to be persistent carriers or to spread the infection. Thus, carriers discovered in the routine swabbing of contacts are often temporary carriers and should not be transferred immediately to an isolation hospital unless there is some clinical abnormality in the upper air passages. The diphtheria carrier with nasal discharge or diseased tonsils is more dangerous and should be isolated and treated. There is, of course, no power in England and Wales to remove a carrier as such from a hospital, but parents can usually be persuaded of the advisability of doing so. While a temporary increase in carriers in place of clinical cases might be expected as a result of immunization (this happened at Greenwich Hospital School), experience in Canadian and American cities has shown that after a high proportion of the children have been inoculated the carrier rate at them falls to a very low level.

3. The diagnosis of a diphtheria carrier is a joint responsibility of the physician and the bacteriologist. Swabs must be taken from both nose and throat and should be inoculated into tellurite-containing medium. Organisms resembling *C. diphtheriae* should be examined biochemically, and, if necessary, by a method of inoculation to find whether they are toxigenic. Unless this is done—and in many areas laboratory facilities are still inadequate for the purpose—no reliance can be placed on a report of the presence or absence of *C. diphtheriae*.

M.O.s and G.P.s

Q.—Some time ago I saw a statement that the Ministry of Health would be pleased if local authorities could allow public health medical officers in their spare time to help out the general practitioners who are at present being overworked. I would be pleased if you could let me know when and where the statement was made, and whether the local authorities were circularized concerning it.

A.—In the House of Commons on May 20, 1943, Major I. (Leicester E.) asked the Minister of Health if he approved arrangements whereby, in the present call upon medical practitioners, medical officers, both men and women, holding appointments with local authorities voluntarily agree to assist in the work at hospitals and general practices in cases of special urgency; and whether he would consider taking steps to encourage this type of arrangement in present circumstances. The Minister of Health replied: "I am glad to learn of any co-operative arrangements between medical practitioners which will help to relieve the pressure on the public at the present time, but owing to the great variation in local conditions I do not think that I could usefully commend any particular scheme for this purpose." Major Lyons continued: "While recognizing the difference in local conditions, may I ask whether the hon. gentleman would let local authorities know that where possible this kind of co-operative effort meets with his approval?" Mr. Brown replied: "I think that they know that, and this question will serve to spread the light further."

Sedimentation Rate

Q.—What is considered the normal erythrocyte sedimentation rate? What is the significance of a raised rate? Does it always indicate a chronic infection? If a raised E.S.R. be found by chance in an otherwise symptomless patient, what notice should be taken of it?

A.—The normal erythrocyte sedimentation rate varies with the method used. With the Westergren method a reading of 3 mm. in one hour is normal, 4 to 6 mm. is doubtful, readings between 7 and 12 mm. are probably abnormal, and higher readings are certainly pathological. With the Wintrobe method the normal sedimentation reading is 3 to 4 mm. plasma at one hour for a man, 9 to 10 mm. or less for a woman. A raised sedimentation rate does not always mean a chronic infection. It occurs also in acute infections, in pregnancy, in anaemia, in malignant disease, in acute uterine or coronary thrombosis, etc. Menstruation does not increase sedimentation rate in health.

If a raised sedimentation rate is found in an otherwise symptomless patient, the test should be repeated in a month's time. In the meanwhile the patient should be thoroughly examined clinically, a good count made to see if there is any anaemia, and the chest x-rayed to exclude, so far as possible, pulmonary tuberculosis. An increased sedimentation rate indicates a pathological state, but very rarely a normal sedimentation rate is found in active pulmonary tuberculosis.

Short Stature and Endocrinology

Q.—Apparently experimental endocrinology has been successful in producing gigantism in animals by the administration of a pituitary growth hormone. I have a patient who is worried because of two children, aged 4 and 6 respectively, are shorter than is normal for their age. The mother and her family all tend to be of short side. The mother is anxious to know whether available pituitary preparations could be used to accelerate the rate of growth, and whether this could be carried out without any risk to the patient. The home conditions are satisfactory and the children are well fed. I of course assume that any course of treatment would be under the direction of an endocrinologist.

A.—The pituitary growth hormone to which the questioner refers is available for treatment in man. Of one variety 2 c.c.m. or more can be injected intramuscularly three times a week for a period of six weeks, and then repeated after an interval of a month. The results are variable and often disappointing. Desiccated thyroid can be given alone or in conjunction with this treatment to the point of tolerance. Testosterone may also produce an increased rate of growth, but must be administered with caution in young children. As regards the possible risk in using pituitary growth hormone, local reactions are not infrequent, and occasionally a general reaction of an allergic character may occur.

Night Frights in an Adult

Q.—A physically healthy man of 25 has had night frights since the age of 18. They may occur once or several times a night for weeks on end, or they may not occur for a similar period. In a mild fright he shouts out, "No, no, no," but in a severe one he awakes at the top of his voice and tries to escape from the room either through the door or window. He is a highly strung person and is energetic. He has stammered since childhood. He has a responsible position in a business firm. Bromides and phenobarbitone have been tried with only slight improvement. I should like to know: (1) Is the cause likely to be a single repressed incident occurring in childhood? (2) What are the chances of success from expert psychotherapy? (3) Can some idea of the length of treatment necessary be given?

A.—The clinical details given in the question are insufficient to permit of more than a tentative answer.

Point 1.—It is unlikely that a single incident can be the cause of the dissociative nightmare attacks. These night frights must be regarded as a break-through of a "screen-memory," only partly expressed. Such incidents which appear in the analysis of psycho-neuroses have the function of partly concealing and partly expressing the underlying predisposing conflicts in highly condensed form, symbolizing what is typical for the emotional problem. Only the full recall and analysis of the contents of these attacks can reveal the deeper causes. It is, however, safe to assume that these lie in early relationships with other people. That such relationships were not smooth is shown by two important details—the stammer and the "highly strung energetic" personality. Owing to some undisclosed present-day stress repression has failed; the emerging primitive feelings (no longer sufficiently held in check by the old defences of stammer and tense active attitude) seize upon some old or even recent "incident," which is also likely to possess significance in its own right. Often, however, such incidents are found to exist only in fantasy, which does not diminish their importance in psychotherapy.

Points 2 and 3.—The chances of successful psychotherapy are high. An acute symptom provides a strong incentive for the patient's co-operation and a ready-made portal of entry to the

problem for the therapist. The terror attacks are thus likely to be resolved quickly as psychiatrists count time—e.g., in ten to fifteen sessions, with one or two applications of light hypnosis or evipan narcosis as a possible time-saving technique. At this stage the patient may wish to stop, full of gratitude for his temporary relief, but with the deeper problem probably unsolved. It is likely that the emotional trends released by reduction of the acute symptom will make themselves felt in either new symptoms or behaviour. Ideally, therefore, a longer period of treatment is called for. The patient may be glad to follow on if his circumstances and his psychological insight permit. This phase of treatment may last six months or more of regular analytic sessions. Even then, traces of stammer are likely to persist, although they will have lost much of their subjective importance. A constitutional element may be present. On the other hand, for practical purposes, in wartime especially, the short treatment only resolving the urgent symptom may have to suffice. Any expert would, however, take tactful steps to warn the patient that the job was incomplete, but that further help was possible if new discomforts should develop with which the patient could not cope unaided.

Gynaecomastia

Q.—What are the aetiology and treatment of gynaecomastia? What are the prospects of malignant change occurring? The patient is in the late thirties and he has had the condition for about two months. Previously quite normal and absolutely no evidence of hypogonadism. On page 442 of the JOURNAL Dr. J. C. Jones recommends stilboestrol, while on page 403 Dr. Magee points out that stilboestrol will of itself produce the condition. The statements appear to be contradictory. Furthermore, Lacassagne has repeatedly induced mammary carcinoma by injections of oestrons in the male. In the present instance the patient only returned from the Middle East about three months ago and there is an admitted history of sexual excess, without, however, any apparent loss of power. He has acquired the habit of taking occasional doses of iodine as a "tonic."

A.—The causes of gynaecomastia are still hypothetical, and authorities differ profoundly. The breasts are bisexual organs, which develop in girls under the influence of the female sex hormones, but not in boys, in whom the small amount of female sex hormone is more than cancelled by the production of male sex hormone. It would appear from this that the development of breasts in men could be brought about either by an increase in circulating oestrogens or a decrease in circulating androgens. There must also be considered, however, the response of the breast tissue, which is probably genetically determined. It is conceivable that in some individuals the responsiveness of the breasts to oestrogens is so great that normal circulating androgens are powerless to counteract their effects. This undue sensitivity may be due, as some believe, to a weakness in the original genetic "urge" to masculinity, for sometimes gynaecomastia is associated with other signs of mild intersexuality. The occasional occurrence of unilateral gynaecomastia is not, on this hypothesis, surprising, for an unequal response of the two sides to hormones is often seen: the breasts of a normal woman are often of unequal size, and unilateral acromegaly has been reported. This hypothesis explains the intersexual cases, those which have occurred in factories where oestrogens are manufactured, and those associated with atrophy of the testicles.

Bearing in mind that oestrogenic substances are probably produced in the testicles and adrenals, it explains the cases which have occurred in association with neoplasm of the testis, teratoma generally, and chorion epithelioma, and in Addison's disease under treatment with adrenal cortical extracts. Nevertheless it is not suggested that the hypothesis is complete. It does not, for instance, take account of the possible influence of progestational hormones in the production of some cases. I have seen the condition twice in association with mental disease, a relationship which suggests a possible diencephalic origin. No medical treatment is effective. Methyl testosterone by mouth, a rational method, has proved disappointing. Stilboestrol makes the condition worse, and, as the question suggests, may be a common cause. There appears to be no special predisposition to malignant change, but as the sight of his breasts usually depresses the patient it is advisable to remove them.

Epidermolysis Bullosa

Q.—For about nine months, from the time of the infant's birth, I have been watching a case which corresponds accurately with Hallam's description of epidermolysis bullosa ("Brit. Ency. med. Pract." vol. 5, p. 82) of the simple uncomplicated type. A large blister was present at birth; there were lesions present suggestive of ante-natal blistering, and the trouble still persists. Otherwise the child is very healthy. There is no history of other skin trouble in the family. We have treated the lesions with zinc oxide, starch, and boric powder, and they have healed quickly and well; but as the time approaches when the child will begin to walk, the anxiety to secure a cure, if such is possible, increases. At present even very slight rubbing results in blister formations, especially on the

feet and forearms. I shall greatly appreciate any suggestions as to treatment.

A.—There is no known treatment for epidermolysis bullosa which can be relied on to do good. Arsenic in small doses over a long period is sometimes advised. When the patient is the product of a consanguineous marriage, blood transfusion from a donor outside the family has been suggested. But in the case described it does not sound as though either of these treatments was likely to be practicable, and reliance will probably have to be placed on protection from trauma and local treatment to the lesions as they arise.

Too Much Liver

Q.—Is it possible to inject too much liver extract, and if so, what are the symptoms?

A.—Apart from hypersensitivity and gout, there is no evidence of toxic effects from large doses of liver extract by injection. Amounts of 160 c.cm. have been injected intramuscularly in one week in pernicious anaemia without ill effect in the endeavour to produce a long remission: this hope, by the way, was not realized. In the treatment of sprue 20 c.cm. of liver extract has been injected intravenously every day for a fortnight and then twice weekly, again without any ill effect, and with marked benefit to cases which had resisted less strenuous treatment.

Vitamin A and the Cornea

Q.—In minor lesions of the cornea—e.g., abrasions, removal of superficial foreign bodies, etc.—is it of any advantage to instil cod-liver oil (in virtue of its vitamin A content) in place of the customary oil ricini?

A.—There is no valid evidence that the local application of vitamin A has any effect at all.

The Barometer and Blood Pressure

Q.—A drop in the barometer reading of 2 in. means a drop of 50 mm. of mercury. No account of the barometer reading is taken when a patient's blood pressure is being examined. Why is this? Does it make no difference to the reading?

A.—Changes in the barometer make no difference to the patient's blood pressure as read with the ordinary blood pressure apparatus. It is true that the absolute pressure in the artery does change with changes in the barometer, but since the tension of the arterial wall and tissues balances the arterial blood pressure against the given atmospheric pressure and not against a vacuum, the absolute blood pressure does not seem to be of much clinical significance. As ordinarily read, the atmospheric pressure is the same on both sides of the mercury manometer, and therefore cancels out.

Home-preserved Meat

Q.—The preservation of fruit has become a very simple and very popular household job, and some housewives would like to preserve meat in a similar way in order to use it when it is wanted most. Would the following method be effective and devoid of any risks of food poisoning? The meat is cooked in its own juices in the usual way. Then it is transferred with its liquid surroundings into a Kilner jar. This is heated to form a vacuum, and the meat preserved in an airtight partial vacuum as for fruit.

A.—The home preservation of meat is decidedly much more difficult than for fruit. The degree and times of cooking of foods in glass or other containers to render that food safe from the risks of conveying disease depend on a number of factors, including the acidity of the food, the size of the containers, the temperature at which introduced, and, in particular, the rate of heat transfer through the food. For example, with acid foods (such as most fruits) less heat is required than for meat. With a largely solid food, such as most forms of meat, heat penetration is mainly by conduction, and not by convection, as in fruit, and as such is relatively much slower. These factors add to the difficulty of any satisfactory home sterilization for meat products.

The question assumes that the meat is cooked before introduction into the jar, but it has to be remembered that penetration in ordinary cooking is slow, and numerous experiments demonstrate that the interior of meat rarely reaches temperatures adequate to destroy pathogenic bacteria, and cannot be relied upon to destroy either *Salmonella* strains or *Clostridium botulinum*. In dealing with meat eaten fresh this is not of much practical importance, but with preserved meat, unless the subsequent heat treatment is effective, any such surviving bacteria would multiply and heavily contaminate the product, and be a possible source of food poisoning. In commercial meat canning, although the meat is cooked before introduction into the can, temperatures of about 120° C. are employed, the time varying with different factors, including the size of the can. This involves the use of pressure cookers. Such sterilization with temperatures well above boiling-point is very different from domestic heating in a Kilner jar, when the maximum temperature cannot rise above 100° C. In the early days of commercial meat canning temperatures of 100° C. were commonly employed, but were found unreliable and led to food spoilage.

The above considerations suggest strongly that the home preservation of meat products in Kilner or other similar jars is an unsafe procedure and one not safe from the risk of the meat being a vehicle for the conveyance of food poisoning.

INCOME TAX

Purchase of Share in Practice by Instalments

W. J. is about to buy a share in a practice paying for it on instalments. Would such annual payments be allowed as deductions?

* No. The transaction is of a capital nature and the payments do not affect the income-tax liability either of payer or receiver.

Professional Expenses

"I. R. Q." inquires whether the cost of repairing a watch—“a necessary instrument in my practice”—is an allowable expense.

* An expense is not necessarily allowable because it is professional work to be carried on—i.e., the attire of a solicitor may be more costly than that of his country colleague or a tradesman, but would not in our opinion give rise to a valid claim for allowance. On the other hand a watch is used daily in medical work, and some proportion of the repairing cost may be claimable on that ground; but we doubt if an appeal would be worth while.

Board and Lodging

W. B.'s salary is £360 per annum and board and lodgings are provided. He has been assessed on £438—i.e., £360 plus 78s. which represents 30s. per week. Is that correct?

* If, as appears to be the case, the contract of employment provides for a salary of £360 and for free board and lodging, the liability is on £360 only. (If the contract provided for a salary of £438, of which £78 was to be satisfied by provision of board and lodging, leaving the balance of £360 payable in cash, the tax liability would be on £438.)

LETTERS, NOTES, ETC.

Menorrhagia and Thyrotoxicosis

Mr. E. G. SLESINGER (London, W.1) writes: I was surprised to see in the *Journal* of Oct. 25 (p. 533), under the heading "Menorrhagia and Hyperthyroidism," the statement, "Menorrhagia is uncommon in thyrotoxicosis," followed by the suggestion that local pelvic disease and blood disorders had been excluded. Menstrual disturbance should be regarded as another symptom of the thyroid dysfunction. In many years' experience of thyrotoxicosis I have never seen a case of menorrhagia due to thyrotoxicosis, nor do I believe that such a connection occurs. The point in question may well be thyrotoxic, but I feel sure the menorrhagia is due to some other cause, and that if thyroidectomy were needed because of her thyrotoxic state it would not of itself cure the menorrhagia.

Resuscitation by Rocking

Colonel P. J. RYAN (A.D.M.S. Headquarters) writes: Recent articles and correspondence in the *Journal* refer to various methods for "rocking" in the case of an individual apparently drowned. It is suggested that, when available, a wheeled stretcher apparatus such as is in use in the British Army, could be used with advantage for the rocking method of resuscitation. Such an apparatus depicted in your issue of May 22 (p. 648) and a similar one in your issue of May 1 (p. 542). The patient should, however, be lashed on to the stretcher face downwards with arms extended and checks placed against the wheels to steady the apparatus. A minimum of two men is required to rock this apparatus.

Transfusion into Bone Marrow

Dr. A. PINEY (London, W.1) writes: A warning is needed to amplify the answer to the question about transfusion into the bone marrow (Oct. 9, p. 471). Sternal infusions are impossible in case of infants because there is no medullary cavity in the sternum. Even by the age of 3 years there is very little marrow in the bone; and it is not until 7 or 8 years of age that infusions are possible. If the tibia is used for infusion in an infant, the point of the needle must be downwards—i.e., towards the epiphysis and away from the knee, so that there is no risk of damaging the epiphysis. Finally, those who are not experienced with the technique should be told that, even when the needle is properly in the medullary cavity of the sternum, the initial rate of flow of the infusion fluid is slow—e.g., about 4 c.cm. a minute—but at the end of about five minutes the rate increases and fluid can be infused as fast as may be desired.

Correction

The sentence beginning in the eighth line from the bottom of the second column of the leading article at p. 549 in the *Journal* of Oct. 30 contains an obvious error. It should read: "But this does not preclude . . ."

BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 13 1943

THE COMPREHENSIVE ATTACK ON PULMONARY TUBERCULOSIS*

BY

Sir ARTHUR S. MacNALT, K.C.B., M.D., F.R.C.P., F.R.C.S.

A Vice-President of Papworth Village Settlement; A Member of the Institution of King Edward VII Sanatorium

"When good men die their goodness does not perish
But lives though they are gone,"

wrote Euripides. We have come together to-day to do honour to one of the world's benefactors, to pay a tribute to a man who was great and single-hearted, who was not content with deploring the sad lot of the consumptive but used his scientific and intellectual gifts to find a solution to the problem, and, in spite of much misunderstanding and even veiled opposition, succeeded by the very force of his character and genius.

Before turning to the ways in which the social and economic aspects of the tuberculosis problem can be approached I will devote the first part of this lecture to a consideration of certain principles which should guide the physician in the treatment of pulmonary tuberculosis. They are important and fundamental ones. They have been inherent in the practice of famous institutions, like the Brompton Hospital for Consumption and King Edward VII Sanatorium at Midhurst, for many years with great success. But I regret to add they are often either neglected or are unknown to many entrusted with the treatment of consumptives. We have not enough Professors of Tuberculosis in our universities or lecturers on that subject in our medical schools to teach the lessons of clinical experience to medical students.

Residential Treatment of the Consumptive

A considerable degree of confusion still exists as to the appropriate use of hospitals and sanatoria and their interdependence in the treatment of persons suffering from pulmonary tuberculosis. It is highly important to realize, first, that there is a great distinction between hospital and sanatorium treatment, and, secondly, that, while this distinction obtains, the two forms of treatment are complementary to one another. A patient after a period of hospital treatment may become suitable for sanatorium treatment; a patient in the course of sanatorium treatment may regress and require hospital treatment. This right use of residential treatment is so frequently ignored, with disastrous results to the patient, that it cannot too often be reiterated. Many local authorities, and even some of their medical advisers, are under the impression that all persons suffering from pulmonary tuberculosis, if diagnosed early enough, will recover with prompt sanatorium treatment. If discovered, many early cases do obtain arrest in this way, although there is a florid type of pulmonary tuberculosis that proceeds to a fatal issue however early the diagnosis and however skilled the treatment; whilst other patients under sanatorium treatment pass into the intermediate or advanced type of the disease and stand in need of hospital treatment.

But the early case is a *rara avis*, especially in a working-man who cannot afford to be one. As Varrier-Jones, with whom I often discussed this problem, wrote:

"Hitherto few, if any, so-called 'early' cases have been truly early, and the sooner this depressing fact obtains general recognition the sooner we shall begin to make some progress in the sphere of prophylaxis."

* Being the Second Varrier-Jones Memorial Lecture, delivered at No. 10 Canadian General Hospital to members of the Royal Canadian Army Medical Corps on Aug. 26, 1943.

Great hopes are built now upon routine mass radiography for the diagnosis of the early case. Far be it from me to belittle these hopes. In skilled and expert hands the results obtained by Dudley and Fitzpatrick, by Surg. Capt. W. D. W. Brooks, and by Wing Commander Trail already testify to the success of this method in detecting previously unsuspected cases. Trail observed, in the first of these lectures, that some 25% more cases are found in the early stage of mass radiography than by the present civilian methods of diagnosis. But in the use of x rays for diagnosis Varrier-Jones gave a word of caution which is especially timely to-day. This is what he said:

"When we take an x-ray film we are filled with wonder at the complications of nodes and shadows, not sufficiently realizing that what we are gazing at is the picture of past battles, filled-in trenches, exploded mine-craters, and the like. What we imagine we see, but do not, is the advancing army of disease. . . . We have interpreted the x-ray film wrongly. Instead of using it as an index of equilibrium (which as a rule is impossible) we have used it as a picture of the present battle, whereas it is but the shadow of past conflicts."

X rays, then, are a valuable adjunct, but only an adjunct, to the diagnosis of active pulmonary tuberculosis. They do not provide a rule-of-thumb diagnosis or indicate the appropriate treatment. The physician and the radiologist must work together in this matter. It should also be remembered that many extensive and intermediate cases of pulmonary tuberculosis, and even cases classed as advanced, after efficient hospital treatment, often combined with collapse therapy and surgical measures, may become suitable for sanatorium treatment and attain complete quiescence of their disease. The unfortunate heresy that all cases of pulmonary tuberculosis are suitable for sanatorium treatment is only gradually disappearing from our midst.

Tuberculosis is a protean disease. Its manifestations have to be studied in the individual patient, and that study must be based upon clinical experience. The treatment given must be adapted to the present needs of the individual patient. A stereotyped treatment which automatically puts patients with early physical signs into sanatoria and others into hospital meets with inevitable failure. No man has appreciated this teaching more than Varrier-Jones. He applied it with marked success to the treatment of patients at Papworth.

Selection of Patients for Different Forms of Treatment

From an examination of a number of patients suffering from pulmonary tuberculosis the physician finds that they can be relegated to the following categories:

At the time the disease is recognized a certain proportion of patients are suitable for sanatorium treatment forthwith (i.e., in the strict and limited sense previously mentioned). A second, and larger, proportion of patients will require a period of initial treatment either in a tuberculosis hospital or in the nursing block of a sanatorium before they are suitable for strict sanatorium treatment involving occupational therapy. The rest of febrile patients should be "absolute," not only in name but in practice. A third proportion of patients are suitable for treatment in a tuberculosis hospital. Some of them are unlikely to derive benefit in the future from strict sanatorium treatment; but after collapse therapy or surgical treatment—e.g., thoracoplasty—many will have their lives

prolonged and be able to work under sheltered conditions. In the remaining group of patients the disease at the time of examination is too advanced and extensive for sanatorium treatment; palliative treatment, either in the tuberculosis hospital or at home, is required.

In most cases it is desirable to keep the patient for a week or so in an observation ward before deciding on the form of treatment most suitable for his individual case.

The principles which guide the physician in the treatment of pulmonary tuberculosis may be summarized as follows:

1. The diagnosis of pulmonary tuberculosis at the earliest possible stage, as well as the careful examination, including x-ray, of all contacts, especially adolescents and young adults.
2. A proper selection of patients for sanatorium treatment.
3. Full co-ordination between the tuberculosis officer or medical practitioner and the medical superintendent of the hospital-sanatorium.
4. Correct co-ordination of hospital and sanatorium treatment.
5. Study of the individual patient.
6. A proper hospital and sanatorium regime.
7. Prolonged duration of stay in the sanatorium.
8. The goal to be aimed at is the discharge of the patient with the disease quiescent and in a fit condition to resume an occupation.

To these principles should be added the maintenance of the ex-sanatorium patient, in whom the disease has become quiescent, under medical supervision for at least five years, the injunction to seek medical advice at the first symptom of renewed ill-health, residence in a village settlement, or, if this is impracticable, suitable after-care provision by the local authority.

If these principles were generally practised throughout the country the sanatorium results of every local authority would be as favourable as those already obtained in the sanatoria of the more progressive authorities.

The Principles of Papworth

I have dwelt at some length on the principles of right treatment because they are inseparable from the work of him whom we honour to-day. Efficient treatment of the consumptive is the core of Papworth. This medical aspect of the village settlement is too often overshadowed by its industrial triumphs. Yet the two aspects are inseparable. As Varrier-Jones said:

"Papworth has proved quite definitely that when the teaching of the medical profession as to tuberculosis can be put into operation the results are exactly those which were anticipated. The progress of disease can be 'arrested' and the condition of 'arrest' can be almost indefinitely prolonged."

We know that with efficient modern treatment, in favourable conditions the consumptive can obtain arrest of his disease and eventually return to play his part in the workaday world. There are many men and women to-day doing useful work who have at one time suffered from active pulmonary tuberculosis. In their case the conditions were favourable, and they survived the critical five years that follow arrest of the disease. But this satisfactory condition of affairs does not obtain with the vast majority of "arrested" patients who return as damaged lives to compete with healthy labour. "The economic world will not support an unearning unit." "The consumptive man's resistance power breaks down under the strain. Often he has given hostages to fortune and has to support a wife and family. Even as the working-man cannot afford to become an early case of tuberculosis, so in the same way he struggles to carry on when the strain of occupation has caused a recrudescence of his disease. Then, inevitably, he is forced to give up the struggle. But when he comes once more under medical treatment the tubercle bacillus has made headway and there is far less chance of recovery.

As tuberculosis officer in Cambridge at the beginning of the last war, Varrier-Jones pondered on these disheartening results and sought a solution. He found it in the scheme which he started at Bourn in 1916. It began in a small way. On the site a few shelters were erected and the patients installed. In the house resided a matron, a nurse, and a cook. Before Varrier-Jones died in 1941 he saw this nucleus develop into a great institution at Papworth with 1,000 acres of land, administrative blocks, hospital blocks provided with every facility for

modern treatment, a large sanatorium section, laboratories research institute, a village settlement of nearly two hundred cottages, hostels for men and women, and factories equipped with labour-saving machinery and operated on a production lines. This means an incentive in life to the patient and an economic future.

Here, then, at Papworth is embodied the secret of successful treatment of tuberculosis. Of primary importance is the fact that the consumptive remains under continuous supervision medical, psychological, and social. He passes through stages of hospital and sanatorium treatment and is provided with occupation suited to his state of health. When afebrile he works at a trade, for which he receives the trade union rate wages. He resides in a hostel or, if married, in the village settlement with his wife and family. If at any time his health relapses he is sure of prompt and expert treatment in institution.

Papworth and the Prevention of Tuberculosis

Hitherto we have considered the work at Papworth from the curative and remedial standpoints. Varrier-Jones points out that tuberculosis colonies also play an important part in the prevention of the disease. Let me quote his own words on this subject:

"The fatal 'mass' dose, so common yet so unnecessary, does not occur in village settlement conditions. So far it has been avoided at Papworth. Our experience in this respect seems to show that a village settlement can cut the vicious circle of infection which spreads the disease all through whole families. What does this imply? If anything, it means that here we have a means of reducing tuberculosis to the incidence level of smallpox, it means that, in the long run, it is far cheaper to establish a family in a settlement than to send each of its members, after another, from sanatoria to their homes to spread infection. There is a mass of evidence to prove this. On the other hand, patients discharged to a village settlement need not spread infection. These facts alone justify village settlements on human as well as financial grounds, but it is most difficult to make people understand and admit this."

Varrier-Jones had the question of contact examination in mind from the beginning of his project. He was quick to realize that in the village settlement he had a unique opportunity for studying this problem. The settlers and their families could be kept under continuous medical observation. X-ray and laboratory technique were available to supplement the findings of the expert clinician.

The organized work began as far back as 1921. Under Pendrill's direction it was entrusted to Dr. L. B. Stott. In visits to Papworth I have been able to see the progress of work, at which Dr. Stott laboured with unremitting zeal and energy over a period of many years. Before his death Varrier-Jones arranged that Dr. Brieger should examine and collect the vast material which Dr. Stott had prepared. I must anticipate the detailed results of this prolonged investigation which are shortly to be published. Preliminary communications have appeared, and it has already been stated that one of the children born in Papworth village (and some have a considerable age) has, while a member of the community, contracted tuberculosis of the lungs, glands, bones, or joints indeed, in any known clinical form. There has been no case of tuberculous meningitis. Those who have left the settlement to seek education or employment elsewhere are all free from the disease. The x-ray findings indicate that an appreciable proportion of the children have been infected by tuberculosis like the rest of us: If the hypothesis of reactivation of tuberculous infection contracted in childhood be accepted, cannot be said that none of these children will develop pulmonary tuberculosis in after-life or that they may not be exposed to superinfection. Nevertheless, not a few of the children have passed through the susceptible stage of adolescence without showing signs or symptoms of pulmonary tuberculosis, and it is not improbable that this resistance to disease may be maintained throughout life. Adequate food supply, instruction in dietetic values, assured employment with no risk of unemployment after breakdown, freedom from anxiety, proper housing and hygienic precautions help to account for these remarkable results. Alone, without the many other beneficial features which I have described, they would justify the principles of village settlement.

Rehabilitation of the Consumptive after the War

At the end of the war we shall be faced, as we were in the last war, by a still greater incidence of pulmonary tuberculosis and an increase in the foci of infection. The approximate mortality figures are as follows: In 1939 the deaths from pulmonary tuberculosis in England and Wales were 22,000 (war conditions prevailed in only a little over three months of that year). In both 1940 and 1941 the deaths had risen to 24,000. Fortunately, in 1942 they dropped to 21,000, a decline which, it will be noted, has coincided with a lull in enemy bombing attacks on this country. Notifications of pulmonary tuberculosis, as is well known, form an imperfect guide to the incidence of the disease, as so many cases are reduplicated. It has been estimated from the latest available figures that the numbers of the adult population suffering from pulmonary tuberculosis in Great Britain at Dec. 31, 1938, was nearly 140,000. Of this total about 70,000 were classified as being able to return to ordinary employment, while about 20,000—most of whom were undergoing treatment in hospitals and sanatoria—were regarded as unlikely ever to return to any form of employment. In the remaining 50,000 the disease had been arrested or had become quiescent, and there was good prospect of achieving full recovery provided that special measures of rehabilitation were made available.* These are pre-war figures; wartime conditions have intensified the problem, and the number to be dealt with in the post-war period will show a considerable increase. Since the onset of war some advance has been made by the inclusion, under the Ministry of Labour's Scheme for Training and Resettlement of Disabled Persons, of quiescent and sputum-negative cases of tuberculosis in which the individuals are reintroduced into whole-time employment under ordinary industrial conditions (Ministry of Health Circular 2576, Feb., 1942). This, however, fails to meet the needs of those ex-patients for whom a slow and graduated resumption of work under medical supervision is required.

Varrier-Jones's pioneer work was partly inspired by the needs of tuberculous ex-Service men in the war of 1914-18, and in the present war the same problem arises. It is more and more becoming recognized that he found the true solution. The Medical Research Council's Committee on Tuberculosis in Wartime issued a report in 1942, which refers to the fact that the Papworth and Preston Hall village settlements have demonstrated one possible solution of the industrial problem provided by the chronic active case of pulmonary tuberculosis. The important Interdepartmental Committee's Report on the Rehabilitation and Resettlement of Disabled Persons devotes special attention to pulmonary tuberculosis, and states:

"Perhaps the most complete type of care for the tuberculous person and his family is the combination of sanatorium and hospital treatment with a village settlement."

In accordance with the recommendations of the Medical Research Council's Committee the Government has recently provided special maintenance allowances for patients suffering from pulmonary tuberculosis (Memo 266T of the Ministry of Health, April, 1943). This enables these affected persons to give up work for a while and receive treatment. The allowances apply to everyone undergoing approved treatment. They are administered by tuberculosis authorities as part of local health services, and comprise "maintenance allowances" based on a standard scale and without any test as to means, to which can be added, at the discretion of the authority, extra grants or special payments towards commitments. For the first time official recognition is given to the fact, so often urged by Varrier-Jones, that economic circumstances again and again prevent the consumptive worker from seeking residential treatment for his disease.

Now village settlements are few and, in my experience, local authorities are reluctant to embark upon them, although the Nottinghamshire County Council, which established the Sherwood Village Settlement in 1936, is a notable exception. In 1919-20 Varrier-Jones, the late Dr. Nathan Raw, M.P., and I constituted a small Departmental Committee which explored the question of establishing village settlements for ex-Service men throughout England and Wales. In the end it was con-

sidered better to develop the existing settlements at Papworth and Preston Hall than to provide new organizations. It is extremely probable that a committee of this character to-day would reach a similar conclusion.

In 1936 Varrier-Jones advocated the setting-up of a national board in order to co-ordinate the planning of a national rehabilitation scheme. This was endorsed by the late Lord Willingdon and the Joint Tuberculosis Council. The Medical Research Council Committee now favours the establishment of such a board. In view of the demands which will assuredly be made for village settlements and rehabilitation of the tuberculous ex-Service man at the end of the war, this board's work and direction seem to be urgently required.

Conclusion

In this lecture I have endeavoured to describe the great contribution which Pendrill Varrier-Jones made towards combating tuberculosis, and its comprehensive character. In the brief time at my disposal I have been able to give only an outline of the many agencies which he employed. I have not told, for instance, how he arranged for the psychological treatment of certain of his patients. Indeed, different phases of this pioneer work pursued untiringly for many years would supply a wealth of material for many lectures. He faced much opposition; he crossed swords with those who preferred the ways of routine and established tradition. In the end he triumphed and had the satisfaction of knowing that his principles were sound—for, contrary to common belief, he had the humility of the true scientist in all his investigations—and that they had stood the tests of time and experience and were becoming generally accepted.

"Unto each man his handiwork, unto each his crown,

The just Fate gives;

Whoso takes the world's life on him and his own lays down,
He dying so, lives."

"Seeing death has no part in him any more, no power

Upon his head;

He has bought his eternity with a little hour,

And is not dead."

So Pendrill Varrier-Jones took upon him the consumptive's burden and made it easier to bear. He died too early, but his works do flourish and follow him.

NOTE.—The quoted passages from Sir Pendrill Varrier-Jones's published papers in this lecture are taken by kind permission of Mr. Peter Fraser, Sir Pendrill's literary executor, from *Papers of a Pioneer, Sir Pendrill Varrier-Jones*, collected by Peter Fraser, London, 1943. The quotation from Swinburne's *Super Flumina Babylonis* is by permission of Messrs. William Heinemann.

ACCELERATION OF CO-ORDINATED MUSCULAR EFFORT BY NICOTINAMIDE

PRELIMINARY REPORT
TO THE MEDICAL RESEARCH COUNCIL*

BY

I. M. FRANKAU, M.D.

(Psychological Laboratory, Cambridge)

This report summarizes the results obtained from a series of experiments undertaken to demonstrate by means of a selected test the effect, if any, of certain vitamins on the physical efficiency and the fatigability of healthy young adults. Increased resistance to fatigue, or increased muscular ability, as a result of the addition of certain vitamins, especially B₁, to the diet has been reported by a number of observers. Others have failed to show, either in brief extreme exercise or in prolonged severe exercise and semi-starvation, indications of any effect of the vitamin supplementation to the U.S. Army rations on muscular ability, endurance, resistance to fatigue, or recovery from exhaustion. The present series of experiments, extending from April to December, 1942, tend to show that the addition of certain vitamins to the normal diet of healthy young men generally results in varying degrees of increased efficiency in carrying out a fairly severe test involving

* Report of Interdepartmental Committee on the Rehabilitation and Resettlement of Disabled Persons. Cmd. 6415, 1943, p. 11.

both physical efficiency and co-ordination. The experiments recorded in this report, with the exception of the Stanmore group, were carried out on selected personnel of the R.A.F.—air-crew cadets—who were in excellent physical training. The actual tests necessitated the utmost co-operation from the subject; without this co-operation no results of any value could have been obtained. The condition of the subject at the end of the test and his performance during the test were carefully noted, and in addition pulse rates were recorded at varying intervals.

Preliminary Tests

The test chosen was a modified form of the W.O. agility test. This test involves running rapidly, bending and turning quickly, and dropping disks accurately on a closely fitting shaft. No undue emphasis was laid on either accuracy or speed in describing the test to the subject, but the importance of finishing "flat-out" was stressed.

Four groups of young men from the I.T.W., ranging in age from 18 to 32, were tested on several occasions. They were extremely co-operative. The average time score for the first test was 60.75 seconds, and for the second 56.69 seconds. The difference between the time scores of the first and second tests was marked and relatively constant. There was little difference between the scores of the second, third, and subsequent tests; the second test was therefore adopted as the control test. There was very little scatter either in any single group or in the groups considered as a whole. In less-selected groups, such as civilians or the Home Guard, the time scores were found to vary considerably both from time to time and from subject to subject.

Modification of Test

It was obvious that this test in its original form would not produce any measurable degree of fatigue in subjects who were as physically fit as the I.T.W. Increasing the number of disks from 16 to 24 raised the average time score to 85.62 seconds; the time taken to complete 8 rounds (the original test distance) remained unaltered. Consideration of the clinical condition of the subject in conjunction with the time scores indicated that the test was still not severe enough. The effect of multiple vitamin tablets given to a small group who were retested was neither marked nor constant.

The distance of the test was finally increased from the original 170 yards to approximately 300 yards. In addition to the time taken to complete the test the number of disks dropped or misplaced was noted. The average time taken to complete the first test was 113.64 seconds; and for the second test 105.43 seconds. There was no obvious increase in the relative time taken to cover the last 4 rounds; the number of dropped or misplaced disks, however, was greater with several subjects, especially towards the end of the test. During the standardization of this test over 100 subjects were tested. The test was severe, and only a limited number could reasonably be carried out on any one subject. Two control tests were recorded on one day—the interval between the tests being 30 minutes—and two "experimental" tests on another day. The interval between the experimental tests was reduced to 15 minutes.

Effect of Multiple Vitamins

Experiments were carried out on 20 subjects, 10 of whom received on three successive days vitamin tablets containing vitamin A 8,000 i.u., vitamin D 1,200 i.u., thiamin 2 mg., riboflavin 4 mg., ascorbic acid 100 mg., and nicotinamide 40 mg. The remaining 10 received tablets indistinguishable from the vitamin tablets. The results of these experiments are recorded below; the mean time (in seconds) is for the complete test. Negative differences indicate that the experimental times are shorter than the control times.

Control Group: Control time, 104.22; experimental time, 104.11
Difference, -0.11
Vitamin Group: Control time, 107.59; experimental time, 104.75
Difference, -2.84

Tests were carried out on two larger groups using vitamin tablets which contained: aneurin 5 mg., riboflavin 5 mg., ascorbic acid 100 mg., and nicotinamide 50 mg. One group received vitamin tablets on four successive days; a control group received tablets indistinguishable from the vitamin

tablets. Tests were carried out on the fifth day. The results of these experiments were as follows:

Control Group (22 subjects):
Control time, 107.43
Experimental time 1, 108.43; difference, +1.00
" " 2, 107.30; " -0.13
Vitamin Group (22 subjects):
Control time, 110.30
Experimental time 1, 109.66; difference -0.64
" " 2, 106.98; " -3.32. Significant

A comparison of the experimental time scores with the control time scores shows that in the control group a diminished score was recorded by 5 in the first experimental test and by 3 in the second; in the vitamin group a diminished score was recorded by 12 subjects in the first test and by 15 in the second test. Co-ordination, as demonstrated by the number of disks dropped or misplaced, was better in the experimental tests in the vitamin group; in the control group there was deterioration in the co-ordination, especially towards the end of the experimental tests. The pulse rate was taken before each test and again within 10 seconds of the end of the test. The interval between the experimental tests being 15 minutes, the pulse rate at the beginning of the second test was therefore a measure of the return of the pulse to normal after the first test. It is noted that the original pulse rates are higher in the majority of these subjects than the generally accepted figure. The drop in pulse rate during 15 minutes is also less than was anticipated.

These experiments were carried out during the spring and summer, and it was noticed that exhaustion appeared to be less marked in subjects who had received vitamin tablets. This observation was not made during later experiments using other vitamins.

Stanmore Experiments

A series of experiments were undertaken using vitamin tablets from which (1) the aneurin was omitted, and (2) both the aneurin and the ascorbic acid were omitted. Personnel from No. 3 Balloon Centre were selected, ranging in age from 18 to 34, and divided into three groups. Group A received tablets containing ascorbic acid 100 mg., riboflavin 5 mg., and nicotinamide 50 mg. Group B received tablets containing riboflavin 5 mg. and nicotinamide 50 mg. Group D received control tablets.

The tablets were given on six successive days, and tests carried out on the seventh day. These men were drawn from various trades, were not volunteers, and were extremely co-operative. The results of these experiments were as follows:

Group A:
Control time, 111.26
Experimental time 1, 109.86; difference, -1.40
" " 2, 107.58; " -3.68. Significant
Group B:
Control time, 115.81
Experimental time 1, 114.93; difference, -0.88
" " 2, 113.23; " -2.58. Significant
Group D:
Control time, 120.98
Experimental time 1, 119.68; difference, -1.30
" " 2, 120.53; " -0.45

A diminution in time scores was therefore recorded after both aneurin and ascorbic acid were omitted from the vitamin tablets. Co-ordination appeared to be better in the vitamin groups than in the control group.

Brighton Experiments

Experiments were carried out at Brighton during October and November on the effect of nicotinamide alone. The subjects were physically fit young men with 6/6 vision selected from U.T. air-crews, and in some cases were volunteers. Control times were recorded on one day, and on the following day each subject was given 50 mg. of nicotinamide at 9 a.m. Tests were carried out at 10.30 a.m. on 23 subjects and at 2.30 p.m. on 16 subjects. The test times of the 23 subjects who were tested 1½ to 2½ hours after receiving nicotinamide were:

Control time, 116.22
Experimental time 1, 111.57; difference, -4.65. Highly significant
" " 2, 111.35; " -4.87. " "

The test times of the 16 subjects who were tested 5½ to 6½ hours after receiving nicotinamide are recorded below and indicate that the effect was considerably less than that recorded above.

Control time, 116.31
Experimental time 1, 115.25; difference, -1.06
" " 2, 114.00; " -2.31. Significant

In November tests were carried out on another group of 19 subjects, all of whom had received 200 mg. of nicotinamide $1\frac{1}{2}$ to 3 hours previously. The test times were:

Control time, 122.26
Experimental time 1, 117.84; difference, -4.42. Significant
" " 2, 115.21; " -7.05. Highly significant

The suggestion was made by Dr. Platt that a single dose of nicotinamide should be given at specified times before the experimental tests, and the experiments were carried out in conjunction with him. It is noted that a somewhat different pattern in the results was obtained.

Having demonstrated that the effect of a single dose of nicotinamide resulted in a well-marked diminution of the time taken to complete the test and that this effect was most marked $1\frac{1}{2}$ to 3 hours after administration of the vitamin, it was essential to ascertain if similar effects would be obtained when tablets were given on six successive days and tests made on the seventh day. This investigation was therefore carried out on 24 I.T.W. subjects at Cambridge in November, and the results were:

Control time, 118.58
Experimental time 1, 116.54; difference, -2.04. Significant
" " 2, 114.62; " -3.96. "

The pattern of these results is somewhat different from that of either of the other groups.

Summary

It has been shown in a series of carefully controlled experiments that the addition of nicotinamide alone, or of nicotinamide and certain other vitamins, to the diet of fit young men results in increased efficiency in carrying out a fairly severe test involving both physical effort and co-ordination.

The test chosen was severe, and called for the utmost co-operation from the subject, whose condition at the end of the test was just short of distress, as evidenced by his breathing and pulse rate.

In earlier experiments the subjects appeared to be less exhausted after the administration of vitamins.

Later experiments appear to indicate that continued heavy or exhausting physical stress may necessitate increasing the dose of nicotinamide.

Experiments which were carried out in conjunction with Dr. Platt and Prof. Ellinger will be reported jointly.

The whole of the work described in this report, and all the projects indicated, have been carried out or planned at the instance and with the support of the Medical Research Council.

I should like to acknowledge my indebtedness to Prof. F. C. Bartlett for his constant help and advice, to Sir Edward Mellanby for his interest and guidance in the administration of the vitamins, and to the many officers of the R.A.F. without whose unflinching help and co-operation this work would not have been possible. I should also like to thank Mr. E. G. Chambers, to whom I am indebted for all the statistical results, and to Sgt. J. M. Yallop (W.A.A.F.) for her assistance in the experiment and for all the clerical work.

ANXIETY STATES IN THE NAVY A CLINICAL SURVEY AND IMPRESSION

BY

G. V. STEPHENSON, M.B., B.Ch.

Surg. Lieut.-Cmdr., R.N.V.R.

AND

KENNETH CAMERON, M.B., M.R.C.P.Ed.

Surg. Lieut.-Cmdr., R.N.V.R.

A survey has been made of approximately 1,300 cases of anxiety state which have been under our care in a Royal Navy hospital during 1940 and 1941. These impressions have been amplified and modified by later experience in the hospital and in a naval depot.

The term "anxiety state" does not reflect the whole picture, but is a convenient designation; the basic condition is considered to be anxiety in its psychosomatic manifestations, and it is this reaction that is regarded as releasing the varied psychopathy of the constitutions affected. Depression in some degree was an almost constant finding in the more established cases, and for descriptive purposes the diagrammatic concept was formed of a straight line with a pure anxiety reaction at one extreme and a depression of the reactive type at the other; clustering around this line there is a big constellation of

symptoms and signs, including hysterical features, any of which may be present or absent. The syndrome may therefore present a very varied picture.

Points of prognostic import in the routine case-history are enumerated, stresses are discussed, the three main phases of development of the anxiety state are outlined, symptomatology as it affects the various systems is reviewed, and a brief summary of methods of treatment is made with a note on the chief elements in prognosis.

Anamnesis

In reviewing the cases an attempt has been made to assess significant factors emerging in the routine anamneses. In the direct family history—i.e., parents and siblings—there is in most cases a sufficient degree of instability to be realized, and quoted by the patient, as "nervous," "worrying," "hysterical." Psychosis is relatively rare. In infancy the more inadequate types produce with monotonous regularity claims that they "were difficult to rear," "have been given up," or "have had pneumonia" an astonishing number of times. By such reflections can one see the image of poor home conditions and an over-worried mother. During school years shyness, timidity, seclusiveness, fondness of reading as recreation or of swimming and walking as sports, all suggest a tendency to withdraw from the demands of schoolboy life and augur difficulty in adjusting later to the very similar claims of the fighting Forces. At the opposite extreme, "the young devil," "always in mischief," and "never out of trouble" indicated by these excesses a temperament often incapable of withstanding the threats and dangers of war.

The standard attained at school was used as a rough preliminary indication of the intelligence level. Truancy in the great majority of cases signified simply marked mental backwardness. Minor degrees of backwardness were by no means of bad import, but if breakdown did occur in such cases prognosis for recovery and return to duty was poor. More valuable, however, was the work record in rapidly assessing a man's prospects in the Service. Frequent changes of job justified in such phrases as "could not stand the heat (noise) in the factory," "had to give it up," "wanted a change," "got fed up," indicate a personality which will adapt poorly to Service conditions. Endless changes of job suggest marked mental defect.

Sexual maladjustment was conspicuously rare as an overt factor in breakdown compared with experience in civilian psychiatric practice. In part this is explained by Service psychiatry's dealing with a much wider group than would in peacetime attend a psychiatric clinic.

Previous organic illness was of importance in focusing anxiety on a system or the basis of hysterical phenomena. Age beyond middle life and arteriosclerosis facilitated the development of symptoms and impaired prognosis.

Stresses

The stresses to which the individual is subjected in the Service are remarkably constant. Separation from home and family bears heavily on the youth, particularly the only or youngest son, for whom the solicitude of the mother is still the criterion of what he may expect from the world: discomforts and hazards are magnified by too sympathetic an appreciation of their importance in her eyes. The older man experiences the rupture of recently established ties or the absence from wife and family, for years an integral part of his daily life. For certain men, to whom the establishment of a home has through the circumstances of their own early lives assumed a peculiar importance, its break-up through conscription and evacuation is often enough to precipitate breakdown. By no means rare; however, were the men in the later thirties for whom war meant a fresh lease of youth and an unacknowledged relief at sloughing, if only temporarily, the burdens and responsibilities of domesticity. For them Nemesis lay in the reaction and behaviour of a wife unreasonably, but with intuitive justice, resentful of the claims of duty.

Particularly difficult situations arise, too, where marriage has been the episode of a short leave and a young wife finds herself still living in the home of his or her parents, with but a wedding-ring to remind her of her altered state and that many barriers

have risen between her and the "good time" she has hitherto enjoyed. The mother, sisters, and men friends of the absent husband are watchfully ready to report and magnify to him her most casual association with a member of the opposite sex. Long watches give ample time for brooding and bitterness, which do much to break down his resistance to more concrete dangers. Similarly does the situation develop of the older man who learns that the mother of his children, to whom war has meant a doubling of her burdens and the withdrawal of support, has sought companionship in a dance hall or public-house, which she has possibly never before entered. The importance of such anxieties goes far beyond the relatively small proportion of cases in which the wife is actually unfaithful.

Physical hardship and discomfort are less obviously a factor in breakdown—the normal capacity for adaptation to them is very great. More important is the effect of lack of privacy and uncongenial company on the white-collar group of the population.

The problem of the "square peg in a round hole" is much more complex than is generally appreciated. During war the Service requires a vast number of men, physically healthy and of average intelligence, who may be trained to be the "working men" of the Service—the seamen, stokers, etc.; it is supplied with civilians accustomed each to his own occupation, trade, or profession. An adaptable individual of the required standard of physique and intelligence is readily trained for the business of war. A man of lesser endowment may have been employed as a civilian in the one sphere where the qualities he possesses are of value, and may have been relatively successful in that sphere. Should this limited type of qualification be one required in the Service, and he be so utilized, he is satisfied. If, however, his experience is not applicable to Service life, or should the number so qualified which the Service requires be small, the man is liable to be employed in a section for which he is not qualified, and his sense of inadequacy is often embittered by the belief that his fate is due to muddling and injustice.

Commonly labelled as "square pegs" are the youths for whom life has yet been too easy, and who are liable to dignify their distaste for continued effort by the belief that they are inappropriately utilized. Finally there are the psychopaths, inappropriate in any section, who too often regard failure in a job of little responsibility as an adequate recommendation for a position of greater trust.

Such maladjustments to the very rigid framework of Service existence are potent causes of anxiety and breakdown.

More intangible factors in maladjustment often present themselves during the period of training—these again more often in the youth who has not yet learned to subordinate himself to the task in hand, and who welcomed his civilian work as a source of livelihood but not his real interest in life. The Service assumes that the individual regards the job as more important than himself. Further, the tradition that only perfection is passable, with the corollary that explanation is no excuse or failure, is still acted on in the Service. These tacit assumptions lie behind much of the tradition of the Service, but to the new entry they may appear as callous disregard for himself as an individual, continual fault-finding, and an unfeeling refusal to listen to reason. In the early stages of training the stimulus and interest of a new life are sufficient to counterbalance these asperities, but in the second or third month, when familiarity has staled but habit has not yet accustomed him to the Service or involved him in the group spirit, the reaction may be one of rebellion, depression, or anxiety. Later, fellowship in responsibility in the smaller units of the ship and growing confidence restore injured self-esteem.

Once at sea the actual physical threats to life present themselves. To the imaginative the period leading up to action often brings the dread of proving inadequate: the inexperienced knows not what to expect; the experienced may dread failing in his responsibilities. The immediate stress, whether from air attack, action, exploding mine, or torpedo, produces a response which may be disability at the time or which by frequent repetition induces disability. Often overlooked are the stresses peculiar to the engine-room branch or stoker ignorant of what is happening above. For him a sudden reverberation, plunging him in darkness and throwing him among clanging and

shifting engine-room fittings, is as much a trauma, whether due to a mine dispatched by his own gear or by a near miss or a bomb or torpedo striking the ship. For the man below deck every possibility lies in the first concussion. At the other extreme lie the experiences of the man too long in northern waters, particularly in small ships. Here monotony of up to a week at sea with a small crew, with short visits to bases that offer no attraction to going ashore, and heavy weather in latitudes that in the winter months mean "darken ship" for 18 or more hours of the day, produce a severe reaction curiously similar to the anxiety-exhaustion and depressive syndrome presented by the sufferer from prolonged or severe stresses by enemy action in more southern latitudes.

Development of Anxiety State and Symptomatology

Subjected to the above-mentioned stresses, the individual tends to react with unexpected uniformity to an eventual state of anxiety which, however varied its manifestations, does in its essentials run true to form. The concept adopted regarding the development of these states was of the psychosomatic unit, subjected to a variety of stresses, endogenous and exogenous, and reacting to these at first physiologically: with undue prolongation of the demands disability supervenes. The less stable types or those in whom there is a smaller constellation of factors making for continued effort break down early; the more stable types and those in whom strong reinforcing sentiments are present do not come under medical care till a more advanced state is reached. The more inadequate types—the temperamentally unstable, the constitutionally inferior, and the mentally backward—often show up in training with mild depressive or hypochondriacal features. They complain of exhaustion, weakness, headaches, or "effort syndrome." (The more robust but maladapted frequently come into conflict with naval discipline at this period.) This may be regarded as the eliminating period of service. The vast majority who survive this test of adaptation may react to conditions of service or stress at sea with disability at three different stages.

Stages of Stress

Immediate stress of danger results at first in what may be regarded as a physiological adrenal-sympathetic response, with a mood of anxious expectancy (Cannon's (1929) "fight or flight" reaction). The physiological propriety of this response is not, however, apparent to the rating, aware only of blurring vision, beating heart, "stomach turning over," and tense or trembling musculature. In the stable, the need for action dissipates the discomforts of his state, and a mood approaching exhilaration often supervenes with gradual relaxation. The temperamentally unstable may over-react, however, to complete ineffectiveness. This may be regarded as disability supervening at the stage of *early stress*.

More commonly the repetition of such dangers leads to a state of heightened expectancy and somatic tension which, while appropriate and in fact synonymous with good morale, may become irreversible when threats are frequent. When relaxation does not occur with relief from strain on leave or ashore, and preoccupation with physical and mental discomforts develops, an anxiety state must be presumed to exist. Presenting himself, the patient may complain of the sense of tenseness or of palpitation, epigastric discomfort, or other correlates of his condition. The clinical picture is of dilated pupils, increased sweating, tachycardia, slight tremor, and increased tendon reflexes. Blood pressure is usually found markedly raised: readings of 170/100 or over are almost routine in the sick bay at this stage. This is regarded as the state of *established tension*.

In most cases of the more stable, conscientious, or experienced types the man may remain at duty for a prolonged period after the stage of established tension. Anxiety and somatic tension, though still present, become less obvious, and the presenting picture is more of depression and exhaustion, with emotional lability and loss of weight. Blood pressure is less elevated, or is even lowered, though tendon reflexes remain exaggerated. It is more commonly in this final state that mis-leading preoccupation with symptoms or signs in relation to one or other of the systems gives rise to the erroneous diagnosis of organic illness. This final state we have termed *anxiety with exhaustion*.

The concept of the development of anxiety state with disability developing at the phase of *early stress*, the state of *established tension*, or final state of *anxiety with exhaustion*, according to the stability of the constitution affected, is clinically valuable from the point of view of prognosis and treatment. In practice, however, the picture present is mixed, and an attempt has been made to discuss the whole range of symptoms. These may be psychic, somatic, or mixed, and vary from mild disturbances of function to gross hysterical features.

Psychic Symptoms

In the psychic sphere the anxiety varies from mild waves in the moments of stress to acute panic attacks. It has been found that even in the sheltered existence in hospital the latter occur, and they are very infectious. Anxiety itself is directed towards a number of different objects. In some, of course, it is the frank fear of danger, freely admitted. It is noteworthy, indeed, in our cases that refusal to admit fears to themselves, with consequential conflict, was very rare, and when it did occur appeared chiefly in the older, better-trained, and obsessional types. In others the object was family responsibility; fear of going insane, of blindness, of something being seriously wrong, especially in those who showed cardiac or gastric symptoms. There was also found the fear of heights, water, and trains, of being shut in or sleeping below at sea. With regard to the family, justification for anxiety often existed when dependent relatives were sick, alone, in poor economic circumstances, or exposed to raids on civilian population.

Sleeplessness was a very common symptom, and presented itself in varying aspects. There was difficulty in going to sleep, or the patient woke up at frequent intervals. Often sleep was disturbed by dreams, and he woke in the morning unrefreshed and with a headache. The dreams also varied. War dreams were common, and the patient often relived some horrifying experience, or woke up sweating after anxiety dreams. Many described their dreams by the phrase "mixed up."

Complaints of being easily tired, of lacking energy, and at the same time of restlessness and being unable to settle are frequently made. Coupled with this was a poor memory for recent events and forgetfulness. Characteristically also there was an inability to concentrate. Some patients found themselves unable to read more than half a page of a book at a time or to take in the gist of the subject-matter.

Loss of confidence and fear of responsibility or of "letting the others down" were both a symptom and a reason for augmented anxiety. Many complained of increased irritability. This appeared not so much with their fellows, since the dislike of company made them desire solitude, as with their home circle. The question, "Does your wife find you more short-tempered than usual?" often brought a rather sheepish reply. "I am afraid so, sir." Emotional disturbance was so constant that it was found advisable to have a small box of gauze squares at hand with which to supply the patient, who frequently broke down and wept during the interview. Increased consumption of alcohol was either an escape from reality or, in some cases, a spur to keep going.

Many of these symptoms explain themselves, and appear either in a setting of anxiety or, not infrequently, without much overt anxiety.

Somatic Symptoms

In the cardiovascular system symptoms were fairly common. Usually the tachycardia and palpitations became the focus of anxiety through ill-advised medical advice in earlier life or variously derived dreads of "heart disease." Precordial pain was often present in such cases and dyspnoea less commonly so. Frequently a man had entered hospital with a diagnosis of cardiovascular disorder based on those symptoms. In such cases no organic lesion was found. It was our experience, however, that the effort syndrome as such was rare in the Navy, and when present emerged generally in the training period and as an anxiety manifestation.

The blood pressure seems to vary at different stages in the illness. In acutely disturbed or shocked cases after some catastrophic event it was found to be low—just above or below 100 mm. systolic. In established cases there was a period when it was raised, while in later cases or those showing exhaustion it was lowered.

In the genito-urinary system frequency of micturition and even enuresis occurred in a number of cases, and may be either a symptom of a fairly severe state or a chronic manifestation without much apparent anxiety. In the former, we consider that both complaints clear up with general improvement but as a chronic manifestation they have proved stubborn and difficult. Experience, however, has taught the necessity for checking a patient's own statements as to how often he micturates. In some cases these have been proved not wholly unconscious exaggerations. Impotence has been complained of in established cases in which the depressive element was strong and is also found to clear up with treatment of the general condition.

Digestive disturbances are frequent. Morning nausea and often vomiting are complained of. Poor appetite is the rule rather than the exception, with the inevitable accompaniment of loss of weight. Functional dyspepsies were not as a rule admitted to a psychiatric ward. They usually are not recognized for what they are, and are admitted for gastric investigation. After negative results have been obtained the neuropsychiatric specialist has been asked to see them. Here, too, it is believed that symptoms are often considerably exaggerated. It is our opinion that gastric investigation should be undertaken in all cases and the psychiatric angle of the case then be tackled. There is usually no difficulty in finding other evidences of the anxiety state; where these did not exist the case was not regarded as psychiatric. Particular importance was attached to impressing medical colleagues with the difference between a dyspepsia in which no evidence of lesion had been shown by a fractional test meal and by radiographs—which remain a medical problem—and dyspepsia occurring as part of an anxiety syndrome.

Other Symptoms

Pain has been met with in every system, and in all parts of the body and all degrees of severity. There is little doubt in our minds that the anxious person is more aware of pain and that his mind, centred on his bodily sensations, has a lowered threshold for pain. A frequent complaint was of "shooting pains all over the body." Various muscular aches in the limbs were common, as was backache. Localization of pain often depended on an associated idea in the patient's mind.

Headaches were almost always present—sometimes accompanied by dizziness and sometimes based on a former head injury. It was often clear, however, that the injury had set the stage for, but was not organically responsible for, this symptom. The headaches, whatever their basis, may appear as a dull ache or a band of tightness, a feeling of vertical pressure, or an acute throbbing sensation in the temporal or occipital regions.

Grosser hysterical phenomena were rare and often occurred on the basis of mental backwardness or in a psychopathic constitution. We attach great importance to the necessity for regarding hysterical manifestations as but symptoms of the fundamental anxiety, and no attempt has been made to separate those cases which showed hysterical phenomena from the general mass of anxiety states. This evaluation of symptom in true perspective avoided the temptation of spectacular "cures" and correspondingly dramatic subsequent conversion phenomena.

While functional weakness of a limb or part of a limb was observed fairly often, paralyses were relatively uncommon, and were certainly on a far smaller scale than was evident in the last war. In many cases the basis was an original organic lesion, and it became axiomatic to seek this organic basis.

Amnesias and fugues occur frequently. In not a few they begin while on leave or on the journey back to duty. Many of these were at a fairly conscious level, and in some cases were judged to be retrospective rather than to be true amnesias. It is considered that they often developed in a setting of mild depression. For a man to claim loss of memory as a reason for evading punishment for being absent over leave is only too easy a way out, from his point of view. A good deal of care was taken to avoid errors in assessing the man's responsibility. Repression and amnesia for painful experience have also been found to occur rarely, and, when present, related to such catastrophic events as being trapped below in a sinking ship; on one occasion they were related to guilty feeling in the patient, who had sought safety while his friend drowned.

Unexpectedly it was found that the conflict between duty and self-preservation was seldom repressed or the basis of a complex-determined symptomatology.

The ordinary man is, in this war, under no difficulty in admitting to himself that he is scared and would prefer to be elsewhere. That he does not give way to this feeling, but rises to the demands of a situation, may be the basis of later anxiety, though not of conversion symptoms. This fact, with the recognition of the anxiety state as such, doubtless explains the relative absence of conversion hysteria.

Anaesthesias and paraesthesias occurred with moderate frequency and varied in degree and situation. Here again there was often an original organic basis. Stammering appeared from time to time, and as a rule there was a similar history of this trouble in childhood.

Minor disturbances of vision were relatively common, although the grosser ones were less often seen than might have been expected—e.g., photophobia, occurring after exposure to explosion flash. Far more frequent were blurring of vision, with "spots before the eyes" and amblyopia. Night blindness was a common complaint, and in not a few instances functional failure to focus. This was chiefly demonstrated in those with a refractive error which was not improved by appropriate lenses. Visual complaints failing to improve with the general condition were in a significant number of cases found to be based on blindness in a relative and a corresponding fear in the patient.

Only a few cases of aphonia were seen; these usually clear up rapidly.

A history of "collapses," fits, and faints was commonplace, but occurrence of such in hospital was on the whole rare. They were not always easy to assess, for the classical hysterical fit was seldom seen. Some were undoubtedly syncopal attacks, others vasovagal, but there was a considerable group that did not fall into these categories, nor were they epileptic.

Treatment

Most cases seen in hospital are those which treatment from the ship's medical officer or in the local sick bay has failed to clear up. Briefly, such treatment has consisted of encouragement, reassurance, and sedation with short periods of rest in the sick bay. It must be emphasized that a large proportion of the milder anxiety states are adequately treated in this way and never reach hospital—treated often by medical officers who themselves experience corresponding stresses and are well able to judge the severity of the symptoms. The treatment to be discussed, however, is that of the cases that enter hospital.

Here the basic principle adopted has been that of resting over-stimulated organism as a first measure and bringing back to normal functioning as the second. Admission to hospital secures relief from the immediate situation; rest in bed, with the use of normal sedatives—i.e., bromides by day and barbiturates by night—and recourse to paraldehyde for the restless, is sufficient to ensure relaxation in the milder cases. Where loss of weight, debility, and exhaustion occurred without marked tension an effort was made to build up the physical condition and bring about an increase in weight. The usual methods were adopted, but a useful adjunct was the administration of insulin and glucose daily over a period. Small doses of from 5 to 10 units twice daily were employed with liberal carbohydrates. We did not use insulin sapor.

In cases in which exhaustion and loss of weight are marked and emotional tension is so severe as to prevent relaxation continuous narcosis has been found of great value. It has also been highly beneficial in cases admitted immediately after heavy raids or attacks, when the patient may show violent agitation, gross tremor, and somatic disturbance so pronounced as to render him inarticulate or even to produce a confusional element. The technique is a modification of that described by Mira (1939). For hyoscine, which frequently proved toxic, paraldehyde has been substituted. The treatment lasts for 72 hours; sleep is maintained by 1½ gr. of phenobarbitone 4-hourly during the whole period. This is reinforced by 2 drachms of paraldehyde, administered freely up to 10 to 12 drachms in the 24 hours. Ordinary light diet is given, with fluids "pushed."

Used as an immediate treatment in grossly agitated and acute cases this technique has proved spectacular in relieving

the patient's distress and subduing the gross physical disturbances that are otherwise apt to be hysterically prolonged. All cases, however, so treated have shown marked improvement in physical condition. Emotionally there is a sense of relaxation, sleep is re-established, tremors disappear, and the patient is encouraged by the feeling of relief and relative well-being. The improvement, however, is regarded as but a first step most significant in men of good personality whose symptoms have been precipitated by prolonged or severe stress of active service. In the more inadequate and unstable types, whose anxiety is a reaction rather to the situation of war than to specific stress, the disturbing factors tend to come into play again as soon as full consciousness is regained. Cases showing depressive factors also react well.

Psychotherapy, as such, was of necessity superficial and symptomatic or limited in its application to problems of adjustment to Service life or conscious experiences. While an essential part of the treatment of every case, it is probable that by itself it seldom made the difference between a man's retention or discharge from the Service. In minor hysterical phenomena, such as tremor or spasm, treatment was firmly directed towards the underlying anxiety state, and, in the main, symptoms liable to be prolonged were found to clear up *passu* with the general condition. Suggestion and persuasion were occasionally of value as symptomatic treatment. A certain amount of relief is obtained with abreaction, and recovery from painful experiences with direct hypnosis or by the medium of narco-analysis as described by Mallinson (1940). Again, however, the general condition remained to be treated.

Occupational therapy, physical training, gardening, and hospital concerts were useful measures in returning to normal attitudes. The patients, too, were encouraged to go for afternoon walks outside the hospital grounds when possible.

The adjustment of concrete personal and domestic problems where possible, was regarded as of such importance in promoting recovery that particular attention was paid to it. Too much stress cannot be laid on this. The recognition by the executive authorities of recommendations made was helpful, while the Welfare Officer and the Royal Naval Benevolent Trust invariably assisted when approached.

The prognosis of every case was assessed as soon as possible after admission and the patient informed. Those in which the outlook was thought to be unfavourable were recommended for consideration for invaliding as soon as they were well enough to be discharged to civilian life.

Hospital treatment beyond two to six weeks was required only in a small proportion of cases, and, in those, transfer to an establishment devoted to rehabilitation measures was effected. A moderate period of sick leave gave the stimulus of restoring personal relations, relieved domestic anxieties, and revived sense of independence; but prolonged leave was recommended with increasing discretion. The men returned to full duty, frequently to service on shore preliminary to full service. While on shore service they were recommended to be under the eye of the neuropsychiatric specialist in their depot. He could then give the appropriate guidance to the executive authorities to maintain contact, and arrange for suitable employment in depot or finally effect return to full duties at sea in an area of diminished stress.

Prognosis

In general it was found that the results of treatment were satisfactory. Prognosis was poorer in the cases described as constitutionally inferior or temperamentally unstable, particularly when allied with any degree of mental backwardness. It was also poorer where a prolonged state of tension had preceded a severe trauma such as being trapped in a sinking vessel. No close relation between age and prognosis was observed, except where the factor of arteriosclerosis entered. In such cases prognosis was bad.

The general result of our observations has been that there is a remarkable capacity for recovery from anxiety states in the averagely endowed and stable individual. Except where the above-mentioned factors operate, return to duty at sea with repeated stress can be anticipated.

Even in the cases of poorer prognosis return to some form of service in a position of diminished stress can be achieved in a large proportion of cases. Particularly has this been found

to be the case since a neuropsychiatrist has been established in the depot, with all his advantages in familiarity with conditions and demands and power to recommend disposal.

We wish to express our thanks to Sick Berth Petty Officers Orr and Winsor for great pains in extracting the case material and copying the drafts on which this article is based.

REFERENCES

- Cannon, W. B. (1929). *Bodily Changes in Pain, Hunger, Fear and Rage*. New York.
Mallinson, W. P. (1940). *J. roy. nav. med. Serv.*, 26, 281.
Mira, E. (1939). *British Medical Journal*, 1, 1217.

NITROUS OXIDE ANAESTHESIA: A CRITICAL EVALUATION.

BY

R. BLAIR GOULD, M.B., Ch.B., D.A.

Anaesthetic Specialist in the E.M.S.

Nitrous oxide-oxygen is usually considered the safest and best anaesthetic agent. At the present time, when non-experts in increasing numbers are being called on to act as anaesthetists in both military and civil practice, a critical examination of this statement is necessary.

While quite suitable for many operations on susceptible patients, nitrous oxide, being the weakest of all anaesthetic drugs, is rather an agent for the production of unconsciousness than one which can provide any degree of muscular relaxation. The attempt to produce the former in many anaesthetic-resistant patients and the production of the latter in nearly all cases are usually accompanied by such a degree of anoxia as may often be dangerous. Thus Macintosh (1938) states that "its use by inexperienced anaesthetists for major surgery is fraught with disappointment if not carried out boldly, and with danger if it is"; while Clement (1939) in the standard work on the subject acknowledges that "deep, prolonged anaesthesia with nitrous oxide implies a drastic and continued curtailment of the oxygen supply which greatly augments any degree of anoxaemia that may be present" (p. 97); and, again, "The abnormalities" (of respiration) "occurring in the deeper planes are all evidences of oxygen want. . . . The symptoms produced in the nervous system by nitrous oxide-oxygen administration are in reality those of a gradually progressing state of anoxaemia" (p. 40).

Arguments against Nitrous Oxide

In these circumstances, why is nitrous oxide anaesthesia continually recommended when its use must often imply considerable oxygen want? The three main arguments are all propounded by Clement: (1) that anaesthetic agents in general produce their effects by reduced oxygen utilization, and nitrous oxide in particular "by the exclusion of the oxygen in the inspired air" (p. 98); (2) that nitrous oxide is an indifferent inert gas without any direct action or effect upon the body tissues (p. 23), and it is assumed, therefore, that any additional effect of anoxia on the tissues will be minimal, if not harmless; (3) that "the body shows a remarkable tolerance to moderate, and even temporary severe, degrees of oxygen want" (p. 97). In my opinion the weight of evidence is against each of these statements.

1. The theory that the narcotic action of anaesthetic drugs in general, or of nitrous oxide in particular, is due to depressed oxygen utilization is not supported by recent research. Henderson (1930), after reviewing considerable evidence, concludes that "oxidative processes and narcosis are separate phenomena. . . . No theory of anaesthesia will prove acceptable which is based on a proof of a depression of the resting oxidation of the cell." Pask (1941) reviews the recent work on this subject, and also concludes that under clinical and experimental conditions anaesthesia has no effect on the oxygen uptake of the intact organism or of isolated tissues.

2. Nor can it be assumed with certainty that the effect of nitrous oxide on the tissues is negligible. Clinical experience does not support this assumption, for short anaesthetics for minor surgery, even in the absence of anoxia, are often followed by headache, vomiting, and a feeling of distress and giddiness. Macintosh and Bannister (1941) state that they attempted to produce anaesthesia sufficient for dental extractions in 50 cases by nasal administration of nitrogen, and "although in all cases unconsciousness was reached, in the robust or anaesthetic-resistant type the full anaesthetic state

was not achieved. . . . If nitrous oxide has no anaesthetic effects, but acts only as an oxygen replacer, any inert gas would furnish as satisfactory an anaesthesia; actually, the anaesthetic properties of nitrogen are not as effective." Even were this assumption to be true, it is difficult to understand how it would render less harmful the effects of frank anoxia on tissue cells. Experience shows that the adoption of this assumption as a working basis often results in an anaesthetic technique which cannot be considered good practice.

3. The statement of Haldane (1922) that "anoxaemia not only stops the machinery but wrecks the machine" would appear to me to be as applicable to anaesthesia with nitrous oxide as to any other clinical condition. Indeed, recent research and clinical experience have not only confirmed Haldane's work but have demonstrated that the effects of anoxaemia may be insidious or delayed (Armstrong, 1939). Thus Samson Wright (1940) concludes: "A slight degree of oxygen lack may therefore act insidiously and only reveal its effects after a long latent period. . . . Following prolonged severe exposure to oxygen lack, very formidable after-effects occur." Courville (1936, 1939) has produced convincing evidence of the damaging effect which oxygen deficiency during anaesthesia, especially with nitrous oxide, may produce on the central nervous system, particularly on the cortex. He has shown how minor degrees of anoxaemia may cause permanent damage, which may not become apparent until after a considerable latent interval, while even a few minutes of severe anoxaemia may produce permanent damage. As Pask (1941) has emphasized, "immediate apparent recovery from a period of anoxia does not necessarily mean that a patient, particularly a shocked patient, has not suffered harm."

Cyanosis

Clinical experience does not support the view put forward by Clement: "The difference between the cyanosis associated with nitrous oxide-oxygen and that with other anaesthetic agents has been frequently overlooked" (p. 38); "cyanosis, during nitrous oxide-oxygen anaesthesia has been given the same significance as with all other anaesthetics, thus the mode of action of nitrous oxide in producing anaesthesia by the exclusion of oxygen is ignored" (p. 103). The implication in these statements is that cyanosis is of a different nature when associated with nitrous oxide, and they have often been taken to justify its use in circumstances which must imply a considerable degree of anoxaemia.

Cyanosis depends on the absolute amount of reduced haemoglobin in the blood, the amount of oxygenated haemoglobin present being of little importance (Lundsgaard and van Slyke, 1923). Thus in plethoric individuals cyanosis may occur without anoxaemia, but such patients form a very small proportion of those coming to operation. Unless the haemoglobin concentration of any surgical patient is known to be above normal the possibility of cyanosis occurring without anoxaemia may be ignored.

Far different is the case with anaemic patients, who, in surgery, comprise the great majority. Here, the oxygen-carrying capacity of the blood being below normal, even when fully oxygenated there may be some anoxaemia, although the amounts of reduced haemoglobin present in the capillaries may not be sufficient to produce clinical cyanosis. But when the latter is present, the amount of haemoglobin available for carrying oxygen is further reduced and oxygen want intensified. Cyanosis therefore must be prevented in anaemic patients if anoxia is to be avoided.

McCarthy (1941) has described signs, affecting the respiratory and circulatory systems, by which he considers anoxia may be recognized, irrespective of the presence or not of cyanosis. Unfortunately, however, in my experience these signs do not occur in minor degrees of anoxaemia, where their value would be greatest; they are almost invariably late signs, indicating that circulatory and respiratory depression is already profound.

Prevention of Anoxaemia

It would appear, therefore, that the only method of avoiding anoxaemia is by maintaining scarlet blood in all cases. Where, however, anaemia is known to be present before operation, or is produced during operation by blood loss or other means, then not only must cyanosis be prevented but an increased concentration of oxygen must be given, over and above that necessary to produce scarlet blood, to compensate for the reduced haemoglobin, for by this means an increased blood-oxygen concentration may be produced (Boothby *et al.*, 1939, 1940; Wood, Mason, and Blalock, 1940).

Clement, however, states that "it is impossible to produce narcosis (with this agent) in the majority of patients and still maintain a pink skin and scarlet blood" (p. 103). This conclusion has a profound bearing on the evaluation of nitrous oxide as an anaesthetic agent, for I would regard the maintenance of a pink skin and scarlet blood as essential in all cases. The prevention of anoxaemia is one of the primary duties of the anaesthetist, and I would submit that to avoid anoxaemia nitrous oxide must be used with great discretion, particularly in shocked or anaemic cases. "Agents are potent or impotent as their toxicity is great or small" (Gillespie, 1942). To increase the potency of a weak agent such as nitrous oxide by associating with it any degree of tissue anoxia, however mild, is in my opinion to employ a method whose toxicity to those tissues may well be lethal; for there is much evidence that, whereas the effects of anaesthetic agents on tissue cells (in the absence of anoxia) are recoverable, the effects produced by anoxia are irreversible. (While I consider abundant oxygen essential with any anaesthetic technique or drug, I doubt whether the advantages of nitrous oxide are great enough to justify the additional transport of the necessary nitrous oxide cylinders to all the various isolated theatres of war.)

Other methods of increasing the potency of nitrous oxide are available, and are to be preferred. I do not agree with Clement that by the addition of ether, for example, to the mixture "the benefits of gas-oxygen alone are largely sacrificed" (p. 103). I would rather submit the principle advanced by Lundy (1932)—of the use of a combination of agents or methods to decrease the toxicity of a single agent—as being a more rational principle on which to base anaesthetic practice. In my opinion, the addition of some supplementary agent to nitrous oxide anaesthesia confers a benefit to the patient in that it enables the anaesthetist to maintain anaesthesia in an atmosphere of abundant oxygen.

Summary of Conclusions

Nitrous oxide is a weak anaesthetic agent whose effects are often produced only in the presence of anoxia.

The recognition of anoxia being difficult or impossible in many cases, it is better to avoid it by increasing the oxygen content of the anaesthetic mixture.

Should this render anaesthesia with nitrous oxide difficult in any particular case, it is an advantage to the patient to add some supplementary agent, for reduction in the oxygen supply to "potentiate" nitrous oxide is never justifiable.

It follows that nitrous oxide anaesthesia is not as safe as often supposed, and its application should be strictly limited.

REFERENCES

- Armstrong, H. G. (1939). *Principles and Practice of Aviation Medicine*, London.
 Boothby, W. M., et al. (1939). *J. Amer. med. Ass.*, 477, 113.
 — (1940). *Surg. Clin. N. Amer.*, 20, 1107.
 Clement, F. W. (1939). *Nitrous Oxide-Oxygen Anaesthesia*, H. Kimpton.
 Courville, C. B. (1936). *Medicine*, 15, 129.
 — (1939). *Anesthesiology*, 1, 261.
 Gillespie, N. A. (1942). *Ibid.*, 3, 683.
 Haldane, J. B. (1922). *Respiration*, New Haven.
 Henderson, V. E. (1930). *Physiol. Rev.*, 10, 171.
 Lundsgaard, C., and van Slyke, D. D. (1923). *Medicine*, 2, 1.
 Lundy, J. S. (1932). *J. Tennessee med. Ass.*, 25, 496.
 McCarthy, K. C. (1941). *Proc. roy. Soc. Med.*, 34, 672.
 Macintosh, R. R. (1938). In *Modern Anaesthetic Practice*, ed. by Rolleston and Moncrieff, London.
 — and Bannister, F. B. (1941). *Essentials of General Anaesthesia*, Oxford.
 Pask, E. A. (1941). *Brit. J. Anaesth.*, 17, 129.
 Wood, G. O., Mason, M. F., and Blalock, A. (1940). *Surgery*, 8, 247.
 Wright, Samson (1940). *Applied Physiology*, Oxf. Univ. Press, London.

An important factor in the first phase of injury from cold, states Killian (*Zbl. Chir.*, 1943, No. 2), is the production of heat by contraction and tremors of the muscles. In the resynthesis of the lactic acid thereby formed, an important part is played by the phosphorylation which is controlled by the suprarenal hormones. If the suprarenal hormones are lacking, severe disturbances of muscular metabolism and cardiac metabolism must ensue. Exposure to cold for long periods results in the supplies of cortical hormones being used on account of muscular exhaustion. Since cortical insufficiency enters into the picture of shock and collapse, casualties showing these signs are specially liable to damage from cold. In the second phase of frostbite, where oxygen lack in the tissues is the dominant feature, there is not only an abnormal consumption of "cortin" but an actual lesion of the suprarenals. Cortin, Killian believes, seems to be justified in cases of extensive frostbite, especially those showing toxic symptoms.

MARCH FRACTURE OF THE METATARSAL BONES

BY

H. H. FOURACRE BARNES, M.B., B.S.,
F.R.C.S., M.R.C.O.G.

Flight Lieutenant, R.A.F.V.R.

March fracture, or spontaneous stress fracture, is most often seen in the metatarsal bones, but has been observed in others, including the femur (Peterson, 1942). This type of fracture was well recognized before and during the war of 1914-18. A number of articles have been published recording cases that have appeared during the present conflict.

A Series of Cases during Training

This communication records 20 cases of march fracture of the metatarsal bones that have occurred during the first five months of the training programme at a recruits' training station in the Royal Air Force. The training programme is in two parts. The first part, of three weeks' duration, is devoted mainly to disciplinary training; the second part, of five weeks' covers more advanced subjects, including those which are more strenuous, such as bayonet-fighting, unarmed combat, etc.

The number of recruits passing through the station during the period in which the fractures occurred was seven thousand, so that the incidence is small. With three exceptions the patients were from 18 to 21 years of age. This cannot be taken as significant, however, as the age of the majority of the trainees falls within this age group. All the patients were of the highest medical grade (Grade 1) on entering the Service, and their physique was classed as normal in half the cases and medium in the remainder. No obvious foot deformity was observed in the patients. Their histories revealed that the majority, previous to entry into the Service, lacked regular exercise and were in occupations necessitating long hours of standing. Eight of the 20 had been in the A.T.C., in which they did drill from one to three times a week for periods ranging from three months to two years. All the fractures occurred during the last five weeks of training.

The injuries were sustained during active exercise and were due to indirect trauma. One patient, however, sustained his fracture during a fall at football. His legs were tangled up with those of another player. This is the only case in which direct trauma may have been responsible. Of these 20 fractures 10 developed during route marches, 2 while bayonet-charging, 2 at drill, and another at football as already mentioned; the remaining 5 could not be ascribed to any particular exercise.

It is usually stated that the onset of symptoms is insidious (Drummond, 1940; Krause, 1942). This was not the common finding in the present series. In 2 of the earlier cases the histories are incomplete, but of the remaining 18 the onset of symptoms was sudden in 12 and insidious in 6.

Pain, localized to the affected bone, is the chief symptom. This is felt on standing, and especially when on the toes. This causes the patient to limp and, when the second or third metatarsal bone is affected, to walk on the outer side of the foot. A sensation of stiffness of the toes is often experienced. This is presumably due to reflex spasm of the interosseous muscles. A few hours after the onset of pain some swelling which pits on pressure, may be observed on the dorsum of the foot at the base of the toes. There is localized tenderness but bruising has not been noticed in the present series. The right foot was affected in 10 patients and the left in 10 also. There were 15 fractures of the third metatarsal, 3 of the second and 2 of the fourth. In the large series of cases analysed by Tobold (1903) and Jansen (1926) the fracture was found to occur more frequently in the second metatarsal bone.

Radiography in Diagnosis

In order to confirm the diagnosis of the early case first-class x-ray pictures are needed. In the present series two views of the foot were taken—an antero-posterior with the foot in the normal standing position, and another antero-posterior with the foot in the everted position, thus taking an oblique view of the foot. In a number of cases no fracture was to be seen in the antero-posterior view but could be seen in the oblique view. This is due to the fact that the earliest signs of fracture

of the metatarsal, which consist of a fine periosteal reaction with or without a small crack in the cortex of the bone, appear on the dorso-medial aspect. In 16 of the 20 fractures these early signs could be seen. Of the remaining 4, one was a comminuted fracture, another an impacted fracture, the third an oblique fracture of the shaft, and the fourth was not confirmed by x-rays until five weeks after the onset, the early radiographs showing no fracture. Eleven of the fractures were at the middle of the shaft, 7 were about a quarter of an inch from the neck, 1 was at the neck and impacted, and 1 was an inch from the base of the bone. With the exception of the comminuted fracture and the oblique fracture, there was no displacement of the fragments of bone. The absence of shortening and angulation suggests that the force responsible for the fracture is not great enough to produce separation of the fragments to any appreciable extent and that the surrounding tissues are themselves little damaged and tend to hold the fragments in position.

The first radiograph, taken immediately after the onset of symptoms, may not show the early evidence of fracture, whereas the fracture may be seen in a second radiograph taken some 7 to 10 days later. In 3 patients of the present series this state of affairs existed. Between the first and second radiographs the only treatment given was strapping and light duty, the plaster method being used when the diagnosis was confirmed by the second radiograph. In a fourth patient the first x-ray film showed no fracture, but in spite of this plaster treatment was given for four weeks, and then a film was taken for the second time. This showed the fracture and the formation of callus.

Treatment

The treatment in the present series has consisted of a below-knee plaster, with a walking-heel attached, for approximately four weeks. The toes have been left free on the dorsal aspect and the ankle has been immobilized at a right-angle. Following this the patient has had two weeks' light duty, avoiding all vigorous exercise. At the end of the six weeks he has resumed full duty with the exception of excessive exercise and long marching. No residual disability has been encountered.

Discussion

The aetiology of the lesion is obscure. Jansen (1926) suggested that a reduction in the nutrition, caused by swelling of the interosseous muscles, made the metatarsal bones brittle. It has been suggested by Wilhelm (1941) that vitamin deficiency may play a part, but there is no definite evidence to support this. Moore and Bracher (1941) have drawn attention to the possibility of exercise other than marching being responsible. Krause (1942) believes that the mechanism is rhythmically repeated subthreshold mechanical insults acting by summation to a point beyond the capacity of the bone. It is now well recognized that the fracture tends to occur in recruits who have led inactive lives before entry into the Service. This must therefore be accepted as the predisposing cause. In addition, as the name implies, the fracture usually is a result of marching, and some such form of exercise would appear to be the exciting cause.

The striking feature in the present series—a feature to which little attention has been drawn in the past—is the situation of the early signs of the fracture, in the x-ray film, on the dorso-medial aspect of the shaft of the bone. Inspection of x-ray photographs in articles on the subject also shows this situation of the early signs. This suggests that the exciting force acts in such a manner as to bend the bone in an outward and downward direction and so produce a tear of the periosteum and a crack in the cortex of the bone, first on the dorso-medial aspect.

The injury to the periosteum causes a reaction, which shows in the radiograph as a fine opacity by the shaft of the bone. This reaction and the actual break in the cortex may not be visible at this early stage. Later the periosteal reaction has increased and the interval between the fragments may be more definite as a result of some absorption of bone at the ends of the fragments at this point. This sequence of events offers an explanation for the apparent absence of the fracture in the first radiograph and its subsequent appearance in a second radiograph some days later. The periosteal action continues, so that after four weeks a spindle of callus may be observed around the shaft of the bone, centred about the fracture line,

which may now be seen involving the whole width of the shaft. It is at this stage that the lesion may simulate a sarcoma in the film, and a definite hard swelling may be felt on the metatarsal bone. The swelling is not tender and there is usually no disability.

It is possible that the force which tends to bend the bone in an outward and downward direction results from muscular action. This force is probably brought into play during the action of marching when the weight is being transferred from one foot to the other. The affected foot is then in the dorsiflexed position and the plantar flexors of the toes and foot are contracting to give the springy movement as the weight is being transferred from that foot to the other. As Krause suggests, repeated strain on the shaft of the metatarsal may finally result in the fracture.

A reduction in the incidence of the lesion seems probable if, first, the training of boys before entry into the Service in such youth organizations as the A.T.C. is intensified with regard to the physical development; and, secondly, the training programme for the recruit is modified so as to reduce the amount of marching in the first two months of training. The marching programme should be carefully graduated, especially when other vigorous subjects are included in the syllabus.

Summary

Twenty cases of march fracture of the metatarsal bone in recruits are recorded and analysed.

The clinical findings are described and the x-ray appearances discussed.

It is suggested that the exciting force responsible for the fracture is supplied by the repeated muscular action of the plantar flexors of the toes and foot during the springy movement of walking.

Suggestions for the reduction of the incidence of this type of fracture are offered.

I wish to express my gratitude to Air Marshal H. E. Whittingham for permission to publish this article; to Wing Commander W. G. S. Roberts for facilities for investigating the cases; to Squadron Leaders R. J. Coto and C. Wilson for allowing me the opportunity of seeing the cases; and to Sgt. F. E. A. Blackman, M.R.S., and Mr. F. Newman for their excellent x-ray work.

BIBLIOGRAPHY

- Drummond, R. (1940). *British Medical Journal*, 2, 413.
Jansen, M. (1926). *J. Bone Jt. Surg.*, 8, 262.
Krause, G. R. (1942). *Radiology*, 33, 473.
Moore, P. L., and Bracher, A. N. (1941). *War Med.*, Chicago, 1, 50.
Newell, C. E. (1940). *Southern Surgeon*, 9, 169.
Peterson, L. T. (1942). *J. Bone Jt. Surg.*, 24, 185.
Tobold (1903). *Deutsch. militärärztl. Z.*, 32, 373.
Wilhelm (1941). *Deutsch. Z. Chir.*, 254, 11.
Williams, A. A. (1940). *British Medical Journal*, 2, 784.

Medical Memoranda

Cardiac Failure treated by Mercurial Diuretics over a Prolonged Period

The following case may be considered interesting enough to warrant publication.

On Dec. 12, 1930, a farmer's wife aged 55 was visited on account of morning occipital headaches, giddiness on stooping, and dyspnoea on exertion, all of insidious onset over the past year. She weighed over 15 st., and had a large post-operative ventral hernia, since repaired under spinal anaesthesia. Her lips were mildly cyanosed. There was no oedema of the extremities. Her arteries were not unduly thickened and her pulse was regular in rhythm, of increased force, large volume, and high tension, while the rate was 92 a minute. Her blood pressure was 220/130 mm. Hg. Examination of the heart showed a forcible but localized apex beat in the sixth interspace outside the mid-clavicular line. Being so obese, accurate percussion of the cardiac dullness was impossible. A conducted ventriculo-systolic murmur was most audible at the apex, due to relative mitral incompetence. A moderate degree of basal bronchitis was present. The urine contained less than 0.025% of albumin, and no casts or red blood cells were present in repeated specimens. Her previous history was negative except for puerperal fever after one of her confinements 30 years earlier.

Her case was considered to be one of essential hypertension with insidious onset of cardiac failure. Reduction of weight, a salt-free diet with salt substitute, rest, and iodides were prescribed. She improved, and continued to be moderately well until Feb. 13, 1933, when I was called to her on account of intense orthopnoea. She was suffering from auricular fibrillation—the pulse rate being 138 a minute. Massive digitalis therapy was instituted, 4 drachms being given then and a further 2 drachms on the following day. After two more days digitaline Nativelle (dipoxin B.P.) granules gr. 1/600 were given thrice daily, until on Feb. 22 the pulse rate had fallen to 69. It has since been maintained over the past 10 years between

65 and 85 when at rest by giving 5 to 6 granules a week and by watching carefully for signs of over- or under-dosage.

She remained well and was able to continue with her household and dairy duties until dropsy of cardiac type intervened in Feb., 1936. This was cleared by means of rest in bed, salt-free diet, and diuretin gr. 15 thrice daily, but it returned quickly in spite of perseverance with the treatment. It was, however, delayed in its severity until the end of May, when she was so badly swollen and so miserable as to necessitate her being kept sitting up in bed resting forward on her thighs. The oedema was extreme, and the end would appear to be not long delayed. Opiates were given for her relief, and had to be administered by mouth as she lived seven miles away. On May 30 I gave her 20 gr. of ammonium chloride to take in a mixture thrice daily, and on June 3 she received 1 c.cm. of salyrgan intramuscularly into the buttock. The diuresis was moderately profuse. On alternate days 1 c.cm. was continued, and with caution, for two more doses. On the fourth occasion 2 c.cm. was given—the ammonium chloride being also given, as before.

By June 24 she had received salyrgan thrice weekly in 2-c.cm. doses and the oedema had disappeared. The urinary output was examined, and always has been, at each visit. I found it necessary to continue thrice-weekly injection until Dec. 2. By that time it was considered necessary to give it only twice weekly. She had been allowed up gradually in August, until she was able to do her housework over eight hours daily, and has continued to do this ever since. From Dec. 5, 1936, to July 27, 1942, 2 c.cm. of salyrgan or mersalyl (B.D.H.) was given twice weekly with few exceptions.

The patient at this date decided to "retire" from active work and live more leisurely. Since then 2 c.cm. given weekly, and with occasional extra doses, has kept her oedema-free, except for a slight puffiness of the feet and lower legs. Altogether she has now had 680 injections—all but a very few being of 2 c.cm.

COMMENT

The only toxic symptoms that might be ascribed to mercury have been: (1) A "soapy" feeling in the mouth. This is almost constant, but there has never been any sign of stomatitis. The patient wears dentures, and so oral sepsis has not been present to help induce the condition. (2) Three slight attacks of catarrhal colitis have occurred, each lasting two to four days and each signified by griping pains on the left side of the abdomen and by tenesmus, with the passage of mucus usually tinged with blood. These attacks responded quickly to withdrawal of the diuretic for a week and the administration of 10 gr. of Dover's powder thrice daily for a few days along with a roughage-free diet.

There have been no signs of neuritis—her deep reflexes being maintained, in addition to there being complete absence of paraesthesia and tremor or of any mental disturbance or drowsiness. She has had frequent severe cramps in her legs about 48 hours after an injection. These were most marked when she was on a salt-free diet. When returned to a normal salt-containing diet these attacks became infrequent, and since receiving her injection once weekly have been altogether absent. It was noticed that it was wiser to allow a slight pitting of the ankles to remain at all times to prevent too much dehydration. These cramps are of the nature of stoker's cramp. The kidneys have shown no evidences of increased impairment over these years. The amount of albuminuria from passive congestion seldom exceeds 0.1%, and only an occasional hyaline or granular cast is found. Haematuria has been absent. Nausea has been complained of from time to time, but is usually attributable to the ammonium chloride, which, however, is required in this case as the diuresis is about halved without it. On rare occasions the nausea has been due to the onset of digitalis sickness.

It is interesting to note that the patient has at no time suffered from any signs of thrombosis—either arterial or venous. Of course her arteries are ideal, being free from obvious arteriosclerotic changes and probably from atheroma. Also no local reactions have occurred.

CONCLUSIONS

It would appear that there is little risk of any untoward symptoms of mercurialism arising from the prolonged administration of salyrgan or mersalyl (B.D.H.) even when given at such short intervals in cardiac dropsy, provided that elimination is not impaired by renal disease and that oral sepsis is not present.

There would seem to be no danger, or little danger, of thrombosis occurring provided that the blood vessels are reasonably healthy.

Cramps may be avoided after injection by giving sufficient salt in the diet and by avoidance of over-dehydration.

No local reactions should occur if injection is given deeply and with a dry needle.

It is worth while to institute treatment even when the patient is apparently in *extremis*, as many years of moderately active life may be enjoyed.

C. M. MCINTYRE, M.B., Ch.B.,
Highlands and Islands Medical Service.

Bridgend, Isle of Islay.

Reviews

A TEXTBOOK OF MIDWIFERY

Textbook of Midwifery. By Wilfred Shaw, M.D., F.R.C.S., F.R.C. (Pp. 588; illustrated. 21s.) London: J. and A. Churchill. 1943.

It is perhaps natural that students should encourage a poor teacher to write a textbook on the subject he teaches. certainly a good thing that not all such encouragement fruit in the shape of new textbooks on this and that, for each has a real contribution to make it has no valid excuse its existence. There is nothing revolutionary in Mr. W. Shaw's new work and little to distinguish it from other books on midwifery, but none the less it is assured of a warm welcome, for its earlier and sister volume on gynaecology given the author a well-earned reputation as a teacher extends far beyond the bounds of St. Bartholomew's at students.

Mr. Shaw's obstetrical teaching is based on three principles. The first is that the majority of women do themselves spontaneously without much trouble; the second that great clinical judgment is required to decide if and interference is indicated; the third is that if any obstetrical manipulation is carried out it calls for dexterity and operative skill of a very high order. As would be imagined from the practice of midwifery has been described largely from a practical and clinical basis. The book is introduced by a chapter which the author states is intended to illustrate attitude to the practice of midwifery. It is a creed based on genes, meiosis, and the blastopore, and the student may to read it more than once before he understands its meaning. If he does need to do so he will not be the loser, because he will begin his studies with the oft-repeated assurance from his mind that unnecessary interference is the greatest obstetrical practice.

The book is arranged on conventional lines. There are sections dealing with physiology of reproduction, clinical midwifery, complications of pregnancy, abnormal labour, malities of the amnion, placenta, umbilical cord and management and diseases of the newborn, operative midwifery and results and statistics. Excellent illustrations are distributed throughout. A minor criticism is that here and there the author is left wondering what Mr. Shaw believes and practises. In this practice is made clear it is of little help to the student. He is told that some authorities advise episiotomy in all deliveries or that many obstetricians have no anxiety in forming a Caesarean section after a surgical induction of labour by means of the Drew-Smythe catheter, to quote only a few examples. Dogmatic teaching is often dangerous, but it is so in clinical medicine than are the vague utterances of an academic tutor. The student must learn how he is to tackle clinical problems when they arrive, and he can measure the value of his teacher's dogma by the results he achieves.

Considerable emphasis is given to radiological examination of the pelvis—even, some would think, at the expense of instruction on when and how to examine a pelvis clinically. It is admitted that "there is much to be said for the fashioned vaginal examination by an experienced obstetrician and it is also admitted that perhaps radiological methods lead to unnecessary interference. On the other hand the student is informed that radiography is the only scientific method of pelvic measurement without being reminded that obstetrics is an art and not a science. He is taught that a floating head is always an indication of disproportion and one finds it difficult to reconcile this with either the principles so clearly defined in the introduction. The student believes that the high head always indicates disproportion and that the only scientific means of investigating the pelvis is by radiography, then the stage is set for interference and plenty of it. The discussion on the treatment of degrees of disproportion includes an excellent account of the degrees of labour. Many of Wilfred Shaw's colleagues will disagree with his views on the methods of terminating pregnancy. He advises abdominal hysterotomy from the 12th to 18th week, vaginal manipulation from the 18th to 28th week, while the uterus is notoriously inert, is strange indeed. A sur-

mission is the lack of reference to the importance of the Rh factor in obstetrics.

Major place in this review has been given to criticisms which or the most part are levelled against details in the text. We venture to prophesy that the next edition of this book will be considerably revised and correspondingly improved.

AUTHORITY IN MEDICINE

Authority in Medicine: Old and New. By Major Greenwood, D.Sc., F.R.C.P., F.R.S. The Linacre Lecture, May 6, 1943. (Pp. 32. 1s. 6d.) Cambridge: The University Press, 1943.

Though Linacre's name is venerated his memory is but hazy. Nevertheless when Prof. Topley said of him in the Linacre Lecture for 1940 that "the only reason he did not do more harm than he did was because the times were too much for him" the audience were mildly shocked; the offence in Prof. Topley's eyes being that Linacre's object was to diffuse accurate knowledge of the ancient treatises, especially of Galen, which would merely put "a brighter polish on the fetters that old medicine in thrall"; in other words, an authoritarian wished to impose a still older authority on us. Prof. Major Greenwood in his Linacre Lecture for 1943, on "Authority in Medicine: Old and New," questions the justice of this criticism, and starts by going back to Galen himself, who was "almost comically unlike one's idea of an oracle or a prophet," though, like the Hebrew prophets, he had "an extremely low opinion of most of his contemporaries and an immense command of the vocabulary of vituperation . . . he was for ever giving reasons, he was sometimes witty, often abusive, but always arguing." His views on hygiene were sound, his medical psychology was in advance of his age. There was in Linacre's day "a Galenical faith, just as there is now a Marxian faith, and medical students at the end of the fifteenth century were no more familiar with the works of Galen than young English sectaries of Marx with his opinions; probably less." It is not Galen who should be blamed, but the misuse made of his writings in an age when, largely due to ecclesiastical influence, the spirit of authority was supreme. It is the fate of great teachers to start as revolutionaries and to become the idol of reactionaries.

Authority there must be; the medical curriculum, lengthy as it is, would be inordinately prolonged "if every student verified experimentally textbook statements." With us a special authority attaches to the experimental method, but we may overrate its logical value. In one respect there is a change: biologists no longer despise the statistical method, which both these lecturers introduced into epidemiology. This enables Prof. Greenwood to give us an astonishing and rather consoling piece of information—the present loss of young Englishmen between 20 and 25 by military violence is 7,500 less annually than that of a similar age group in peacetime 100 years ago. The lecturer then went on to discuss what he termed "the authority of intention." A few years ago, praise of scientific research for its own sake would have been thought platitudinous, but recently men whose contributions to science, pure and applied, entitle their opinions to respect have maintained that scientific research should be restricted to the betterment materially and morally of mankind; and the satisfaction of intellectual curiosity, having no relevance to this, if not immoral is no better than harmless amusement. They strongly advocate planned research under authority; those who dissent from this faith see danger to scientific freedom. For this, control could be ideal only if we attribute a superhuman prescience to the planners. On such a system "Mendel's interest in peas might have seemed frivolous," though it has provided the scientific basis for genetics. It is indeed a commonplace of scientific history that discoveries made for the satisfaction of pure intellectual curiosity have often proved materially valuable to mankind.

Prof. Greenwood proceeded to a triumphant vindication of Galen's *De Temperamentis* by showing its modern application, among other things, to intelligence testing. "So the wheel has come full circle; temperament is an object of quantitative study. Galen may look down from Elysium . . . with a grim smile of approval." The lecturer concluded an address worthy of the tradition of his office by a glowing and well-deserved tribute to the work of the late Sir Walter Fletcher in organizing medical research unhampered by political considerations.

RADIOLOGY IN 1942

The 1942 Year Book of Radiology. Diagnosis: Edited by C. A. Waters, M.D.; Associate Editor, W. B. Fitor, M.D. Therapeutics: Edited by J. L. Kaplan, M.D. (Pp. 496; illustrated. 27s. 6d.) Chicago: The Year Book Publishers, Inc.

In spite of the difficulties resulting from the war the standard of excellence of previous years has been well maintained in the *1942 Year Book of Radiology* under the joint editorship of Drs. Waters, Kaplan, and Fitor. Radiodiagnosis occupies the first 265 pages and radiotherapeutics the remainder.

There are numerous articles of great interest in the diagnostic section. In the section on the osseous system, mention may be made of a method of removal of iodized oil after myelography in cases of protruded intervertebral disks, and of a survey by Thomas of vascular tumours of bone. In the respiratory section an account is given of Kerley's work on pulmonary changes in erythema nodosum, and other articles of interest are on pulmonary coccidioid infection, toxoplasmosis, and mass radiographic surveys of the chest. In the cardiovascular section the attention is caught by the work of Barclay and his co-workers on the foetal circulation, and Nelson's method of abdominal arteriography is given. A number of rare gastro-intestinal lesions are recorded, including haemangioma, syphilis, and Hodgkin's disease of the stomach, annular pancreas constricting the duodenum, and two cases of double gall-bladder. Gutierrez contributes an admirable survey of large solitary cysts of the kidney.

Although no epoch-making discoveries fall to be recorded in radiotherapy the section on that subject continues to give a complete survey of the work done in radiobiology and in radiotherapy of the various systems of the body. Once again the Year Book of 1942 is to be recommended to all radiologists as an abstract of the year's work in both branches of the subject.

Notes on Books

BALLINGER'S textbook *Diseases of the Nose, Throat, and Ear: Medical and Surgical* has become a well-established institution, which keeps itself alive by the regular issue of well-revised new editions. The eighth retains all the excellent features of its predecessors, and although it contains nearly a thousand pages has the advantage that the new shape and style make it lighter and easier to handle. There is, however, one chapter, which might be called ancillary rather than essential in a medical sense—on the singing voice—wherein such extraordinary views are expressed that they surely require reconsideration by an expert on the subject. The section on the ear remains a brilliant exposition of the subject. Henry Kimpton publishes the book in England at 60s.

Young Citizen, by A. E. MORGAN, is published as a ninepenny Penguin Book. Prof. Morgan is an authority on literature and education, and in 1938 he was commissioned by King George's Jubilee Trust to survey the whole field of adolescent activities. His report, *The Needs of Youth* (Oxford), has become a classic, and this Penguin contains much of the material in a shortened form, together with an account of developments which have taken place since the war. Most of its content is fact, but his opinions are founded on long experience and keen observation. The book is a very handy introduction to the larger work, and indeed to the whole social problem of adolescence.

Denture Base Readjustment, by H. HIRSEKORN, is published by John Wright and Sons at 10s. 6d. It is the contention of the author of this small book that many worn-out and ill-fitting dentures with vulcanite or plastic bases can be made useful and comfortable again by relining them. There is no doubt that this can be done at times and may save the patient the cost of a new denture, but experience teaches that most dentures which are unsatisfactory are best remade from the beginning. The idea of using the old denture as a tray for a new impression is well known, but the author gives some helpful suggestions for the chairside technique and stresses the use of the old original gutta-percha for the purpose. This book is for the dental surgeon and mechanic; but the general practitioner is asked to advise on most things in heaven and on earth, and it is well for him to know that many ill-fitting dentures can be made comfortable.

The Proceedings of the Cardiff Medical Society for the session 1942-3 have been printed for the Society by William Lewis (Printers) Ltd. of Cardiff. The volume opens with Dr. A. W. B. Loudon's presidential address, and there are four other papers, including one on "The Mayos" by Mr. N. L. Barrett; also reports of clinical meetings and discussions.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY NOVEMBER 13 1943

PSYCHIATRY AND SOCIAL MEDICINE

The emphasis recently placed on the social aspects of medicine by the creation of a chair in this subject at Oxford is reinforced by the disturbing revelations made by Titmuss that the rate of infant mortality among the poorer classes in this country was the highest in the civilized world between the two great wars. Such a shameful state of affairs—the death rate in Glasgow is higher than it is in Tokio—should not be tolerated if we are to hold up our heads. But it would be quite wrong to regard this as primarily the responsibility of doctors. As Lord Dawson pointed out in his Presidential speech to the British Medical Association on Sept. 22, the medical profession in its concern about such things got little support from the Government until only a year or two before the war. Not doctors by themselves, but only doctors working under the auspices of an enlightened health policy, which recognizes the enormous importance of environmental conditions as factors in disease, will ever produce the necessary results.

There is one branch of medicine in particular where the influence of social factors has been clearly perceived in practice as well as in theory for a long time. Psychiatry and social medicine have a very large mutual overlap, as was recognized by the Royal College of Physicians of London in issuing together on Oct. 29 the interim reports by its special committees on these two complementary subjects, one of them under the chairmanship of Prof. D. K. Henderson, whose annual reports from the Royal Edinburgh Mental Hospital have consistently stressed the social aspects of mental illness. The way is long past since psychiatry was regarded as the study of diseases; in fact alone of the medical disciplines as psychological medicine adopted in its very terminology the notion of "reaction types." Even in the largely constitutional disorders the share of the environment was recognized so that it became no longer customary to speak of a mental disease but of a "schizophrenic" or "manic depressive" type of reaction. It was even conceived that some mental disorders are the outcome of progressive maladaptation, over a period of years, to the social environment. This has long been the point of view of the psychiatric philosophy designated by the rather unattractive term "psychobiology," or the science of the individual personality conceived in terms of his heredity, his history, and the environmental influences to which he has been subjected. Much may be forgiven aesthetically to a terminology so practically comprehensive. But it has been in connexion with the so-called "functional nervous disorders," the "neuroses," or, more technically, the psychoneurotic forms of reaction, that social considerations have forced themselves upon the psychiatrists' attention, and this not only because of the Freudian discoveries

of the part played by the early family setting in providing the foundation for neurotic developments later, but for the repeated "common-sense" observation of the sharp unsatisfactory personal relationships to other people under contemporary circumstances in producing psychological health. Faced with such problems, psychological medicine found itself in need of a special kind of social worker—psychiatric social worker, trained not only in social work but in the significance of personal factors in the production of ill-health.

In the domain of physical disease itself psychology, as the name implies, has learned to look for some of the causes of such conditions as asthma, skin diseases, duodenal ulcer, hyperpiesis, and the not only in diet or endocrine disorders or infection but in personal conditions producing anxiety, insecurity and all the other painful emotions to which humanity is a prey. It follows that psychiatry is especially interested in schemes for "rehabilitation" or restoration of the individual into useful society. The report of the medical director of the Cassel Hospital for Functional Nervous Disorders for the year 1942 is largely devoted to this topic. Dr. C. H. Rogerson points out that the definition of rehabilitation given in the Tomlinson report is very unrepresentative of the attitude of modern medicine. "Rehabilitation in its strictly medical sense means the process of preventing or restoring the loss of muscle, restoring the full functions of the limbs, and maintaining the patient's general health and strength. (This is from special rehabilitation treatment required for physical diseases such as tuberculosis.)" The Cassel Hospital seeks to clothe this still meagre skeleton with something of a higher level of integration than muscle and peripheral nerve.

The period of transition from hospital, especially from a psychiatric hospital, to real life is a crucial one, for which few special arrangements exist to-day. The Cassel Hospital report suggests an intermediate type of hospital or hostel largely run by the patients, supervised by a trained nurse, and with only occasional medical supervision, because such a place would be principally concerned with occupation and recreation as a step towards the outer world. It is conceivable, however, that the extended use of psychiatric social workers in the community in paving the way for the patient in his home and at his place of employment might make some of this organization superfluous. The report also stresses the importance of work in maintaining the stability of the individual, not simply because of the definite rewards of work but because of the interest it may bring and because of the degree to which anyone's self-respect is involved in having a job. The report points out that it is probable that war work has been of appreciable benefit to ex-patients who in peacetime would probably have relapsed in the absence of a job, and it is reasonable to assume that it may have prevented other people from falling ill. The possibility of using existing organizations to help the resettlement of ex-patients in civil life is illustrated by experience of the usefulness of Labour Exchanges working in collaboration with the Cassel Hospital, and also of the value of a sympathetic attitude on the part of employers. Some psychiatric clinics have in the past

invoked the aid of vocational advisers so as to ensure that the patient will be placed as suitably as possible in industry. The experience of the Cassel Hospital suggests that the existing Labour Exchanges would be satisfactory in this way, especially as they have the advantage of being not only able to advise but able to produce an actual post of employment. There will, however, always be a proportion of people in whom more specialized vocational advice will be desirable, in which the psychiatrist must sometimes take his share of responsibility.

It is a relief in these days of expensive schemes to find that the report envisages the better use of existing facilities so far as possible, rather than the creation of new ones. Even the suggestion of an intermediate hostel might be met by ensuring that the staff of existing homes and hostels had some training in the social aspects of psychiatry. The new National Provisional Council for Mental Health has in fact begun educational work of this general kind in connexion with children's homes, and there is every reason to suppose that it can be extended to those having the care of adults. In similar vein the report deprecates the creation of "rehabilitation" specialists among doctors, pointing out that the more a doctor can carry responsibility right through a case the better. It suggests that specialism of this kind might be confined to ancillary services, such as occupational therapy, instruction in physical training, and specially trained nurses in charge of convalescent homes. The report is a stimulating effort to integrate the specialized services that can be given by a special hospital with the needs of the community. A psychiatric hospital is no longer simply an "asylum" or retreat: it is a "hospital" in the ancient sense—a guest house for those ultimately on their way back to real life.

CHEMOTHERAPY OR SERUM FOR SCARLET FEVER?

What is the appropriate special treatment for the acute stage of scarlet fever? Is it chemotherapy or serum, or both, or none? It is generally agreed that chemotherapy alone has no effect on the primary toxic phase, but there is some difference of opinion as to its effect on the incidence of complications. Streptococcus antitoxin, on the other hand, given in adequate dosage and by an appropriate route, undoubtedly neutralizes the initial toxæmia and so may indirectly prevent or reduce complications. In a discussion¹ at the Fêver Hospital Medical Service Group of the Society of Medical Officers of Health in January, 1939, the consensus of opinion as summarized by Mitman was: "For mild cases treated at home, no antitoxin or sulphanilamide; for mild cases admitted to an open ward, antitoxin intramuscularly; for severe cases, antitoxin intravenously; for complications, sulphanilamide." In the intervening period antitoxin has been considerably improved by developments in the protein-digest method of concentration, and the potency and range of chemotherapy have also been strengthened, notably by the introduction of sulphathiazole.

Mitman's summary, *mutatis mutandis*, would still probably meet with general acceptance in this country. The

opposing view—that sulphanilamide and not serum should be adopted as a routine treatment for scarlet fever—has been put forward by Neukirch and his colleagues² from Copenhagen, as a result of a study of some 300 cases so treated in 1940, with serum-treated and untreated controls. The type of scarlet fever was mild. Sulphanilamide was given for eight days from admission, in dosage varying from 1.2 to 3.6 g. daily according to age. The serum used was not streptococcus antitoxin; it was an "anti-scarlet fever streptococcic serum" prepared by the State Serum Institute "in such a manner that it has a high and polyvalent content of antitoxin and bacterial antibodies." This product seems therefore to be equivalent to a mixture of antitoxin and of streptococcus serum, and its potency in antitoxin units is not stated. Further, it was not a concentrated but a "native" or natural serum, and was accordingly given in dosage much higher than is used in this country—20 to 60 c.cm. intramuscularly or intravenously. (As a corollary it should be noted that no less than 63.9% of the serum-treated patients suffered from serum sickness and 1% from serum shock.) Such a serum is very different from the antitoxin now in use in this country and in the U.S.A. The main results of the study were: (1) except in the low age group 0–3 years (an important exception) sulphanilamide significantly reduced the bacterial complications as compared with the controls, and especially otitis and mastoiditis; (2) the "anti-scarlet fever streptococcic serum" was ineffectual in preventing complications. In assessing their results the authors have paid little regard to the different aetiology of early and late bacterial complications of scarlet fever treated in open wards. It is now well known that after the first two or three weeks bacterial "complications" under these conditions are nearly all ward reinfections.³ Some degree of protection against them is probably afforded by the use of sulphanilamide, but only during the period of its administration or a day or two thereafter—that is, in the case of this study, ten days at most from admission. Similarly with serum some protection is afforded for two to three weeks from the date of injection, at all events with antitoxin. In this study the average duration of hospitalization was 33.2 days in the sulphanilamide series and 34.8 in the serum series. With both treatments, therefore, the patients would be vulnerable to ward infections during at least the later weeks of their stay in hospital, and this constitutes an unassessed factor which might operate in variable degree in the two series. Nevertheless, there seems to have been a significant fall in the incidence of otitis in the age group 4–14 years in the sulphanilamide series, where it reached the low level of 1.0% of 200 patients, compared with 8.9% of 192 patients of these ages in the serum series. The figures are rather small, however, and they are more favourable to sulphanilamide and less favourable to serum than those obtained by the generality of observers.

Serum or sulphonamide treatment of scarlet fever in hospital constitutes only one factor in the prevention of complications. Other factors of paramount importance are (1) the control of streptococcal and other infections in a

¹ *Lancet*, 1939, 1, 327.

² *Acta med. scand.*, 1943, 13, 11.

³ Allison, V. D., and Brown, W. A., *J. Hyg., Camb.*, 1937, 37, 153.

ward full of highly susceptible young children; and (2) the shortening of the period of isolation of uncomplicated cases down to three weeks or less with the same object. The former problem can be attacked in various ways, but in practice is still unsolved. The latter has been shown to be practicable when the disease is mild, even with non-serum-treated cases,⁴ but is most easily achieved when antitoxin is given in effective dosage in the acute stage. The combination of effective antitoxin by the intravenous or intraperitoneal route,⁵ or in large doses by the intramuscular route,⁶ with a short isolation period of 2 to 3 weeks has produced in several large and controlled series a significant reduction of complications, including otitis media. Sulphonamides are auxiliary to antitoxin and their exact role is still unsettled. Their prophylactic use, if the effect is to be complete, involves a period of administration not merely of eight days but of several weeks, as Neukirch and his colleagues indeed point out. This is a rather formidable undertaking; a close watch has to be maintained to avoid serious toxic effects, and there is the disadvantage that when a bacterial complication actually occurs its effective treatment by sulphonamides may be debarred. For these reasons sulphonamides are perhaps best employed at present in the immediate treatment of bacterial complications as soon as they appear. There is no clear evidence that better results can be obtained in hospital-treated scarlet fever than by the combination of (1) a potent concentrated antitoxin in the acute stage, (2) sulphonamide treatment of bacterial complications at their earliest appearance, and (3) a period of isolation of three weeks or less for uncomplicated cases.

TREATMENT OF EXPERIMENTAL HYPERTENSION

The lowering of experimental hypertension in dogs after the injection of renin was reported by Wakerlin and Johnson in 1941,⁷ and they have now described further experiments the results of which deserve attention.⁸ In their first paper they showed how the blood pressure of their dogs had slowly returned to normal levels during a series of daily intramuscular injections of partially purified dog renin. Now they report that after the cessation of the injections the blood pressure slowly returned over a period of months to its previous hypertensive levels, but in three out of four dogs it was possible to lower it again by a second course of injections. Similar treatment for three months before and three months after constriction of the renal arteries prevented a rise in blood pressure in six of fifteen dogs; ordinarily the operation is 99% successful. The effect was permanent in some cases, but in others the blood pressure slowly rose after the end of the treatment. The mechanism of these prophylactic and therapeutic effects is not apparent, and it may rest on substances other than renin. Extracts of liver and inactivated renin preparations were without effect, but the renin extracts which were used were far from pure, and it may well be that in the process of rendering renin inactive another principle is also destroyed. Antirenin activity was demonstrated in the serum in some cases, but it is improbable that its presence is the explanation, because there was no constant relation

between the times of its appearance or disappearance and the changes in blood pressure. Moreover, it appeared in dogs which became hypertensive and was not found in others which did not. Discussion of other hypotheses will have to wait on confirmation and expansion of these experimental results. There are many points which suggest that the method may finally be of clinical therapeutic value if the first successes are confirmed. The dose of extract is the equivalent of one gramme of fresh kidney cortex per kilogramme of body weight per day, which is small compared with that used in other therapeutic attempts. The intramuscular route is easier than the intravenous. There are no toxic effects; appetite in the dog remains good, weight constant, and there is no change in the urine or in the blood urea. The beneficial effect persists for a considerable time after stopping the injections. Despite this, much experimental work needs to be done in animals before the treatment is applied to man, and, though it is full of promise high hopes of its clinical value would be premature.

ALCOHOL AND AVITAMINOSIS

The nineteenth Norman Kerr Memorial Lecture, under the auspices of the Society for the Study of Inebriety, was given by Dr. A. Ninian Bruce, his subject being "Alcohol and Avitaminosis." The lecture was a masterly discourse addressed largely to a lay audience, on the recent contributions of medical research to knowledge of the effects of alcohol on man. Dr. Bruce recalled that the direct action of alcohol was first described in 1787 by Lettsom in a paper to the Medical Society of London. The action on the nerves was to create what Lettsom called a neuritis. For many years it was accepted that the only action of alcohol was a direct one on the tissue cells containing fat. The nerve cells were particularly rich in certain fatty substances and as alcohol passed through them it was absorbed in the lipid matter, thereby disorganizing the cell function. With the work done on the isolation of vitamins—substances which the tissues could not synthesize and which acted as catalysts in helping ordinary food factors to be utilized—attention was drawn to the indirect action of alcohol. People with acute alcoholism had been found suffering from beriberi or pellagra, or both. The neuritis in beriberi appeared to be identical with that in alcoholism. In an American experiment a number of patients suffering from alcoholic neuritis were taken; some of them were continued on the same large amount of alcohol as they had been taking before, and others were deprived of alcohol; both groups were given large quantities of vitamin B, and both recovered at the same rate. These patients owing to their consumption of alcohol had begun to develop stomach trouble and had "gone off" their food ending by replacing food with strong drink, so that they were living upon alcohol, and were actually suffering from a deficiency disease due to a disturbance by alcohol with the intake of normal food.

One of the special troubles known to occur in chronic alcoholism was a liability to serious heart affections, with sudden death from heart failure. This was also the special characteristic of the beriberi cases. The withholding of vitamin B, not only deprived the nerve tissues of something they needed but also had an effect on the cardiovascular system, and there was now recognized a special form of heart trouble entirely due to the lack of vitamin B, and irresponsive to ordinary heart drugs; this occurred in people who, whether from poverty or alcohol were deprived of it. The vitamin had a direct effect on metabolism owing to its catalytic action. The question

⁴ Gordon, J. E., and Badger, G. F., *Amer. J. publ. Hlth.*, 1934, 24, 438.

⁵ Banks, H. S., *J. Hyg., Camb.*, 1933, 32, 282; *Lancet*, 1936, 2, 559.

⁶ Ronaldson, G. W., *Clin. J.*, 1937, 66, 461.

⁷ *J. Amer. med. Ass.*, 1941, 117, 456.

⁸ *Amer. Heart J.*, 1943, 25, 1.

whether alcohol was a food opened up a controversy, but alcohol did not contain any vitamin and in no way helped to store up energy in the tissues. It had to be burned up in the tissues in the same way as carbohydrates. The oxidation of sugars to give the tissues a regular supply of energy took place in a number of stages. At the end of the process lactic acid was formed and was broken up by catalytic action into the simpler form of pyruvic acid, beyond which oxidation could not be carried further. If there was an absence of vitamin B the process of normal carbohydrate oxidation appeared to be interrupted at about this three-carbon-molecule stage, resulting in the metabolic disturbances and the abnormal functioning of the nerve cells seen in deficiency diseases.

Dr. Bruce ended his lecture by giving a definition of life in biochemical terms as any molecular system which could metabolize itself and was able to increase its molecular energy. The "life stuff" might be said to consist of a series of molecular systems working in harmony with each other. In order that those systems might remain in existence dynamically they required in infinitesimal amounts a large number of additional substances or factors. Among these substances were the vitamins which must play their part as catalysts in the continued existence of the "life stuff." When this was realized it would be seen how delicately life was poised, and how a powerful agent such as alcohol by interfering with this fragile mechanism rapidly brought about serious instability.

BLOOD IRRADIATION THERAPY

X rays and ultra-violet light are widely used in medical treatment, and attempts have lately been made to replace direct exposure, which may be inconvenient, by the administration of substances which have themselves been activated by exposure to the rays. The rationale lies in the fact that the energy state of a molecule can be altered by irradiation, as, for example, by simple heating. In regaining its original state the molecule then produces an emanation which may be similar to that which activated it. In a rather different way, by bombardment with highly charged particles in the cyclotron, it is possible so to alter the phosphate ion, for example, that it itself becomes radioactive. Irradiated sodium phosphate has been used in the treatment of leukaemia, and it is likely that the distant changes observed after direct irradiation of the leukaemic spleen are brought about in the same way, some molecules in the spleen being activated by the rays and then carried in the blood to distant organs. The difficulty of carrying out running repairs to x-ray plants in wartime and the fact that the cyclotron is not available for general use make the treatment of these patients a perpetual problem. Eidenow's¹ account of the effect of giving the gas radon to rats and rabbits by the intravenous route is therefore of current interest. He describes a simple method of dissolving an amount of radon of known radio-active power in a few millilitres of citrated blood. He gave this radon solution intravenously to the animals in lethal and sub-lethal doses, and carried out frequent blood counts until either death or recovery took place. Eidenow observed an initial leucopenia, followed by a slight leucocytosis in the animals which survived. In the fatal cases there was a progressive leucopenia, and the changes at necropsy could not be distinguished by him from those found when a lethal dose of radium had been applied as a plaque to the skin. Given a supply of radon, this is a straightforward technique apparently capable of quantitative control. Its

applicability to human beings might repay investigation at the present time.

Another type of irradiation therapy is described by Miley,² who used a machine known as the "Knott haemo-irradiator," by means of which it was possible to transfuse patients with blood which had been exposed to ultra-violet light a few moments previously. He remarks that ultra-violet rays are bactericidal *in vitro*, and can detoxicate snake venom, diphtheria toxin, and a number of other poisons, and claims that irradiated blood has a similar effect. He tried his treatment on a number of patients with chronic and acute sepsis, some of whom had failed to respond to sulphonamide therapy, and, on the basis of relatively few observations, records bactericidal, detoxifying, vaccine-like, and de-photosensitizing effects. There are many clinicians who hold the belief that "septic patients" benefit from small transfusions of fresh blood, and injections of whole blood have been used in a variety of septic and allergic states. A careful reading of Miley's paper does not convince one that the blood is any more effective for being exposed to ultra-violet irradiation or that makers of scientific apparatus could properly be employed in wartime in manufacturing "haemo-irradiators."

DICUMAROL AND SALICYLATES

Analysis of the chemical degradation of the anticoagulant drug dicumarol [3, 3'-methylene-bis-(4-hydroxycoumarin)] shows that it gives rise to salicylic acid. Moreover, a study of the physiological activity of various analogues of dicumarol has revealed that only those compounds show anticoagulant action which theoretically might yield salicylic acid or an o-hydroxybenzoic acid derivative on degradation. Link and his colleagues³ have now gone on to show that when single doses of salicylic acid are administered either by mouth or intravenously to rats maintained on a basal artificial ration low in vitamin K a temporary hypoprothrombinaemia can be induced, comparable in all respects to that caused by 3, 3'-methylene-bis-(4-hydroxycoumarin). They also indicate that these observations are reproducible in man, even when the diets are not restricted. The significance of the results in clinical medicine is not yet clear. The production of haematemesis by aspirin is generally agreed to be due to local irritant action on the gastric mucosa.⁴ Apart from this, the occurrence of haemorrhagic phenomena in patients under treatment with salicylates must be rather rare. More important, perhaps, is this new approach to the poorly understood problem of the beneficial therapeutic action of salicylates. It is tempting to think that an anticoagulant might prevent the formation of fibrinous nodules and vegetations; but this seems unlikely, for dicumarol has proved wholly unsuccessful in subacute bacterial endocarditis, and there is little evidence that salicylates hinder the formation of nodules and vegetations in acute rheumatism. It is perhaps more to the point to note that both the salicylates and cinchophen have a toxic action on the liver. Hench⁵ has maintained for some years that chronic arthritis is relieved during an attack of jaundice, and perhaps one day we may find a unity in these therapeutic and toxic phenomena.

The next session of the General Medical Council will open on Tuesday, Nov. 23, at 10 o'clock, when the President, Sir Herbert Lightfoot Eason, will take the chair.

¹ *Arch. phys. Therap.*, 1942, 23, 536.

² *J. clin. Chem.*, 1943, 147, 463.

³ *British Medical Journal*, 1943, 1, 714, 768; 2, 117.

⁴ *Ann. Intern. Med.*, 1934, 7, 1278.

⁵ *Brit. J. Radiol.*, 1940, 13, 357.

EIGHT YEARS' EXPERIENCE OF A MINIATURE STATE MEDICAL SERVICE

BY

EDWARD THOMSON, M.B., Ch.B.

JOHN HAMILTON, M.B., Ch.B.

MAURICE CURRAN, M.B., Ch.B., D.P.H.

WILLIAM POOLE, M.B., Ch.B.

AND

JOHN ORR, M.B., Ch.B.

It has seemed to us appropriate, in view of the attention now being given to the establishment of a comprehensive medical service and the controversy arising therefrom, to give a brief account of the whole-time outdoor medical service, functioning in Glasgow, of which we are members.

This service was brought into being in 1935 on a whole-time basis when the industrial depression threw very large numbers of persons on the Poor Law, and it was to the Poor Law that they had to look for medical attention and hospital treatment. It may be explained that, under the Local Government Act of 1929, the powers and duties of the then Poor Law authorities were transferred to the local authority, which in turn remitted the hospital and medical services so transferred to the Committee on Health, so that the outdoor medical service developed as a function of public health. Steps were taken in 1936 to remodel the former part-time service, to provide it with new and up-to-date clinics, and so appoint a whole-time staff of doctors and nurses operating at and from 13 clinics throughout the city. The following is a brief account of the staffing, functions, and administration of the medical service thus established.

Functions and Administration

Growth and Staffing of the Clinics.—By 1940 the 13 clinics, most of them in new *ad hoc* buildings, were staffed by 30 whole-time district medical officers, 26 nurses, 27 female clerks, and 15 dispensers; in addition there were 9 part-time district medical officers—making a staff of 107 in all. The duties comprise medical examination and treatment at these centres, along with domiciliary treatment of the patients eligible under the scheme, while the services of the nurses are available at the clinics and for visiting patients at home. The number of doctors attached to and working from each centre varies from one to four.

Scope of the Service.—The medical facilities provide a continuous 24-hours service for seven days a week. Four members of the staff undertake only evening, night, and week-end duties for periods of three months in rotation. Thus all enjoy a degree of social freedom unknown to those of us who were formerly in general practice. It may be useful to give the following table showing the manner in which these rosters are arranged:

for Evening, Night, and Week-end Duty during April,
May, and June, 1939

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	Day off	p.m. p.m. 5 11	p.m. p.m. 5 11	p.m. p.m. 5 11	p.m. p.m. 5 11	p.m. p.m. 2 11	p.m. p.m. 2 11
2	p.m. p.m. 5 11	Day off	p.m. p.m. 5 11	p.m. p.m. 5 11	p.m. p.m. 5 11	p.m. p.m. 6 11	p.m. p.m. 4 11
3	p.m. p.m. 5 11	p.m. p.m. 5 11	Day off	p.m. a.m. 11 9	p.m. a.m. 11 9	p.m. a.m. 11 9	p.m. a.m. 11 9
4	p.m. a.m. 11 9	p.m. a.m. 11 9	p.m. a.m. 11 9	Day off	Day off	p.m. p.m. 12.30 6	a.m. p.m. 9 4

No. 1, Dr. A., starting Saturday, April 1, 1939, 2 p.m.—11 p.m.
No. 2, Dr. B., " " " " " " 6 p.m.—11 p.m.
No. 3, Dr. C., " " " " " " 11 p.m.—9 a.m.
No. 4, Dr. D., " " " " " " 12.30 p.m.—6 p.m.
During the week starting Monday, April 3, No. 1 becomes No. 2, No. 2 becomes No. 3, No. 3 becomes No. 4, No. 4 becomes No. 1; and so on each succeeding week until June 30 (or such date as may be decided upon later).

During the summer holiday months this arrangement is suspended, the medical officers undertaking evening, night, and week-end duties in a rota in addition to their normal day as well as providing relief one night each week to their colleague who has been delegated to overnight hours. The system is made doubly secure by a reserve medical officer being available outside normal working hours. On the occasion of public holidays the clinics are closed and a skeleton medical and nursing staff meets the urgent demands of the community, and does such revisiting as has been notified by district medical officers to the central office as being desirable.

Services at the Clinics.—The clinics provide adequate consulting and treatment facilities, with waiting-room, clerical accommodation,

and nurses' room, along with a dispensary and waiting-space for patients having their prescriptions dispensed. The principle underlying this arrangement is, of course, to assist the medical work by providing the doctor with the three essential requirements—namely, the services of a nurse, a clerk, and a dispenser. In the construction of clinic premises there are two cardinal points which might with advantage be stated. In the first place, where considerable numbers of patients are dealt with, waiting-room accommodation must be generous, as many patients attend with relatives or friends. This applies even although the staff may be large and the work is carried out expeditiously. Secondly, the clinic should be so designed that circulation of patients between entrance and exit is ensured, crossing and recrossing being avoided. The drug dispensary or pharmacy should be situated at the exit. If separate entrance and exit cannot be arranged, then attention should be paid to the provision of corridors of adequate width.

Nursing Service.—It was realized that in domiciliary treatment the work of the medical officer would be incomplete and ineffective without the assistance of nurses. They are engaged on the same basis as health visitors, and all recent entrants possess the health visitor's certificate, which provides them with a background of social knowledge and experience. It was felt that the possession of this certificate would add to the value of the service, as a good deal of the work lies in the supervision and treatment of young children who come under the care of the medical officers. The nurses are able to keep the more chronic types of patient under frequent observation at home, and also assist at the clinics with dressings, treatment, and other routine work.

Dispensing of Medicines.—A dispensary, fully equipped under a qualified pharmacist, is provided at each clinic. The drug dressings, and appliances come from the central drug store of the Public Health Department, which was established some years ago to supply all the clinics and hospitals of the department. The advantages of a local dispensary of this kind attached to a clinic are obvious. Beyond clinic hours and for emergencies, a contract similar to that under national health insurance has been entered into with the chemists of the city.

Hospital and Laboratory Liaison.—All the hospitals of the local authority have been appropriated as public health institutions, and have been upgraded, enlarged, and expanded, so that a close liaison with them and with their specialist services is a matter of simple arrangement as regards both indoor and outdoor facilities. To assist admission to hospital where necessary and to allocate beds as between the general and special hospitals, a medical officer of the service is on duty at the hospital admission department of the Central Public Health Office, where there is a staff of removal clerks and a telephone exchange. A complete modern ambulance service, centrally located, works in conjunction with the central office, and a nurse accompanies each ambulance. The resources of the Public Health Laboratory, as also those at the hospitals, are available to the medical service.

Range of Duties of the Medical Staff.—The duties of the district medical officers consist of the care of the sick poor eligible for Poor Law relief, for allowances under the Unemployment Assistance Board, and the care of blind persons. They also act as public vaccinators, and fulfil the provisions as regards certification of lunatics and supervision of mental defectives required by the Lunacy and Mental Deficiency Acts pertaining to Scotland. Dependents of men on service with the Forces are eligible for attention from the medical staff. A.R.P. duties as medical officers to first-aid posts are undertaken, as also the examination of civil defence personnel on sick leave when reports are required. It is laid down that they shall perform such other duties as the medical officer of health may decide. It may be explained that the powers given to local authorities in England and Wales to provide clinics for the sick generally under the Public Health Act, 1936, do not apply to Scotland. This lack of statutory power in Scotland explains why the clinic service in Glasgow is restricted to the sick poor and other functions described.

Co-operation with Other Branches of the Public Health Service.—There exists a close association with the more special clinics of the local authority for the diagnosis and treatment of tuberculosis, with treatment of school children and pre-school children, and with ante-natal and post-natal work. Such patients are treated and supervised at home when they are unable to attend at their appropriate clinic centres. As an example of co-operation, the services of the medical and nursing staff were fully utilized during the recent mass vaccination against smallpox. They assisted in the staffing of the 25-vaccination centres and in house-to-house vaccination of contacts in addition to their routine work. Again, the staff took part in the scabies campaign, supervising the special treatment centres established for the purpose.

Medical Certification.—Before relief is given, the Welfare Department requires a medical certificate. Also, the Unemployment Assistance Board provides allowances for extra nourishment where there is a possible medical reason for so doing. These allowances are paid in cash, so that to many recipients a medical certificate is

respect of a dependant may mean an increase in the scale of payment. Certificates are also required where there is a doubt as to fitness for work, or otherwise, of a patient, the case then being referred to a district medical officer. Since these certificates are given "on soul and conscience" they demand care and accuracy in their completion. From his unique position of independence the district medical officer is entirely freed from all influences likely to prejudice his judgment.

Medical Boards.—It is obvious that, particularly in cases of application for monetary relief, divergence of medical opinion may occur between the district medical officer and the patient's own doctor. To deal with this difficulty patients are referred to Medical Boards either by the district medical officer or by the Welfare Committee. The Medical Board is constituted by one of the district medical officers and a senior medical officer on the hospital staff, and meets at one of the Corporation hospitals. In the case of patients referred to the Medical Board who are in receipt of monetary benefit from national health insurance, an endeavour is made to obtain the regional medical officer's report of his examination if the patient has been previously examined by him. Similarly, the regional medical officer may obtain the findings of the Medical Board should he be called on to deal with a patient previously examined by the board. Where the patient has no other medical attendant and the district medical officer has the slightest doubt as to his fitness for work, examination by the board is arranged. In the case of patients referred for examination by the Unemployment Assistance Board, the Medical Board is constituted by a regional medical officer and a district medical officer.

Hospital Accommodation.—Reference has already been made to the transfer and reorganization of the Corporation general hospitals. While formerly these were solely for the use of the sick poor, and though that remains their primary purpose, they are now available to the entire community, and without application to the Welfare Department. In spite of a policy of expansion, interrupted by the war, the hospitals are unequal to the demands made on their accommodation. The easing of this strain on accommodation has become a major function of the domiciliary nursing service. In this, as was to be expected, it is only partially successful, and a system of priority of admissions has had to be introduced. This duty is undertaken by the district medical officer, who assesses the urgency of the case, not only on medical grounds but also in relation to home circumstances. The war aggravated the position in three ways—i.e., restriction on building, the loss of a large number of beds in the general hospitals for civilian casualties, and the demand for man-power, which often left the patient without anyone competent to look after him. To overcome this acute problem an arrangement was made with the Department of Health for Scotland whereby emergency hospitals were, in part, made available.

As all patients are not suitable for admission to these emergency institutions—which lie outside the city—owing either to the special treatment required or to their inability to stand up to the longer journey, a process of selection by the district medical officers had to be adopted. It is interesting to note that admissions by certificate of district medical officers are forming a decreasing proportion of the total admissions. In other words, district medical officers are treating more of their patients at home, while private practitioners are tending to send more cases to hospital. Thus the hospitals are being used more and more by the general public.

Advantages of the Service

In the circumscribed area served by each clinic the location of the doctor is known. Accordingly, his services can be procured with the minimum of time and trouble. Continuity of treatment, which is greatly assisted by adequate and accurate clinical records, is one of the principal features of the scheme. Though a doctor is normally attached to one particular district, his absence may be occasioned by sick leave, annual vacation, or night-duty requirements. Under these circumstances the records prove their worth, together with the valuable store of information which the nursing sister places at the disposal of the relieving medical officer.

Though there is no free choice of doctor, judging from past experience and from information obtained from national health insurance statistics there is evidence that this is a relatively unimportant factor from the patient's point of view. Idiosyncrasies on the part of both patient and doctor will occasion difficulties from time to time, but there is little reason to doubt that with sympathy and tact these can generally be overcome, as they have been.

From the outset the advantages provided by the domiciliary nursing service were obvious, both to patients and to doctors. There is no doubt that this has satisfied a long-felt want on the part of the community, and the services of the nursing sister are now an indispensable feature in the social life of the

district. These services are linked to a variety of methods of health education, health preservation, and social activities generally. If the advantages to the family rather than to the individual are considered the improvement is very great. The community benefits from such a service. A steady flow of information as to the health of the people is provided, enabling changes to be made in those institutions affecting health. The number of hours lost by the staff through sickness is reduced by reasonable conditions of service.

The advantages are by no means one-sided. Compared with the lot of the general practitioner, who has to work in almost complete isolation, together with the fact that he is cut off from the hospitals, the impossibility of his taking an active part in postgraduate activities or his inability to obtain refresher courses in medicine, his lack of proper leisure, and, in many instances, his lack of provision for retirement, the lot of the district medical officer is indeed a favourable one. In the service in which we are engaged security of tenure and reasonable conditions of work have afforded opportunity for medical study. For instance, since the inception of the service, members have taken the following qualifications: one M.D., one F.R.C.S.Ed., and four D.P.H. Several members of the staff have been called to the Forces, so that the opportunities for postgraduate study have been curtailed.

Summary

We have described a whole-time medical service conducted on behalf of a particular group of the industrial population of a large city, a group among which problems of a medico-social kind most commonly arise. The service provides clinic, domiciliary, and hospital treatment. It meets the needs of its patients, runs smoothly and is flexible and capable of improvement and extension. Most of the doctors engaged in it are satisfied that it is a good service because in our view it carries advantages both to the patient and to the doctor. The work is congenial and unhurried except in time of pressure, while the doctor has the help of his colleagues and of a hospital service in the background for diagnosis and treatment. To the patient the services given are reasonably prompt and adequate. The function of this scheme is to look after the sick poor who are able to attend the clinics during the day. Its application to workers who require medical attention in the evenings would be a matter of administrative adjustment. In conclusion, we have described the scheme and given our views upon it; it is not put forward in the sense that it is a final solution of present-day problems, but rather as a specific contribution for consideration and criticism.

EDUCATION IN PSYCHIATRY

The poverty of training in psychological medicine in many of our schools is notorious; in few of them has the student had a proper introduction to the subject, and those schools that have tried to eke out the scanty resources available for teaching had little encouragement from the programmes of the medical curriculum.¹ The Committee on Psychological Medicine of the Royal College of Physicians of London in the interim report published on Oct. 29 deals solely with undergraduate education in psychiatry, which was the third of its four terms of reference. Its recommendations were printed serially in the *Journal* of Oct. 30 (p. 553) together with those of the related Committee on Social and Preventive Medicine.

UNDERGRADUATE TRAINING

The Committee on Psychological Medicine begins its report on this subject with a truism, a digest, and a pungent commentary. "Medicine has never been considered wholly a matter of physical disease: much of the illness which doctors have to treat, and some which they might succeed in preventing, is due to psychological rather than to physical causes; but in medical education little regard has been paid to this manifest truth. The medical student has commonly had, by the time he qualifies, a handful of demonstrations and lectures on psychoses, incidental teaching on the diagnosis and summary handling of psychoneuroses, and perhaps a cursory notion of psychological theories: anything further will depend on the individual student's enterprise or curiosity and on whether he has attended one of the very few medical schools where the systematic teaching of psychiatry is thorough. Such a state of affairs would not have continued unless there had been many who believed the present training to be adequate." After amplifying this to show how weak is the contention that the training is adequate and how tellingly it has been refuted during the present war, the committee

¹ See "Psychiatry at the Cross-roads," *British Medical Journal*, Sept. 11 1943, p. 531.

goes on to argue that, just as in medicine and surgery, the practitioner is less likely to undertake treatment which is beyond his competence or to neglect measures which are well within it if he has a solid, well-planned, limited but coherent course of clinical and systematic teaching in psychiatry. It cannot be taught solely by demonstrations and lectures, nor in one term or during only one year of the curriculum. Unless built upon a knowledge of what is normal it is as empirical and insecure as clinical medicine would be without physiology. So there must be normal psychology in the preclinical period, and the relevance of psychiatry to other branches of medicine cannot be appreciated unless it is being inculcated alongside them during the clinical period. Foremost among these other branches will be social medicine—and here the report links up with that of the other R.C.P. Committee. While recognizing that the syllabus it proposes will demand a greater share of the time of the medical student, the Committee on Psychological Medicine feels that any reorganization of the curriculum must take account of psychiatry as an integral and indispensable part of medicine. From this, it follows that every teaching medical school should have a department of psychiatry for both out-patients and in-patients, with an adequate staff and accommodation, in liaison with a local mental hospital as well as other local institutions.

The Pre-clinical and Clinical Periods

With regard to the teaching of normal psychology in the preclinical years it is emphasized that the object of training at this stage, as indeed throughout the medical course, should be to produce a good general practitioner and not a specialist in psychological medicine; it is more important to introduce the student to the subject and make him aware of its mode of approach and practical possibilities than to try and cover a wide field. He should, under guidance, visit schools, factories, courts, etc., where obvious psychological problems arise. At the beginning of the first clinical year there should be an introductory course on the psychological aspects of clinical work. A systematic course on psychiatry should extend throughout the clinical period, covering the whole range of mental disorder and mental deficiency, with constant emphasis on the social aspects of mental illness in all its forms, including the neuroses. An in-patient psychiatric unit, in the committee's opinion, is an essential part of every medical school. The three months' clerking in the psychiatric department should be combined with work in other special departments, preferably neurology and perhaps paediatrics. The committee accepts the view that neurologists and psychiatrists must work closely together, and suggests that in the teaching of psychiatry to undergraduates the psychiatrist should have the co-operation of the neurologist along lines that are mutually agreeable.

The committee puts forward a tentative syllabus for lecture-demonstrations on mental deficiency in the systematic course of instruction during the clinical period, prefacing this with the remark: "About one in every hundred of the population is mentally defective, and if the dull and backward are included the total incidence of intellectual retardation in the country is probably at least ten times as great." The place which mental deficiency has taken in the medical curriculum is by no means commensurate with its importance.

Psychiatry and Social Medicine

In conclusion, the committee maintains that the student needs to be taught both the social aspects of mental illness and the psychological aspects of social and industrial conditions, his attention thus being directed to the essential unity of medicine. In the psychiatric sphere much of the actual work of tuition and the organization of home visiting, etc., can be carried out by the psychiatric social workers (more of whom should be employed by teaching hospitals) and by almoners, working in close co-operation with, and under the general supervision of, the psychiatrist and his assistants. The committee recommends that the student's knowledge of normal psychology should be tested at the end of his pre-clinical period, and that in the finals there should be a separate examination in psychiatry, taken either at the end of the clinical period or earlier.

EFFECT OF WAR CONDITIONS ON MENTAL HEALTH

The first conference to be summoned by the Provisional National Council for Mental Health, which incorporates three bodies associated with mental welfare and also the work of the Mental Health Emergency Committee, was held in London on Oct. 29, and delegates from authorities under the Lunacy and Mental Treatment Acts and the Mental Deficiency Acts attended from all parts of the country. In opening the conference Mr. ERNEST BROWN, Minister of Health, spoke of the need for more out-patient centres, and, what was still more urgent, the development of child guidance clinics, which, he said, might be the means of saving many unstable and unbalanced children from developing serious mental trouble.

He attributed to the improvement in employment the fact that the stress of war had not led to any increase in the incidence of the more serious mental disorders. The experience of this country up to the present had confirmed that of Barcelona in the Spanish civil war that war stresses in themselves did not increase the incidence of psychosis. One of the problems confronting us as the result of the war was that of Service men and women discharged from mental units and neurosis centres. If they were not to become a burden to themselves and the community they must be given skilled help in adjusting themselves to civil life.

Dr. THOMAS BEATON gave an interesting account of the growth and development of the comprehensive mental health services of the local authority of Portsmouth. The principal factors were the setting up of a central mental treatment department to provide the necessary psychiatric social service, the formation of a mental treatment committee of the local authority to cover the whole field of mental and nervous disease and mental deficiency, and the use of the mental hospital for in-patient treatment. The mental hospital was visited daily by a psychiatrist, and the education authority and the school medical service were closely co-operating with the running of the ancillary child guidance clinic.

Sir FARQUHAR BUZZARD, who presided over the second session, expressed the hope that when the promised White Paper appeared it would be found that the Minister had arranged for a comprehensive medical service in which most of the money provided would be invested in a long-term policy of prevention. Mental and physical health could not be separated. Notable advances had been made in the diagnosis and treatment of all forms of nervous and mental disorder during the last ten years, but greater effort was necessary on the preventive side.

Experience in an English Rural County

Dr. J. S. I. SKOTTOWE described the effect of war conditions on mental health as instanced in the population of Buckinghamshire, where a careful statistical control had been maintained. In 1938 the incidence of the more serious mental disorders as judged by the numbers entering the county mental hospital was 7.7 per 10,000 of the population; in 1941 it was only 6.4, but it was higher (7.1) among those who had come into the county since the war started and lower (6.1) among the permanent population. The incidence of the less serious disorders (treated as out-patients and in their own homes, but requiring specialist attention) was 1.7 per 10,000 in 1938 and 2.4 in 1941, but the proportion of such patients subsequently requiring to enter a mental hospital fell from 23 to 13.2. Taking the gross figures for all degrees of mental illness requiring specialist advice, the incidence in 1938 in Buckinghamshire was 9.4 per 10,000, and in 1943, 13.9, but this was not entirely a real increase; much of it was accounted for by the upgrading of psychiatric services, the diminution of public prejudice against seeking advice about mental health, improved diagnosis, and extreme pressure of work of general practitioners. There remained a slight real increase, but the increase was in minor disorders, not in major ones. The most typical cases were seen at the beginning and end of occupational life, characteristically in girls in their teens and men in their seventh or even eighth decade. His conclusion was that war conditions did not increase the incidence of the more serious disorders, though they did probably increase slightly the incidence of the less serious ones.

Sir LAURENCE BROCK, chairman of the Board of Control, said that the first result of the war was a sharp rise in admission rates owing to the clearance of observation wards and also to the inability of families, on evacuation, to look after their old relatives. But before the end of 1940 admissions were below normal and had remained. The number of cases of neurosis had increased, largely explained by the severance of people from their normal surroundings. The increase was not of serious dimensions, but it was the absence of facilities for treatment of such cases which caused concern. Should there be a recurrence of prolonged unemployment after the war many people who had escaped a breakdown while the war continued were likely to swell the list of admissions to mental hospitals.

Speakers from Aberdeen, Bristol, and other areas gave similar testimony. Dr. DORIS ODLUM said that at her clinic a type of anxiety had been manifested, a reaction which had both a physical and a mental pattern. It was a prolonged series of stresses, and not an acute sudden stress, which caused a breakdown. Another discussion was on the residential school and its place in the education of defective and subnormal children. Mr. E. R. DAVIES, of the Berkshire County Council, described the work of a child guidance clinic which had been set up by his authority under the Mental Treatment Act. This clinic was the first of its kind in the country to employ two whole-time psychiatrists and a full staff of educational psychologists and psychiatric social workers. The scheme, which was intended to be a permanent, not a wartime, measure, was operating satisfactorily and could be recommended as a method of establishing child guidance clinics for moderately sized authorities.

Correspondence

Are Hospital Diets Adequate?

SIR.—In a recent publication of the King Edward's Hospital Fund for London, Memorandum on Hospital Diet, to which reference has been made in a leading article in this *Journal* (Sept. 18, p. 365), it is suggested that a daily diet yielding about 1,690 calories is adequate for a hospital patient weighing 70 kg. A daily requirement of 1,690 calories represents the "basal metabolism" of a subject of this weight. "Basal metabolism" is strictly defined as the energy output of a subject who is at complete rest under comfortable conditions and has had no food for the preceding twelve hours. If, therefore, we accept as our criterion the daily requirement of a 70-kg. man, it is clear that there will be no surplus in the proposed diet to meet the increase of metabolism above the basal level caused either by the specific dynamic action of the food taken (the resting metabolism is always increased during the absorption of food into the body) or by muscular movements, which will be made to an increasing degree as convalescence is established. Nor will there be any surplus to make good the wasting of the tissues which may have occurred in the earlier stages of the illness when the patient was unable to assimilate an adequate amount of food.

It seems to us, therefore, that if we adopt the criterion upon which the memorandum is based the proposed diet cannot be regarded as really sufficient, and we suggest that it might be wise to give the matter further consideration.—We are, etc.,

C. G. DOUGLAS.
R. MCCARRISON.
R. A. PETERS.

Oxford

Mind and Stomach

SIR.—There would seem much to be said for a possible "anxiety" factor in the manifestation of peptic ulcer, although there are many cases in which this is not apparent and very difficult to elicit by ordinary examination. There seems also very little doubt—making all allowances for earlier and more accurate diagnosis by present-day methods—that the incidence of peptic ulceration has increased in recent years. But what is the explanation of the difference between the two sexes? The figures quoted by Sir Henry Tidy show that the ratio of incidence between men and women is in the region of 5 to 1. That there is such a striking difference must be the common experience of all who see large numbers of such cases. But the national and international environment during the last twenty-five years has been the same for both sexes, and it would be difficult to argue that women are less exposed to the ordinary stresses and strains of everyday life than men. If there is a strong psychical factor at work in the causation of peptic ulceration, why are women so relatively immune? If we could discover the answer to this question we might be able to make some substantial advance in the treatment of these cases, after-histories of which show how relatively unsatisfactory are the present methods, both medical and surgical.—I am, etc.,

London, E.C.1.

H. H. BASHFORD.

Sterility and Impaired Fertility

SIR.—The letter under this heading in your issue of Oct. 16 (p. 493) directs attention to the frequency of (physiological) sterility and to the need for an extension of facilities for its further investigation and treatment. With this part of the letter of your sixteen correspondents we are in agreement.

We do not, however, agree that "all available data strongly suggest that the barren and the very small family reflect lower fecundity rather than excessive unwillingness to reproduce." We believe that a definite pronouncement on these questions cannot be made until much more evidence becomes available. For example, we require to know the fertility-trends in the major social groupings and the variation in the size of families according to social and economic levels, by date of and age at marriage. These are data which can only be ascertained

by census inquiries. Meanwhile, there is much evidence that a major influence in the creation of the modern small family is voluntary restriction of fertility, and that this has had its origin in changed social and economic standards. Thus, so long as there is no adequate evidence of a difference in the innate fertility of different groupings, it would seem to be safe to assume, for example, that the small families of the professional classes are due to voluntary restriction.

From the demographic standpoint the central question at the present time is whether infecundity has increased in such a way as to play a part in the decline in fertility. At present there is no evidence to show that such an increase has played any part at all. There is no reason for thinking that fertility is any more affected by this cause now than it was 70 years ago, when the birth rate was over 30 per 1,000. In the effort to raise fertility, undoubtedly everything should be done to help parents who are involuntarily sterile; but the main object of policy must remain that of changing the social and economic conditions and the attitudes of normally fecund parents so as to favour the large rather than the small family.—We are, etc.,

A. M. CARR-SAUNDERS. R. M. TITMUSS.
D. V. GLASS. JAMES YOUNG.
EARDLEY HOLLAND. C. P. BLACKER.
HORDER.

Symptoms of Vitamin B Deficiency

SIR.—The studies in vitamin B deficiency by Drs. Clarke and Prescott (Oct. 23, p. 503) call for comment on several points.

1. The italicized list of symptoms common to psychoneurosis and vitamin B deficiency specifically omits diarrhoea. Even granting that occasional cases of pellagra are recorded as having constipation, diarrhoea is such a cardinal feature of the disease and so important in diagnosis that this deliberate omission seems quite inexplicable. Moreover, there is no account of the state of the bowels in the case records quoted.

2. With the general conception of a marginal diet, made quite inadequate by additional factors, as the cause of the symptoms in these cases few will disagree. Nevertheless I think the authors are too easily satisfied by this simple hypothesis; actual clinical experience suggests that some other factor must be at work to explain why some persons readily develop pellagra, and become chronic or relapsing, and others do not. I feel that Case IV, of eleven years' standing, illustrates this, and I would not be prepared to accept typhoid fever at some unstated time in the past as a material factor in malabsorption.

3. The occurrence of "symptoms usually regarded as psychoneurotic" raises, I agree, an important point in differential diagnosis. Nevertheless psychopathologically the distinction is not valid: it is only the significance of the symptoms that is distinctive. In kind they are indeed psychoneurotic, in the sense that they are reactive to an awareness, conscious or unconscious, of incapacity. The latter results in these cases from early organic cerebral change (as is witnessed by histopathological evidence and by the clinical features of chronic demented cases). It is surely a commonplace of psychiatry that the earliest manifestation of organic cerebral damage may be a purely "functional" syndrome long before detectable signs of the "organic syndrome" are evident.—I am, etc.,

Manchester.

G. H. H. BENHAM.

Wartime Diet for Peptic Ulcer Patients

SIR.—I should regard Sir Arthur Hurst (Oct. 23, p. 523) a formidable opponent with whom to cross swords on the subject of peptic ulcer were it not for three facts: (1) I have had a peptic ulcer in wartime and he, so far as I am aware, has not. (2) I am in the thick of the fray on the industrial front, and he, I note, writes from the quiet of Oxford, from which retreat I do not think he can possibly be aware of the difficulties under which industrial peptic ulcer patients labour, especially when their wives are conscripted into part-time employment, shopping is difficult, and domestic help unobtainable. (3) Such a sweeping generalization as "there is no food intrinsically bad for ulcer" I would hardly expect from one of Sir Arthur's eminence. Is this a new physiological principle? Are we all,

then, of the same digestive ability? Is the proverb, "One man's food is another man's poison," utterly inaccurate? Is it reasonable to pay no attention to a person's likes and dislikes, to what he can and cannot digest? I cannot in my present condition digest, among other things, the chocolate Sir Arthur mentions; it makes me feel sick. Must I nevertheless continue to try and absorb it?

I find that meat produces in me far more HCl than cheese, hence my suggestion of a temporary exchange. I find that milk alone in the few ounces at a time Sir Arthur advocates does not close my pylorus; I must have something solid to go with it, hence the suggestion for biscuits (now positively unobtainable in my area). There must be thousands of similar cases in the country all struggling along under a grave handicap, simply because no one has yet awakened to the fact that something ought to be done about it.

I agree that anxiety plays some part in the causation of ulcer and its recurrence, but intense and sustained mental effort and working under pressure are equally causative. There is no doubt that Davies and Macbeth were right in 1937 when they drew attention to the psychogenic factor in causation. I also agree that phenobarbitone is helpful, in fact essential, and I have obtained more benefit from the following prescription than from alkalis and adsorbents: sod. phenobarb. gr. viij, ext. hyoscyam. liq. ʒj, syrupus ʒj, aq. chlorof. ad ʒviij. Sig.: ʒij after breakfast and lunch and ʒss h.s. I fully agree that smoking is deleterious. It should be totally prohibited, not strictly rationed, and alcohol also should be forbidden.

I thank the doctors who took the trouble to reply to my appeal, and will write to them all personally as soon as I have time. Those who did write were all in favour of my suggestions, and those who did not were, I expect, much too busy even to open their *Journals*.—I am, etc.,

Harrow, Middlesex.

J. B. WRATHALL ROWE.

Psychiatry at the Cross-roads

SIR,—Doctors and patients too are indebted to Dr. W. Sargent for drawing attention (Oct. 9, p. 462) to the urgent need for better organization if there is to be any real progress in psychiatry. In supporting Dr. Sargent's forceful argument I agree with him that this is not an attack on individual superintendents. It is a criticism of an obsolete system. It is a plea for clinical freedom—a thing practically non-existent in county mental hospitals.

The reason for this state of affairs is obvious. Promotion in the mental hospital service is almost exclusively in the hands of administrators, whose tendency is to appoint as their assistant medical officers not colleagues but "yes men," who will render lip-service and who will avoid trouble at all cost—at the cost of their patients' welfare. The A.M.O. who puts clinical progress before the personal interests of his chief is unpopular; he is passed over in the struggle for promotion, and he seldom has access to the hospital committee, even though he may have ideas and skill which would benefit the hospital. A man with such ideas is snubbed, the medical superintendent regards him as a rival, and the hospital suffers.

The best type of medical man is not attracted to this sort of institutional work for one definite reason: this reason is the absence of the professional freedom enjoyed by senior staff in voluntary hospitals as contrasted with their colleagues in mental hospitals, where the superintendent is technically in charge of all the patients and is the immediate "boss" of the whole of the medical staff. If the mental hospital service is to develop it is essential that medical men should be attracted to it as doctors rather than as administrators, who now get all the highest-paid jobs.

The medical superintendent who sees a personal insult in the efforts of an A.M.O. to improve the hospital will not build a progressive team. His assistants must either subordinate their highest ethical ambitions or else retire from a position in which their noblest ideals are rendered sterile. This means leaving the service to undertake real medical work elsewhere. And such a step requires considerable courage. The majority of medical officers, being entirely dependent on the administrator's good will, take the easier course and become "medical clerks" in the hope that one day they will achieve a comfortable and secure position at a superintendent's desk.

How can this terrible handicap to psychiatry be averted? To begin with, all staff appointments should be made by committee whose members will not be afraid to override, if necessary, the personal likes and dislikes of the administrator. Such a committee would evaluate a candidate's worth not only as a technician but first of all as a man. Existing arrangements are often nothing but "eye-wash" to enable superintendents to tell patients, their relatives, the Board of Control, or visiting committees too, that modern scientific facilities are available. It is to be hoped that future mental hospital committees will be guided by something more fundamental than a diploma or two—by the individual doctor's skill in treatment, teaching, and research. Then, and only then, will the mental hospital take its proper place in the life of the community.—I am, etc.,

Wimborne.

J. STEPHEN HORSLEY.

Iodine Deficiency

SIR,—You are probably aware of the fact that some of our best-known of our medical authorities are now impressed by the fact that iodine deficiency in our ordinary food is evident and that in certain districts steps are being taken at this moment to improve the situation by the administration of iodized salt. I understand that there will be an early announcement on this subject in the medical press.

My object in writing this letter is to point out that I have been engaged during the past 14 years in urging that steps should be taken in this matter, but my various articles have been ignored, at least in this country. In 1933 I published a pamphlet on "The Problem of the Prevention and Treatment of Disease," concluding it with these remarks: "The leading nation from the point of view of health will be that which realizes the value of salt iodization and puts it into general practice." This pamphlet was widely distributed in this country and abroad, and early in 1934 I received a request from a German agency in London to let them have as many copies of this pamphlet as could be spared. This request was duly complied with, and I was informed that they had been forwarded to Berlin, Leipzig, and Munich.

In Jan., 1939, an article written by Dr. F. Fischler, director of the German Research Institute of Food Chemistry, Munich, appeared in the *Deutsche Medizinische Wochenschrift*, in which he gave an account of an extensive series of experiments carried out on people in certain parts of the Rhineland, and he strongly urged the wholesale introduction of iodine-containing salt in the diet of the whole community of the Third Reich.

These facts I communicated to the appropriate authorities in Whitehall in the early days of the war, but the Scientific Advisory Committee, to whom the letter was forwarded, did not show any interest. In Oct.-Nov., 1941, I published an extensive article on the "Prevention of Disease," and in July, 1943, one on "Diet and Health," and both dealt with the same problem. Of course the German scientist was silent on the origin of his idea, and whether my own countrymen will adopt the same standard of ethics remains to be seen.—I am, etc.,

Penarth.

W. MITCHELL STEVENS.

Wartime Day Nurseries

SIR,—Miss B. R. Abelson, in her interesting letter on nurseries (Oct. 23, p. 527), seems to be under some misapprehension as to the subject of the meeting held by the London Association of the Medical Women's Federation in June. The discussion was concerned not with nursery schools but with the wartime nurseries for children from 4 weeks to 5 years of age who need to be cared for during the long hours that their mothers are at work. The general opinion of the meeting was that not only were these nurseries detrimental to the health and happiness of the children, owing to the long hours, often unsuitable premises, insufficient and inadequately trained staff, and the grave risk of infection, but they did not, in fact, achieve the purpose for which they were designed—that of releasing woman-power for war work. The proportion of staff (including domestic staff) to children in nurseries catering for from forty to fifty children is about one to four, and owing to the incidence of infectious diseases the number of children attending is for long periods much under the maximum possible. In addition

here is the personnel required for the building, equipment, administration, and inspection of the nurseries. It seems probable that these nurseries have used more man- and woman-power than they have set free for the war effort.

A well-planned nursery school, designed for the use of 3- to 5-year-old children during school hours, which is adequately staffed and visited daily by an experienced health visitor and at frequent intervals by a doctor for routine examination of the children, can form a very useful part of the social services of the country, but this does not meet the needs of whole-time women workers. Even so, it must not be forgotten that there is a great risk of infection in groups of very young children, and that the fatality rate among children who develop zymotic disease at these ages is much greater than that of children of ordinary school age. A wartime nursery to which young babies are brought in the early morning and from which they are fetched by tired mothers in the late evening is a very different proposition, and I would join with Miss Abelson in my admiration of the way in which these mothers are undertaking an almost superhuman task.—I am, etc.,

London, S.W.1.

MARJORIE BACK.

X-ray Diagnosis of Phthisis in Symptomless Adolescents or Young Adults

SIR,—In the present urge for mass radiography of the chest the outstanding problem will evidently be how to deal with the symptomless adolescent or young adult cases which, as a result of x-ray examination, have been labelled as tuberculous. It is important to emphasize that these cases are symptomless. In Dr. Macpherson's paper (July 24, p. 48) we read that "a healthy youth, working and playing hard, with no symptoms, is suddenly singled out from his companions and told that he has evidence of pulmonary tuberculosis"; and, again, that "it is not uncommon that, apart from the radiographs, every finding is normal." Such a youth is naturally averse to undergoing a long period of sanatorium treatment, and Dr. Macpherson's answer to this is to go straight for an artificial pneumothorax. "These symptomless patients," she says, "should be ideal subjects for such treatment," or indeed for any kind of treatment (seeing that they are perfectly healthy), provided they can be persuaded to undergo the particular treatment offered.

The crucial question which has to be answered is: "Can x-ray examination alone prove the existence of a tuberculous focus in its earliest phase in the absence of all clinical signs and symptoms?" We have been told by expert radiologists recently that though a shadow may be definitely diagnosed as tuberculous in origin it is often impossible to say whether it indicates active or merely obsolescent tubercle, and that a shadow seen to-day may be gone a few weeks' later. I maintain that until this question can be definitely settled with general agreement among experts it is not fair to the patient to resort forthwith to an artificial pneumothorax. In my own mind I feel perfectly sure that there are shadows which one observer would straightway label as tuberculous, and active at that, and which another observer would be doubtful about or would even negative.

Dr. Macpherson declares that "it is not necessary to attempt a complete collapse of the lung; a shallow pneumothorax sufficient to control and immobilize the diseased lung partially or completely is what is required." I should be interested to know how Dr. Macpherson can guarantee immobilization of a diseased lung by a shallow pneumothorax. I may, of course, be hopelessly out of date, but in our time it was always taught that complete collapse of the lung was the ideal to aim at, except where, in certain fortunate cases, selective collapse—meaning complete collapse of the diseased portion only—was obtainable. Anyone who has looked at the fluorescent screen in a case of artificial pneumothorax must be aware of the quite extensive movement of the incompletely collapsed lung, even though the pneumothorax could by no means be called a "shallow" one. Dr. Macpherson does not hesitate to advise even a bilateral shallow pneumothorax where both lungs show disease. I should, further, like to know what are the scientific grounds for saying that "a shallow pneumothorax for a slight lesion of the lung is unlikely to give rise to complications." Is there any good evidence that complications are less common in a partial collapse than in complete collapse of the lung?

Dr. Macpherson writes as a worker in the Brompton Hospital Research Department, and she avers that the treatment which she advocates "is the one which has been adopted." Does this mean that the honorary physicians on the staff of the Brompton Hospital are agreed in adopting this treatment in the symptomless adolescent or young adult case diagnosed on x-ray findings alone? One would hardly suppose so, for Dr. Macpherson herself admits, indeed emphasizes, that "as yet it is impossible to assess its value."

If, as stated by her with regard to adolescent pulmonary tuberculosis (Report VII), "the period of time between the first appearance of the lesion in the x-ray film and the first symptom varied between three and five years," why should there be such haste to induce a pneumothorax? Surely the more sensible procedure would be to keep such cases under continued x-ray and clinical observation, so long as no development of the lesion is observed under x rays and the patient continues to be free of all symptoms and clinical signs. If either of these conditions is unfulfilled then collapse of the lung might be undertaken: whether partial or complete the experts must decide. In this way many patients would be saved from an unnecessary pneumothorax. We want to know, also, what proportion of these symptomless cases actually develop active disease, and this, apparently, the Brompton Hospital Research Department is unable to tell us, although the Department has now been at work for 14 years.—I am, etc.,

Southborough,
Tunbridge Wells.

E. WEATHERHEAD.

* When the foregoing letter was standing in type Dr. Weatherhead wrote as follows:

Owing to delay in receiving my copies of the *Journal* my letter was sent in before I had seen the issues published later than Oct. 2, which contain some interesting letters on the question at issue.

Treatment of Lupus Vulgaris

SIR,—I wish to correct a statement I made in my letter (Oct. 9, p. 436) in which I stated that the Royal Infirmary, Edinburgh, was the only voluntary hospital to possess three Finsen-Lomholt lamps. My letter was written before Dr. Arthur Burrows's letter was published, and on communicating with him he informed me that the London Hospital has more. When I was in London early in 1938 I knew that there was a Finsen-Lomholt lamp in each of two hospitals there, and the dermatological friends of whom I made inquiries were not aware of the proposed change-over of apparatus at the London Hospital. I had assumed, wrongly as it turns out, that no considerable number of these lamps had been installed in one hospital in the eighteen months prior to the war.

It is a great pleasure to those of us long connected with the treatment of lupus vulgaris to know that the London Hospital is continuing, with the latest and most efficient apparatus, the fight against lupus for which it has so long and so justly been renowned.—I am, etc.,

Edinburgh

ROBERT AITKEN.

Psychology and the Common Cold

SIR,—Dr. L. Leslie's remarks (Oct. 16, p. 494) on this subject have point. Many psychiatrists would disagree with Dr. E. W. Braithwaite's conclusions as to the invariable relationship between "a particular emotional state," which he leaves unspecified, and the origin of the common cold. It must be remembered among other things that psychoneurotics, from whom Dr. Braithwaite's conclusions are drawn, are very suggestible subjects. Many of their "colds" are not nasopharyngeal infections at all, but are episodes of "nasal neurosis" induced, as Ross pointed out, by auto- and hetero-suggestion.

True colds are often enough accompanied and preceded by emotional states, specific for the sufferer and depending on his temperament and personality structure. Like all other organic illnesses they have, in other words, a psychic aspect of greater or less importance. Such a psychic aspect is certainly likely to be more noticeable in psychoneurotics because of their

general emotional instability, but this does not mean that "the specific factor is psychological; the microbic one secondary."—I am, etc.,

E. HOWARD KITCHING,
Psychiatrist, Manchester Royal Infirmary.

SIR,—I was amazed to read the letter from Dr. E. Wrigley Braithwaite (Oct. 2, p. 433). His letter contains five contentions, all of them high-coloured extravagances and overstatements. He claims twenty-five years' practice of psycho-analysis, but does not mention the number of colds he has observed. His first contention is that in the psychoneurotics under his treatment "a cold invariably occurred in a particular emotional state." Surely the experience of the profession is that the spread of the complaint is due to droplet infection by a virus, and is no more concerned with emotional states than any other infection, be it by virus or bacterium.

The fourth contention is that "cold, wet, hunger, exhaustion, and a source of infection do not result in the development of a cold in the absence of the appropriate emotional state." Now every practitioner knows that emotional states may be predisposing, but to particularize such a state as the *sine qua non* is ludicrous in the extreme. It really seems that such teaching as the above is a wilful retrogression to the aetiology of the Middle Ages.—I am, etc.,

Hove.

W. BRYCE ORME.

SIR,—Dr. E. W. Braithwaite's statement (Oct. 30, p. 559) that "the specific factor is psychological" seems to imply that there is only one essential factor in the determination of a "cold"; but, as Drs. Anderson and Parry point out, microbic and physiological (and, I should add, some nasal pathology) are equally essential. Does he mean anything further than that "in his opinion as a psychologist, the most important [to him] of the many factors determining a cold is the psychological"? He says he would use power, if he had it, for a concentrated attack upon "the national neurosis" (cold proneness). Would he tell us how this could best be carried out? and if the terms of reference and the proceedings could be expressed in medical terms which are clearly understood by the physiologist, pathologist, and bacteriologist?—I am, etc.,

F. A. PICKWORTH.

Birmingham.

SIR,—I believe with Dr. E. Wrigley Braithwaite that infective micro-organisms of any kind, including those of "the common cold," can obtain a mastery of the bodily defences only when the individual is depressed or over-fatigued. A happy person has a remarkable immunity. I also feel that Dr. Parry is on the right lines when he associates nasal catarrh and sex; only my observation goes to show that it is not so much "abuse" of sex but lack of proper use of the sex organs which promotes congestion of the nasal sinuses.

The same processes which lead to anxiety neurosis—namely, stimulation followed by frustration—can, I believe, initiate a chronic nasal catarrh alike in courting couples, women who cheat the uterus by contraceptives or are deprived of orgasm, and habitual masturbators.—I am, etc.,

Birmingham.

R. MACDONALD LADELL.

Atmospheric Pollution with Cement Dust

SIR,—I have read with great interest your annotation (Oct. 16, p. 489) on the smoke nuisance prevailing in all the big cities of Britain. I regret, however, that you made no mention therein of the equally great, if not greater, nuisance caused by cement dust, which pollutes the atmosphere of places where cement is manufactured. I do not happen to know what it is like in other districts, but my experience of this district and others in the Thames Valley is such as to compel me to place on record my sense of the abominable nuisance resulting from such air pollution, to say nothing of the danger it constitutes to the health of those who unhappily have to live in those districts.

The extent to which such pollution occurs is simply unbelievable, through the constant and never-ending clouds of cement dust pouring night and day out of the chimneys about here. Flint dust is used in the manufacture of cement, which constitutes an additional danger. One must live in this district to be able to realize how very justifiable is my complaint.

which I venture to suggest calls for urgent redress, just much as the smoke nuisance does elsewhere. I trust you think it imperative to draw the attention of the authorities to it in one of your forthcoming leaders.—I am, etc.,

Greenhithe.

D. W. STANDLEE

Vincent's Infection during Arsenical Treatment

SIR,—The recent article by Squad. Ldr. E. C. O. Jewest on the misuse of intravenous N.A.B. for Vincent's infection (Sept. 18, p. 360) and the subsequent correspondence, prompted me to report the following case:

The patient, a female aged 19, suffered from syphilis, gonorrhoea. She attended voluntarily on June 29, 1943, a twice-named contact under Regulation 33B. There was a pain chancere on the inner surface of the left labium majus near fourchette and strongly positive Wassermann and Kahn reactions. Treatment was instituted forthwith, and by Sept. 16 she had completed a first course of intravenous stabilarsan (4.65 g.) with current bismuth (2 g.). The patient was advised early in treatment to receive attention for her many carious teeth. This advice ignored, and on completion of the first course there was a bismuth blue-line in the gums.

On Sept. 23, one week after the completed course, the patient reported to the clinic complaining of a sore mouth. There was an infected ulcer around the left third molar in the lower jaw, the throat was clear. Vincent's organisms were present in a smear. The patient was treated with glycothymoline mouthwash and daily local applications of gentian violet. The infection ulceration spread within the next few days to the inner surface of the tongue on both sides and around the right lower molars, the inner surfaces of both cheeks; the throat remained clear. On Sept. 28 another intravenous injection of stabilarsan was given (0.3 g.). In the next two or three days there was no local improvement and a deterioration in the general condition.

On Oct. 2 the local treatment suggested by Squad. Ldr. Jewest was instituted, with the result that within two days ulcers were clean and healing, pain had disappeared, and there was great improvement in the general condition. By Oct. 8 all lesions had healed.

Several cases of Vincent's infection of both throat and gums have been referred to this clinic as suspected cases of second syphilis. These have responded promptly to intravenous stabilarsan; two injections have usually sufficed. I agree with Major Davis (Oct. 9, p. 464) that a possible explanation of failure in those cases which have received previous arsenical therapy may lie in the organisms having become drug-resistant.

It would seem that where a case of Vincent's infection is known to have had previous intravenous arsenic, faith should be put in local treatment. Vincent's infection in patients previously treated with arsenic should at least be tried with intravenous arsenic.—I am, etc.,

V D. Clinic, Rotherham.

R. C. WOFINDEN

Treatment of Chronic Rheumatism

SIR,—In your issue of Oct. 23 (p. 510) G. Laughton So writes: "The literature of intra-articular chemotherapy, for example, hardly exists except for Forestier's scanty note. In the light of this rather sweeping statement it might be interesting to cite the following lines of the second edition of a monograph (L. Schmidt, *Clinical Aspects and Treatment of Articular Rheumatism*, Vienna, 1930):

"The surgical treatment of chronic arthritis, particularly chronic infective arthritis, does not in general receive as much consideration as it should. E. Payr has done well to draw attention in numerous papers to the fact that chronic infective arthritis is not an unbridgeable borderland between medicine and surgery but rather a broad field in which the clinical and therapeutic co-operation of an experienced surgeon and physician may produce striking results. It also applies to the cases in which medical treatment alone can do nothing more. His own special methods of 'continuous anaesthesia' and 'continuous antiseptics' of the joints (through intra-articular injections) have certainly done much to develop these possibilities. In order to make the possibilities of surgical treatment better known to general practitioners and physicians, I quote fully from Payr's scheme of treatment."

Unfortunately it is not possible to reproduce within the framework of a letter the whole quotation, extending several pages of the monograph, but those who are interested would do well to read Payr's genuine work on the subject ("Chronische Infektarthritis und ihre Chirurgische Behandlung").

durch Injektionen," *Z. klin. Med.*, 1928, 108, No. 1-3). In fact, in the course of years many hundreds of cases of chronic rheumatic joints have been successfully treated at my clinic by injecting various substances into the joints according to the requirements of the cases.

I do not know whether anyone, after having studied the above-mentioned works, will be inclined to accept Scott's "claim of innovation," but I hope that everybody will agree that he has made a very valuable further contribution to a since long-practised medico-surgical method, which, he suggests, should be called forthwith—rightly or wrongly—"local chemotherapy in chronic rheumatism."—I am, etc.,

Newark.

L. SCHMIDT, M.D. Prague.

"Opponents of the Medical Profession"

SIR.—My colleagues and I welcome the review of Bulletin No. 1 of the Medical Policy Association (London) in your issue of Oct. 30, and look forward to your comments and criticisms of the contents of subsequent numbers. So far we have issued nine bulletins. We note that no statement of fact in Bulletin 1 has been challenged, and we consider your article a fair analysis of its contents, though doubtless not altogether fair in intention.

The charge of anti-Semitism is now a well-known device in the technique of denigration. In other words, the legitimate reactions of the Jews and their sympathizers are being deliberately exploited as a technical device to achieve certain ends—namely, to discredit one's opponents. It is well that the Jewish community should note this development. We deny that anti-Semitism is implicit in our policy or in the technique with which we implement that policy, and such an assumption is an illegitimate inference from the contents of Bulletin 1. A historian of, say, Christianity would, in discussing origins, find it necessary to record Jewish plots and persecutions. Is he therefore to be labelled an anti-Semite? Bulletin 1 dealt with origins.

May we make one or two further comments? First, it is surely naive to believe that what appears nowadays in the evening paper to which you referred is necessarily true. The definition of Jewish Fascism which you quote in your article is not ours. Secondly, in quoting the book *Protocols of Zion* we were careful to indicate that there are doubts as to its authenticity. Thirdly, with regard to the question of whether there exists an active organization which desires war rather than peace and which, operating behind the obvious economic and political causes of war, directs high policy, our attitude is that there is a case for investigation. Certain evidence exists, and if proved valid the persons involved must be tried, and if guilty punished, else we shall never have an end of wars. It is pertinent to ask oneself, for example, whether there is not some connexion between the planners of to-day and the pacifists and disarmament propagandists of yesterday. Finally, may we again express our pleasure at your decision to review our literature?—I am, etc.,

London, W.1.

A. RUGG-GUNN.

A "Charter of Health"

SIR.—Dr. Norman Sprott's letter (Oct. 23, p. 525) is of great interest to the medical profession of every Allied nation. Therefore, a charter of health should not, I think, be confined to one country alone, but extended for whole continents and indeed for the whole world. The problem of the decline in population has, for instance, the greatest significance for Western and Central Europe; but it is, to-day at least, not a problem for Russia and Asia. A charter of health with a universal meaning can, therefore, only be drafted on international lines. For this very purpose the Anglo-Czechoslovak Founders Committee (Health Charter), 18, Grosvenor Place, S.W.1, has instituted in the course of the year an "open competition" for the drafting of an Inter-Allied Charter of Health which implicates the suggested "Atlantic Charter of Health."

In the light of the recommendations made by Dr. Sprott and upon an international basis I wish to draw attention to the competition now running. Particulars can be obtained at the above address.—I am, etc.,

London, W.C.1.

JUL Löwy.

Obituary

F. JOHN POYNTON, M.D., F.R.C.P.

We regret to announce, the death of Dr. F. J. Poynton, consulting physician to University College Hospital and to the Hospital for Sick Children, Great Ormond Street, who had been living at Combe Park, Bath, since his retirement from active practice in London. He died on Oct. 29.

Frederic John Poynton, son of the Rev. F. J. Poynton, rector of Kelston, Bath, was born in 1869, and, like his elder brother A. B. Poynton, D.Lit., formerly Master of University College, Oxford, was educated at Marlborough College. He began his medical studies at University College, Bristol, and continued them in London at St. Mary's Hospital, where he won a scholarship in anatomy and physiology. He qualified M.R.C.S. and L.R.C.P. in 1893, and in the following year gained first-class honours at the Final M.B. Lond. examination; he took the M.D. in 1896, the M.R.C.P. in 1897, and was elected F.R.C.P. in 1903. Poynton became physician to out-patients at the Hospital for Sick Children in 1900, physician in 1919, and consulting physician in 1934. His connexion with University College Hospital began in 1903 as assistant physician; he was promoted to the full staff in 1910, and on retirement in 1934 was made consulting physician. He wrote in 1907 a small book on *Heart Disease and Thoracic Aneurysm*, and had for some years before then worked with Alexander Paine in an investigation of the cause and nature of juvenile rheumatism, which they recorded in 1913 in *Researches on Rheumatism*. It was in 1900 that Poynton and Paine obtained from the blood and inflammatory lesions in cases of rheumatic fever a diplostreptococcus and began to formulate the streptococcal hypothesis of the causation of acute rheumatism. This view, upheld tenaciously against all comers, was by no means the only contribution Poynton made to the study of rheumatism in childhood, and his work in that field and in paediatrics generally was recognized in 1930 by the award of the Dawson Williams Prize, founded in memory of the late editor of the *British Medical Journal*. Jointly with Dr. Bernard Schlesinger he published a book on *Recent Advances in the Study of Rheumatism*, which reached a second edition in 1937. Many years earlier he had edited the fifth and sixth editions of *Artificial Feeding of Infants* by W. B. Cheadle, whose pupil he had been both at St. Mary's and at Great Ormond Street, and before then he had published with G. F. Still a paper showing that the most severe effects of the rheumatic poisons in a subcutaneous nodule were tiny areas of necrosis, thus confirming Scandinavian investigators. His long service in the cause of sick children was recognized by election as president of the British Paediatric Association.

Poynton joined the B.M.A. in 1898, was secretary of the Section of Medicine in 1907, vice-president of the Section of Diseases of Children at the Centenary Meeting in 1932, and president of the Section of Paediatrics in 1934; he was also an active member of the special subcommittee set up by the Council in 1923 to inquire into the question of cardiac diseases in children. At the Royal College of Physicians he gave the Bradshaw Lecture in 1924 on the prevention of acute rheumatism, and was Senior Censor in 1930; he was also Lettsomian Lecturer in 1927 before the Medical Society of London, Long Fox Lecturer at Bristol in 1934, and Harben Lecturer in 1936. The Cardiac Society made him an honorary member.

Poynton was devoted to his native county. He had been a fine cricketer in his younger years and played for Somerset from 1891 to 1896; he also played hockey for Middlesex. Field sports were not his only recreation; he was a music lover and a Fellow of the Philharmonic Society, and something of an archaeologist.

R. H. writes:

By the death of Dr. F. J. Poynton the diminishing band of elder paediatricists has suffered another loss, for, although he was also a general physician and for many years on the staff of University College Hospital, it was as a children's specialist that he was best known. His chief original work, as everyone knows, was on the bacteriology of acute

rheumatism, in which he was really a pioneer, and, although his conclusions have never been fully confirmed, rheumatism in its different manifestations remained his dominant interest throughout life, and the destruction of his original specimens in the recent damage to the Museum of the Royal College of Surgeons was a great grief to him. He was a devoted servant of the Hospital for Sick Children, Great Ormond Street, where he served his full time on the staff, and its welfare was always very dear to him. An assiduous teacher, first in the out-patient department and afterwards in the wards, many of his pupils thought him rather cynical and sarcastic, but all who got to know him well realized that these were only superficial mannerisms which concealed a real kindness and warmth of heart and a generous love of children. He was an original member of the British Paediatric Association and its president in 1932, and he thoroughly enjoyed its annual meetings, at which he was able to show the more genial side of his nature and to make friends with his junior colleagues.

Poynton had private sorrows and disappointments which would have embittered most men, but he bore them and the enforced tedium of his later years with a manly dignity and philosophy. He has gone home after a hard-working and high-principled life; but he was not a happy man and quite out of sympathy with the trend of public and professional life to-day, and his staunch individualism would have agreed ill with the shape of things to come. For his own sake, therefore, one is glad that he is at peace.

C. J. MACALISTER, M.D., F.R.C.P.

Although it is sixteen years since Dr. C. J. Macalister retired from active practice and went to live in Gloucestershire far from his native Merseyside the news of his death, which took place on Oct. 25, will evoke many vivid memories of him, as well as widespread regret, in Liverpool and in large circles of the medical profession elsewhere. He practised in Liverpool for over forty years, and, apart from his skill as a physician, he made his mark on the city, especially for his pioneer work in child welfare and in many social causes.

Charles John Macalister was born at Bootle the third son of William Boyd Macalister, a man closely connected with the shipping industries of the Mersey. He was educated at Liverpool High School and the University of Edinburgh, graduating in medicine in 1884. He returned to Edinburgh eleven years later to receive his M.D., with commendation, and in 1909 he was elected a Fellow of the Royal College of Physicians of London. After qualification he returned to Liverpool as junior resident surgeon at the Children's Infirmary, and from 1885 to 1887 he held a similar resident post at Manchester Children's Hospital. In 1887 he became pathologist at the Royal Southern Hospital, Liverpool, the hospital in which, as a member of its medical staff for 25 years, some of his best work was done. Settling down in practice in Liverpool he devoted himself particularly to work among children. One of his first enterprises was an out-patient clinic in connexion with the Liverpool Medical Mission. This introduced him into the homes of the poor and gave him an understanding and compassion, especially for the children of the slums, which never left him. In 1892 he was appointed physician at the Stanley Hospital, Liverpool, a post he held for eight years, and for fifteen years he was physician to the Liverpool Home for Incurables. It was while holding this latter position that it was brought home to him strongly that many of the children afflicted with crippling diseases, such as surgical tuberculosis, only needed regular treatment and open-air life to be restored. Sir Robert Jones, who for many later years was surgeon to the Royal Southern while Macalister was physician, was also greatly interested in these children, and the help of some generous friends was enlisted. A ward of twenty beds was placed at their disposal at West Kirby Convalescent Home by Mr. (afterwards Sir) Alfred Paton, and this became an independent unit known as the Liverpool Country Hospital for Children. Afterwards came the transfer to Heswall, amalgamation with the Liverpool Infirmary for Children, and the change of name to the Royal Liverpool Children's Hospital as at present. It is now, with its three branches, an institution of four hundred beds. It may be said to owe its origin to Macalister's vision and energy forty-five years ago—ten years before even the Treflar Homes at Afton

were founded. Of both the Royal Liverpool Hospital for Children and the Royal Southern (now incorporated in the Royal Liverpool United Hospital) he was made consulting physician on his retirement. He was also formerly honorary physician to the Leasowe Hospital for Children and to the Liverpool Schools for the Deaf and Dumb and the Adult Deaf and Dumb Benevolent Institution.

As lecturer on clinical medicine at the University of Liverpool he had an influence on several generations of undergraduates. He had been president of the Liverpool Medical Institution and the Biological Society, and was a frequent contributor to the medical journals. In the B.M.A., which he joined in 1888, he was vice-president of the Section of Diseases of Children, including Orthopaedics, when the Association met in Liverpool in 1912. From its inception he had been associated with the Liverpool Scottish Territorial Regiment, and during the war of 1914-18 he remained with it as surgeon major, and carried out a great deal of inspection and other work in the Western Command. He was physician-in-charge of the Arrow Hall and Croxteth Hall Military Hospitals.

On his retirement in 1927, at his beautiful home at Bourton-on-Water, Gloucestershire, Dr. Macalister devoted himself to writing *Liverpool hospital history from a personal point of view*. In 1930 he brought out a history of the Royal Liverpool Country Hospital for Children, and this was followed in 1936 by a volume narrating the origin and history of the Royal Southern Hospital. Earlier writings of his concerned the history of ambulance in warfare, child welfare and its organization, and the education of deaf-mutes.

Dr. DAVID ST. HELLIER HORGAN, who died in Lisbon on Sept. 10, was born at Cork in November, 1884. He was educated at Clongowes Wood College and at Queen's College, Cork. After qualifying M.B., B.Ch.(N.U.I.) in 1909 he joined the R.N., being stationed at Crete during the greater part of his two years' service. Wishing to specialize in ophthalmology, he left the Service in 1911 and, after acting for one year as house-surgeon at the Oxford Eye Hospital, obtained the D.O.(Oxon). He then obtained the position of ophthalmic surgeon to the Egyptian Government. Finding the work in Egypt uncongenial he resigned that position early in 1914, returning to his native town, where he carried on a very successful practice as an ophthalmic surgeon. Since 1922, when he retired from practice, Dr. Horgan lived in Lisbon, where he was a well-known and respected member of the British community, and at his lovely home at Cintra a warm welcome was always extended to passing British and Irish friends.

Dr. KINGSLEY WASSELL LEWIS of Pontypridd, Glamorgan, died suddenly on Sept. 14. The eldest son of the late Dr. B. M. Lewis, he was born at Pontypridd in 1890; he was educated at Mill Hill School, University College, Cardiff, and University College Hospital, London, where he won the Fellows Gold Medal. Almost immediately after qualifying M.R.C.S., L.R.C.P. in 1914 he joined the R.A.M.C.S.R., and served for a year in France and for two years at Salonika, where he attained the rank of major. On returning to England he held the posts of house-physician and house-surgeon at U.C.H., and graduated M.B., B.S.Lond. in 1921. Dr. Lewis was for a long period surgeon to the Pontypridd and District Hospital. He joined the B.M.A. in 1919 and was chairman of the North Glamorgan and Brecknock Division in 1936-7. A correspondent writes: Many tragedies have befallen the mining districts of South Wales in recent years, but it is doubtful if any has suffered more by the death of one man than has befallen the town and district of Pontypridd by the tragic death of Kingsley W. Lewis. In 1915 he went abroad as second in command of a motor ambulance convoy. Later he was appointed M.O. of the 11th Battalion the Welch Regiment, with whom he served on the Somme. Subsequently he became registrar to the 29th General Hospital at Salonika and was invalided home in 1918. After a period in hospital he was attached to a military hospital in Colchester, and in 1919 he joined his father in general practice at Pontypridd and very soon became a very familiar and greatly loved personality in the town of his birth. It is felt by his friends and patients that he worked himself, in the early 'twenties, almost to a standstill, with the result that his constitution became undermined and he was unable to stand the strain placed upon him by the abnormal amount of work which he was called upon to do in this war. Dr. Kingsley Lewis had to struggle single-handed with a large practice in a district in which the population was substantially increased by the arrival of evacuees, and

many others. No one ever heard him complain of the extra work, his time and skill were still at the disposal of his patients, his own pleasures and time for recreation and rest were resolutely put on one side, and his friends saw less of him than ever before. Ever since the outbreak of the war he had served in the Local Medical War Committee of the North Glamorgan and Brecon Division of the British Medical Association.

Dr. HAROLD HENRY STIFF died on Sept. 16, aged 70. He had lived at Winchester for some years past, but spent the greater part of his professional career in general practice at Bury St. Edmunds, where he was honorary surgeon to the West Suffolk Hospital. From Dulwich College he went up to Caius College, Cambridge, in 1892, and then to St. George's Hospital, where after graduating M.B., B.Ch. in 1902 he served as house-physician; he also held the post of house-surgeon at the West London Hospital. Dr. Stiff was for two years in the British Expeditionary Force with a temporary commission in the R.A.M.C. He had joined the B.M.A. in 1903, was chairman of the West Suffolk Division in 1922-3, and represented that Division at the Portsmouth Annual Meeting in July, 1923. A correspondent writes: Dr. Harold H. Stiff, who has died at Winchester in his seventieth year, was well known in Suffolk through his many years of practice in Bury St. Edmunds, especially as surgeon, and in due time consulting surgeon, to the West Suffolk General Hospital there. He was educated at Cambridge University and St. George's Hospital, where he filled all the resident posts with great credit to himself. Dr. Stiff was an all-round general practitioner of quite unusual attainments; and as he had also a conciliatory address, a kind heart, and tact in his dealings with patients, it is not surprising that he attained very marked success in Bury St. Edmunds and carried with him in his retirement the good wishes of a very wide section of that part of East Anglia where he had been in harness ever since he finished his London resident appointments.

The death of JOHN OVEREND PRIESTLEY on Sept. 21 at the early age of 44 removes one whom the gods may well have loved but with whom the fates dealt in tragic manner. A correspondent writes: Leaving Charterhouse no more than a plucky boy he was flying in the R.A.F. over enemy lines by the time he was 18, and down in flames on the wrong side of those lines not much later. With the war over he entered the Middlesex Hospital Medical School and qualified in the minimum possible time, gaining the Hetley prize in clinical medicine. As house-physician to Dr. Voelcker he profited from the extraordinary powers of observation of that master and quickly exhibited a flair for diagnosis. Seeing these possibilities widen every day he took up radiology, obtained the D.M.R.E., and went back to the R.A.F. as medical officer. He was the first man in this branch of the Services with any special qualification in x-ray matters, and in a short time the result of his knowledge was an improvement both in methods of radiological examination and in x-ray technique. He was in his *métier*, he liked Service life, and he was able to feel that he could contribute to the advancement of at least one branch of medicine; then fate stepped in and dealt him a blow from which he never really recovered: he had developed phthisis. Priestley put himself in the hands of a sanatorium chief whose creed and practice were to get his patients back to work at the earliest possible moment. So within 6 months the patient started to build himself a practice in the country. He built up three practices over a period of 15 years with frequent rests for recuperation. But he never really got on his feet; he played a losing game with pluck and determination, yet seeing the years slip by, with himself not quite so well each year. "Jack" Priestley was exceptionally endowed: his quick eye and sensitive hand served him in the air, by the bedside, and alongside the rivers in Ireland where many an hour was spent. At heart he was a countryman, and those especially who knew him from boyhood grieve as they wonder how it was that a benevolent fate so seldom appeared in shaping his destiny.

We regret to announce the death of an old friend of this Journal, Dr. F. WILLIAM COCK, who after retiring from practice in London devoted himself to his hobby, antiquarian research, and was recognized as one of the best authorities on the archaeology of the county of Kent. Frederick William Cock, son of Frederick Cock, M.D., was born in London in 1858 and studied medicine at University College, London, and at Newcastle, graduating M.B. and M.S. of the University of Durham, with highest honours, in 1884 and M.D. in 1886. Having worked as senior resident at the Newcastle-upon-Tyne Infirmary Dr. Cock returned to London and became well known as a skillful part-time anaesthetist. For 15 years he held the post of anaesthetist to the Dental School of Guy's Hospital, and during the last war was appointed honorary anaesthetist to the King George Hospital. He joined the B.M.A. in 1889

and was an active member of the Harveian Society of London, holding office as president in 1906. For 46 years he had been a liveryman of the Society of Apothecaries. He was a Fellow of the Society of Antiquaries, a member of the council of the Kent Archaeological Society, and a J.P. for Kent. His ancestors had long been established in the neighbourhood of Romney Marsh, and it was natural that William Cock, with antiquarian tastes and love of local history, should settle in retirement at Appledore, Kent, to live among his books and old associations. His Kent library is one of the most complete and famous in the county. From time to time he wrote learned little notes on out-of-the-way subjects for these columns, and was always happy to answer questions coming within his range of expert knowledge.

The death of Mr. GEORGE MORGAN on Sept. 23 in a nursing home at Hove removes a veteran member of the B.M.A. who was for many years a leading figure in the medical profession of Brighton. Born at Market Drayton, Salop, in 1860, he was educated at Market Drayton and Auden Grammar Schools and came to London as a student of Charing Cross Hospital. He took the L.S.A. in 1883 and the M.R.C.S. and L.R.C.P. in the following year, and obtained the F.R.C.S.Ed. in 1895. At Charing Cross he won a senior scholarship and gold medal. He went to Brighton in 1885 as house-surgeon to the Royal Alexandra Hospital for Children, and after holding other house posts he was elected assistant surgeon in 1890, surgeon in 1895, and consulting surgeon in 1919. During the last war he held a commission as captain in the R.A.M.C. Mr. George Morgan joined the B.M.A. directly he gained his first appointment, and was always an enthusiastic believer in its usefulness to medical men, especially the younger generation. At the Brighton Annual Meeting in 1913 he held office as vice-president of the Section of Bacteriology and Pathology; he was president of the Sussex Branch in 1922-3, and chairman of the Brighton Division for two periods. At the age of 74 he wrote: "I believe in work, and am as fond of it as I was at 24. My chief hobby is the study of fungi, and as a member of the Mycological Society I attend all forays and lab. demonstrations." This hobby brought him into active membership of the Brighton and Sussex Natural History Society, of which he became vice-president.

Mr. GEORGE HEBB COWEN, consulting surgeon to the Royal South Hants and Southampton Hospital, died in a nursing home at Sarisbury, Hants, on Sept. 25, aged 71. A student of the London Hospital, he qualified in 1893 after winning an exhibition and gold medal in materia medica and pharmaceutical chemistry at the Intermediate London M.B. examination. He graduated M.B. (with honours in medicine and obstetric medicine) and B.S. (with honours in surgery) in 1894, proceeded to the M.S. in 1896, and took the F.R.C.S. a year later. His first appointment to the Royal South Hants and Southampton Hospital was in 1899 as assistant physician, but he changed to the surgical side of the visiting staff and also became consulting surgeon to the Southampton Borough Hospital and to the Romsey and District Hospital. Mr. Cowen joined the B.M.A. in 1902, and was president of the Southampton Branch in 1915. He was also an active member of the Southampton Medical Society until his retirement from practice in 1937, when he received a presentation from nearly one hundred doctors in the neighbourhood. Sixty colleagues attended the ceremony presided over by Sir Russell Bencraft, and speeches were made testifying to Mr. Cowen's great work in the town. Thenceforward he lived at Newbury, Berks.

Dr. HENRY BEDINGFIELD, formerly of Leeds, died at Rugby on Sept. 28. He was born on Dec. 10, 1889, and studied medicine at the University of Edinburgh and at University College Hospital, London. He graduated M.B., Ch.B.Ed., with honours, in 1911 and gained highest honours for his M.D. thesis in 1928. He took the M.R.C.P.Lond. in 1926. After qualification Dr. Bedingfield held house appointments at the Queen's Hospital for Children, Hackney Road, at the Hackney Infirmary, and at the City of London Chest Hospital. In 1913 he entered the R.A.M.C. and was on active service in 1914-19, winning the D.S.O. and retiring with the rank of major. While in practice at Leeds he published papers on viscerotoposis and nervous dyspepsia in the *Quarterly Journal of Medicine* and the *Proceedings of the Royal Society of Medicine*. He joined the B.M.A. in 1917 and was honorary secretary of the Leeds Division from 1931 to 1941.

We have to announce the death on Sept. 29 of Mr. WILLIAM JOHN HARRISON, senior honorary surgeon to the Newcastle-upon-Tyne Throat, Nose, and Ear Hospital and aural surgeon to the Ministry of Pensions Hospital at Newcastle. He studied medicine at the Durham University College of Medicine and at St. Thomas's Hospital, London, graduating M.B., B.S. in 1899 and taking the English Conjoint diplomas in 1902.

OBITUARY

Before settling in practice as an oto-rhinologist in Newcastle he held a house post at the London Temperance Hospital and travelled widely as a ship surgeon. During the last war he reached the rank of major in the R.A.M.C.(T.A.), was mentioned in dispatches and wounded in 1915; he received the Territorial Decoration in 1925. Mr. Harrison was consultant in his specialty at the Ingham Infirmary and had charge of the ear, nose, and throat department of the Fleming Memorial Hospital for Sick Children. He had served on the Council of the Laryngological Section of the Otolological Society; he was also a past-president of the Newcastle-upon-Tyne and Northern Counties Medical Society. He joined the B.M.A. in 1909, and published a number of papers on otitis media and mastoid disease.

RAYNER DERRY BATTEN, who died on Oct. 22, was born at Plymouth in 1858, the son of John Winterbotham Batten, Q.C., and elder brother of F. E. Batten, the neurologist, and of J. D. Batten, artist and illustrator. He studied medicine at St. Bartholomew's and in Germany, and took his M.D. London in 1886. He was H.S. at Bart's and R.M.O. at the Brompton and at Addenbrooke's, but at the same time did ophthalmic work at Moorfields, where he became assistant surgeon, and in the end gave up general practice for 33 years, remaining on at the Western Ophthalmic Hospital until 1913 and was the Medical and Management Committees until 1913 and his death. He was a member of the B.M.A. until 1913 and was hon. secretary of the Section of Ophthalmological Society and became vice-president of the Oxford Ophthalmological Society. He was exceedingly happy in his family life, and of his four children two, a son and a daughter, followed him into the medical profession, while another daughter has worked for many years in the "welfare of the blind" department of the L.C.C. A colleague writes: Rayner Batten was essentially a clinician. Though slow to make up his mind he had the true clinical instinct, compounded of painstaking observation, wide experience, and a retentive memory. The years spent in later years gave to his early work (e.g., a paper on the genesis of myopia) a background which may have faded somewhat in later years but was never entirely obliterated. Twenty years ago Batten suggested that the technique of ophthalmic surgery was not for the many but for the few, and should be shared between ophthalmic physicians and ophthalmic surgeons. Something akin to this is now again under discussion. Batten's own operative skill was considerable. He had a light, sure touch, devoid of tremor, which endured until advancing deafness compelled his retirement. He attached great importance to "good hands" in all who did ophthalmic work. His life-long hobby was wood-carving, and possibly the "feel" of tools thus acquired inspired the design of some of his instruments, originally fork is still of value, and a hydrophthalmoscope, a forerunner of the contact lens—is often used in the treatment of purulent conjunctivitis by hypertonic solutions. One of his last tasks, undertaken with the assistance of his artist-brother, was painting of fundus artists. The first group of artists was trained at the Western Ophthalmic Hospital under his supervision, and from these a school, which still continues to do excellent work, developed and was later, for a time, under the direction of Mr. Head. This was the source of all the present fundus-painting facilities.

RICHARD AUSTIN FREEMAN, M.R.C.S., L.S.A., who died at Gravesend recently at the age of 81, was one of those medical men who have forsaken medicine for literature—Somerset Maugham, Brett Young, Warwick Deeping are other contemporary instances. Like another doctor, Conan Doyle, he made his name by his detective fiction, an art in which very many have dabbled since Doyle's time, but in few cases with the success which attended Freeman. He was born in 1862, educated privately and at Middlesex Hospital, where he was H.P. after qualifying in 1886. Thence he went into the Gold Coast Medical Service, served in the Ashanti expedition of 1889, and was invalided out in 1891. For a time he was in general practice, but after five years of it went back into salaried employment, first in the Prison Medical Service and then under the Port of London. He served in home units during the 1914-18 war, and later became a Freeman of the Apothecaries Society. His first adventure in literature was as far back as 1898, when he published an account of Ashanti; but he soon found his *métier* as a writer of crime detection, and for nearly forty years had poured out a steady stream of well-written and popular fiction of this type. His methods were rather nearer to those of Conan

Universities and Colleges

UNIVERSITY OF LONDON

The Faculty of Medicine has elected Mr. John B. Hunter, M.Ch., F.R.C.S., to be its Dean from Oct. 1, 1943, for the remainder of the period 1942-4, in place of Sir Girling Ball, F.R.C.S., resigned.

UNIVERSITY OF LEEDS

Endowment of Prize in Anatomy
A year or two ago Major George Waddington of Collingham and Mr. Guy Waddington of Halifax decided to leave their bodies to the Anatomy Department of the Medical School. In each case the desire was to give aid to medical education, and their wishes were in due course carried out. Recently a group of relatives and friends of these two gentlemen, including Major Waddington's mother, presented to the University a sum of money to found a prize in anatomy in their memory. This prize, to be known as "The Waddington Prize," will take the form of books presented to the most promising student in the junior anatomy class at the Medical School. Mrs. Waddington, in handing over the cheque to the Professor of Anatomy, expressed the hope that the example of her son and her nephew might be followed by others; and in accepting the cheque on behalf of the University the Professor of Anatomy hoped that when others came forward to offer their posthumous services to medicine they might well consider combining the corporeal donation with some form of financial aid to the Medical School, as had been done by the Waddington family.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The annual meeting of Fellows and Members will be held at the College in Lincoln's Inn Fields on Thursday, Nov. 18, at 2.30 p.m., when a report from the Council will be laid before the meeting. Fellows and Members can obtain copies of the report on application to the Secretary, and the agenda paper for the meeting will be issued on or after Nov. 13 to those applying for it.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a quarterly meeting of the Council held on Oct. 23 in the College House, with the President, Sir William Fletcher Shaw, in the chair, Prof. J. J. Kearney was elected to the Membership of the College.
The following were admitted to the Membership: J. K. Baker, J. Kruger, and Katharine I. Liebert.
It was announced that the donor of 1,000 guineas to commemorate the presidency of Sir William Fletcher Shaw wished the

terest to endow a lecture every second year to be given alternately by a member of the College on the subject of infertility and (2) a gynaecologist from the U.S.A. as an expression of the friendship existing between the two nations. At the end of the meeting, of Dr. Douglas Manchester, assumed the office of Vice-President and Mr. Eardley Holland, London, assumed the office of President. A vote of appreciation for the services of Sir William Fletcher was during the past five years as President and during the whole period since the inception of the College was adopted by the Council. The following have satisfied the examiners and have been awarded the Diploma of the College:

Agnes U. Campbell, W. H. Carlisle, J. T. Carroll, J. McD. Corston, Margaret S. Crockett, R. W. Danziger, Grace T. Dawson, Mary E. Eegerton, Charlotte L. Hess, P. G. Lewis, Ellen C. Miller, Mary L. Neville, Mary P. Bort, J. W. H. Simpson, Esther M. Swinnerton, I. W. Totten, A. H. C. Walker.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At the annual meeting of the Faculty the following officers were elected for the ensuing year: *President*, Mr. James H. MacDonald; *Visitor*, Mr. William A. Sewell; *Honorary Treasurer*, Mr. William A. Richard; *Honorary Librarian*, Dr. W. R. Snodgrass; *Representative on the General Medical Council*, Mr. Andrew Allison.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the final examination, have been admitted L.R.C.P.Ed., L.R.C.S.Ed., and L.R.F.P.&S.Glasg.:

A. C. Austun, F. St. M. Brett, E. D. Cameron, Margaret R. Connolly, M. C. Fitch, E. Frischler, E. Glick, Elizabeth G. Hood, J. G. Leyack, I. M. Lourie, R. Marsi, J. W. Muggoch, D. J. P. Naismith, Elizabeth R. B. Pollard, T. Richardson, Frances Selesnick, A. M. Shokry, H. M. Steel, A. D. Willox.

The following graduates of recognized foreign universities were also admitted licentiates:

K. Friedmann, M.D. Vienna; G. W. Green, M.D. Brussels; Ruth Meier-Blaauw, M.D. Breslau; G. M. Weiss, M.D. Bologna.

The Services

Temp. Surg. Lieut. R. R. Dickson, R.N.V.R., has been mentioned in despatches for constant and untiring devotion to duty and great skill in tending the wounded survivors from a torpedoed merchantman.

Temp. Surg. Lieut. I. S. Jacklin, R.N.V.R., has been posthumously mentioned in despatches for gallantry in organizing the survivors from a torpedoed merchant ship and in swimming from raft to raft, in waters where sharks were known to be present, in order to tend the injured.

Capt. I. Joseph, R.A.M.C., has been awarded the M.C. in recognition of gallant and distinguished services in Sicily.

CASUALTIES IN THE MEDICAL SERVICES

Wounded.—Capt. F. M. Steel, War Subs. Capt. E. M. Leyland and J. R. Tocher, R.A.M.C.

Prisoner of war.—Temp. Major K. C. Hutchin, R.A.M.C.

Reported missing at sea.—Lieut. R. A. Palmer, R.A.M.C.

Missing on active service.—Surg. Lieut.-Cmdr. S. L. Lord, R.N.V.R.

Missing at sea.—Capt. R. M. Sharpe, R.A.M.C.

Died on active service.—Major K. C. Eden, R.A.M.C.; Fl. Lieut. W. S. Pitt-Payne, R.A.F.V.R.

Died.—Col. W. B. Rennie, M.C., War Subs. Capt. A. E. Locke, R.A.M.C.

REPRIATED MEDICAL OFFICERS

Major-Gen. G. A. D. Harvey, C.B., C.M.G., late R.A.M.C.; Lieut.-Cols. I. A. S. Samuel, M.C., F. J. Morris, M.C.; Majors J. Burns, J. H. T. Challis, W. N. S. Donaldson, G. C. Steel, E. R. C. Walker, W. E. Tucker, J. A. Chapel, R. L. Mackay, M.C., C. H. Imrie; Capt. A. D. Aveling, E. R. Dansie, P. A. Forsyth, R. W. Gunderson, I. Jacobson, J. D. Recordon, G. E. Stoker, N. D. Allan, T. K. Elliott, G. S. Trower, W. C. Harris, M. A. Egan, E. M. Fraser, R.A.M.C.

DEATHS IN THE SERVICES

News has been received of the sudden death in Persia from acute nephritis of Capt. J. H. B. Round, M.A., M.B., B.Ch., R.A.M.C., aged 30. He was the only son of Mr. and Mrs. Harold Round of Edgbaston, Birmingham. He studied medicine at Pembroke College, Cambridge, and the Westminster Hospital Medical School, to which he won an entrance scholarship. While at Cambridge he was secretary to the Cambridge Medical Society. After graduating he served as house-physician at Westminster Hospital and then returned to Birmingham as the first medical officer to the Castle Bromwich Aero Factory and organized their medical services. Subsequently he was appointed as the first medical officer of the Midland Group of the Nuffield Factories, and held this position until he joined the R.A.M.C. in August, 1941. Dr. Round was one of the modern pioneers in industrial medicine, and had made valuable contributions to its present conception.

Col. Sidney Martin Hattersley, M.C., late R.A.M.C., who died on active service from illness on March 24, had a distinguished military career lasting 30 years. He studied medicine at Cambridge University and St. Bartholomew's Hospital, qualifying M.R.C.S., L.R.C.P. in 1912. He took the M.B., B.Ch. degrees at Cambridge in 1916, the D.P.H. in 1925, and proceeded M.D. in 1931. After qualification he served as house-physician at Manchester Royal Infirmary. As a junior officer in the R.A.M.C. he was taken prisoner in September, 1916, while serving overseas, and in October, 1919, was awarded the Croix de Guerre, having already won the Military Cross. He was promoted to the rank of colonel in September, 1938, and for his services during the present war was mentioned in despatches at the end of 1941. He joined the B.M.A. in 1912.

Medical Notes in Parliament

Food Values and Farming Methods

In the House of Lords on Oct. 26 Lord Teviot called attention to food values in relation to agricultural methods in view of their importance to the health of man, animal, and plant. No one, he said, who was connected with agriculture could be other than perturbed at the number of diseases among our farm stocks, while the diseases among crops were legion. The object behind his motion was to see that we put planning for the health of our people, animals, plants, and crops first. While the spirit of our people was magnificent and their courage undaunted, their bodily conditions were bad. A report from the B.M.A. summed up the whole situation in this way: "While hundreds of millions are expended in trying to cure, only one-fifth of 1% of the national expenditure and waste through ill-health goes on research to find out, not how to cure but how to prevent." He was entirely in agreement with a balanced diet, but unless the components came from a healthy soil rich in humus, there would be a deficiency of life-giving, disease-resisting properties. We had a sort of cycle—a healthy soil, a healthy plant, a healthy animal, and then a healthy man—and it was the integrity of that life-circle which was so important. We must plan to put back into the soil those things which we took from it. A council of nutrition was suggested some time ago. He hoped it would be set up and that it would take into serious consideration not what we should all eat but whence it came and how it was cultivated. He begged for a Royal Commission or a committee of inquiry in order to combat the present tragic state of affairs.

Destruction of Fertility

The EARL OF PORTSMOUTH said very few doctors would advise their patients continuously to use strong antiseptic nasal sprays; if they did the living membranes would suffer and have no power left of resistance to disease. We were doing exactly that to the soil. With lethal sprays we were destroying the soil's power of resistance, and at the same time were giving continuous doses of chemical food and chemical stimulants so that the infinite complex of bacterial life in the soil was being upset. We were upsetting the vitamin content—that was, the capacity of the soil to produce food—by destroying the humus within the soil itself.

Lord Geddes pointed out that in Prince Edward Island there was a very high standard of health, an extraordinarily vigorous active population, and, quite remarkably, after 50 years of close examination no fall whatever in the birth rate. The population there drew their fresh food from the sea and from the field in the traditional manner, living on simple food-stuffs and the products of their own farms and fishing.

Northern Rhodesia, which had been depopulated by disease, was not an easy country to get people of another race into, and to keep them there in a good state of health. They had given the people food grown on rich humus soil with plenty of life in it. In the result they had beaten back disease and turned that part of Northern Rhodesia into what was a health resort. The positive health of these people was based on food. He supported Lord Teviot's plea for some work to be done in this country to follow up the work now being done in Canada.

Viscount Bledisloe pressed strongly on the Government that the time had come when there ought to be research: research not merely conducted in watertight compartments—the health of plants, the health of animals, and the health of human beings—but comparative research on the important problem of the interrelation between the morbid conditions of soil, plants, animals, and human beings. Very valuable research was being done to-day in New Zealand on diseases of animals and fish. What the doctors did not know, however, was the relation, if any, between the deficiencies in the animals and several mysterious morbid conditions of the human population of

New Zealand. Everywhere doctors were very anxious that research should be instituted into the subject. After a recent debate in the House of Lords he asked some agricultural experts whether phosphate deficiency of pastures was transmitted to the milk of cows fed on those pastures, and if so what effect it had on human beings. There was, however, no knowledge in this country on that subject to-day.

Effect of Fertilizers

The DUKE OF NORFOLK, replying to the debate, deprecated any suggestion of antagonism between chemical fertilizers and humus. There was no evidence whatever, from farming or medical experience, or from the scientists, that the proper and balanced use of fertilizers had any harmful effect on the soil, on the health of crops, or on men. Sir Daniel Hall had said that disease was not a product of modern high farming with chemicals, though it might be the mark of their use in an ignorant manner. So far as this country was concerned our safeguard lay, as ever, in the sound principles of mixed farming. The Ministry of Health was not aware of any medical evidence in support of the view that food produced from soil which had been fertilized by artificial manures was in some cases dangerous to health. The value of a certain amount of humus was beyond all argument, and he thought it might be a mistake if this question were raised to so high a level as the realm of political controversy. He would bring Lord Teviot's request for an inquiry or a Royal Commission to the notice of the Minister of Agriculture and the Ministries of Health and of Food.

Regulation 33B

Dr. SUMMERSKILL asked whether the Minister of Health was satisfied that Regulation 33B had any appreciable effect in reducing the incidence of venereal disease in view of the fact that it had only been brought into operation against 110 individuals. Mr. BROWN said that in his opinion the regulation was effecting its purpose and would increasingly assist medical officers of health in getting into touch with infected persons and inducing them to undertake voluntary treatment. The 110 persons referred to were cases reported more than once up to June 30 last as alleged sources of infection. In addition about 1,780 other cases were the subject of report, but of one report only. Answering a further question, Mr. Brown said he was not going to introduce compulsory notification at the moment. That would require other drastic measures to make it effective. Otherwise the disease might be driven underground. Dr. SUMMERSKILL gave notice that she would raise the question on another occasion.

Yellow Fever Research in Africa

Co-ordination of research on yellow fever in Africa is centred in the Yellow Fever Research Institute at Entebbe, Uganda, which is a unit of the International Health Division of the Rockefeller Foundation. The staff of the institute has carried out immunity test surveys of groups of persons in Uganda, Northern Rhodesia, Kenya, Tanganyika Territory, the Sudan, the Belgian Congo, Somalia, and Eritrea, and the results have been circulated to the Governments concerned. Research on possible reservoir hosts of yellow fever virus and on *Aedes* and other potential mosquito vectors of yellow fever is being continued. The executive control of yellow fever is the responsibility of the Colonial Governments and the Service authorities, who are advised by and receive copies of the reports of the Director of the Institute and the London Interdepartmental Control Committee. The various control measures which have been introduced are designed particularly to prevent the possibility of an outbreak of yellow fever such as occurred in the Anglo-Egyptian Sudan in 1940-1.

Food Relief for Greece

On Oct. 26 Mr. STOKES asked the Parliamentary Secretary to the Ministry of Economic Warfare whether the supplies of milk and vitamin concentrates included in relief shipments to Greece since April were an addition to the supplies previously permitted to pass through the blockade; and whether he could give an assurance that these supplies fully satisfied the appeals for additional supplies made by the Swedish-Swiss Commission. Mr. FOOT said that the supplies of milk authorized in June represented an increase in monthly amounts previously allowed. The commission in June requested the dispatch of 260 tons of powdered milk or 600 tons of condensed milk a month. It was decided to authorize monthly shipments from July of 300 tons of condensed milk and 300 tons of evaporated milk. This replaced previous monthly allotments of 300 tons. A new six months' programme for vitamins was submitted by the commission in June, which represented in some respects a slight increase in the rate of supplies. These supplies, so far as they were obtainable, were being procured and dispatched.

The White Paper

On Oct. 26 Sir E. GRAHAM-LITTLE asked the Prime Minister whether, as the institution of a universal free health service conducted by full-time salaried medical officers involving ultimate extinction of private practice came into the category of a far-reaching change of a controversial character directly needed for the war effort, he would declare that decisions regarding such a service should not be made without a general election. Mr. ERNEST BROWN, who replied, said that his hon. friend should first await the promised White Paper, so that he might see what proposals were in fact forward in it as the basis for public discussion before he raised the last part of the question.

In a reply on the same day to Mr. Maclean, Mr. JOHNSTON said that the Government was considering the recommendations of the Hetherington Committee in formulating proposals for a new national health service. It was Government's intention, in advance of proposing legislation on the subject, to lay a White Paper on the table of the House on an early date as a basis of discussion and negotiation.

Exchequer Help for Tuberculosis

Mr. JACKSON inquired on Oct. 28 why tuberculous patients considered 'hopeless' cases and those suffering from pulmonary tuberculosis were excluded from the benefit of new financial allowances paid by local authorities. Miss H. BRUGH replied that special arrangements were authorized to enable persons to give up work temporarily for treatment in the interest of the public health no less than their own, in association with the war effort which had been the justification in such cases for making repayment from Exchequer funds under emergency powers was not applicable to the cases which Mr. Jackson referred. That fact did not affect the power of local authorities to grant assistance within the scope of their statutory powers.

Immunization.—Up to June 30 last the total number of children who had been immunized under local authority arrangements in England and Wales was approximately 4,400,000. Allowing additional immunization by private arrangement it is probable substantially more than half the child population is protected at present.

Medical News

Prof. L. G. Parsons will give the first Charles West Lecture before the Royal College of Physicians of London on Tuesday next, Nov. 16, at 2.15 p.m., at the College, Pall Mall East. Subject: "The Prevention of Neonatal Disease and Neonatal Death."

A meeting of the Tuberculosis Association will be held at Man House, 26, Portland Place, W., on Friday, Nov. 19, at 3.15 p.m. for a discussion on immunity-producing measures in tuberculosis.

The Postmaster-General announces that it has been agreed at request of the Treasury to release Sir Henry Bashford, M.F.R.C.P., from the post of Chief Medical Officer to the Post Office in order that he may take up his new appointment as Treasurer and Medical Adviser. Dr. W. L. Scott, M.C., second medical officer, has been appointed Chief Medical Officer to the G.P.O. in succession to Sir Henry Bashford, and Dr. C. G. Roberts, assistant medical officer, has been appointed second medical officer.

At a meeting of the London Association of the Medical Women's Federation, to be held in the Common Room of B.M.A. House on Saturday, Nov. 20, at 3 p.m., Dr. Ian Skottowe will read a paper on some current methods of treatment in psychological medicine. Medical men and women guests are invited.

A discussion on the state of nutrition in enemy-occupied Europe introduced by Lord Horder, will take place at a meeting of the Section of Medicine of the R.S.M., 1, Wimpole Street, W., Tuesday, Nov. 23, at 4.30 p.m. It will be opened by Col. W. Vignal and Dr. A. P. Cawadias, followed by Prof. James Yeaman and Dr. Izod Bennett.

At a members' meeting of the Eugenics Society to be held Tuesday next, Nov. 16, at 5 o'clock, at the rooms of the R. Society, Burlington House, Piccadilly, W., Mr. R. M. Timmuss will speak on "Social Environment and Eugenics." All interested in the subject are invited to attend.

A Diagnosis Section meeting of the Faculty of Radiologists will be held at 32, Welbeck Street, W., on Saturday, Nov. 20, at 10.30 a.m. when papers will be read by Capt. P. P. Hauch, R.C.A.M.C., on pneumoroentgenography of the knee-joint (illustrated by a film); Dr. E. Rohan Williams on venous intravasation during uterine salpingography; and Dr. John Wilkie on a case of Albright's disease followed by a discussion.

The Central London Fabian Society announces that Dr. Stark urray will speak on "A National Health Service" on Tuesdays 7.30 p.m. at the Artworkers' Guild Hall, 6, Queen Square, W.C.1. on 23, "A Personal Health Service" on Dec. 7, "Administration and control" on Dec. 21, "The Ultimate Aim."

At the next quarterly meeting of the Royal Medico-Psychological association on Nov. 24 at 1, Wimpole Street, London, W., a discussion will be held on post-war psychiatry.

A course of instruction for a Diploma in Psychological Medicine will open at the Maudsley Hospital on Jan. 3.

The July number of the *East African Medical Journal*, of which copies have now reached London from Nairobi, is devoted to the actual problem of human nutrition in its most important local aspects. Inspired by the Director of Medical Services in Kenya, sets forth the evidences of malnutrition among some of the native populations, the methods adopted in that colony to deal with the recent shortages of various essential foodstuffs, and the lines along which progress in these matters may best be attempted. There are eight signed articles, prefaced by a judicious editorial, and the whole number reflects great credit on Dr. A. J. Jex-Blake and his colleagues of the editorial committee; it deserves wide circulation in the large area concerned.

The Board of Education announces that by arrangement with the Ministries of Food and of Health supplies of cod-liver oil and orange juice are to be available for administration during school hours to children under 5 years at elementary and nursery schools. Ferrous sulphate tablets, 3 gr., are also to be available for children selected by the medical officer as suffering from anaemia.

For the third winter in succession the Ministry of Health, in co-operation with the Ministry of Information, is launching a campaign to reduce the spread of coughs, colds, influenza, and other droplet infections. The public will again be urged to avoid careless coughing and sneezing. The campaign will continue until March. The Board of Trade will co-operate by including in its "Make do and Mend" advertisements advice on making handkerchiefs out of worn-out sheets, etc. The Central Council for Health Education is again co-operating by offering health leaflets and posters for sale to local authorities.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales the incidence of infectious diseases remained steady, with the exception of measles, which fell by 129 cases. The largest of the local decreases were in Kent, by 35, and in Durham, by 31 cases. The rise in notifications of scarlet fever, which had persisted for eight weeks and had resulted in the weekly totals mounting from 1,516 to 3,324, was temporarily checked; 7 fewer cases were reported than in the preceding week.

Notifications of dysentery, which have been high for the last two months, dropped by only 4. The largest of the new local outbreaks were in Glamorganshire, Rhondda U.D. 12; Sole of Peterborough, Peterborough M.B. 11. Big rises in existing outbreaks were recorded in Surrey from 5 to 34 (Kingston-on-Thames M.B. 31), and in Northumberland from 2 to 30 (Newcastle-upon-Tyne C.B. 25). Other large centres of infection were London with 65 cases in twenty boroughs; Middlesex 17; Lancashire 14; Yorks North Riding 14 (Richmond R.D. 10).

In Scotland rises were recorded in the notifications of diphtheria, 35 more, and scarlet fever, 29 more, the totals being the largest during recent months. The increase in diphtheria was fairly general, but that for scarlet fever was mainly confined to the western area. There were 17 fewer notifications of dysentery, and the total, 45, was the lowest since the beginning of June.

In Eire diphtheria notifications went up from 99 to 187, and those for diarrhoea and enteritis from 35 to 93. The largest of the outbreaks of diphtheria was in Limerick (Rathkeale R.D. 61). Of the 95 cases of diarrhoea and enteritis 81 were reported in Dublin C.B.

In Northern Ireland the outbreak of diphtheria in Londonderry C.B. persisted, 14 fresh cases occurring during the week. The Foyle Hill Hospital, which had been closed for a number of years, was reopened to cope with the increase of this disease and scarlet fever. Of the 85 cases of diphtheria notified during October, only 1 had had a complete course of immunization.

The Week Ending October 30

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 3,623, whooping-cough 1,693, diphtheria 702, measles 585, acute pneumonia 576, cerebrospinal fever 26, dysentery 248, paratyphoid 5, typhoid 7.

No. 42

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct. 23.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	46	2	19	2	4	66	5	21	—	6
Deaths	—	—	1	—	—	—	—	—	—	—
Diphtheria	725	44	233	187	41	971	53	257	76	20
Deaths	11	1	2	2	1	21	—	4	1	—
Dysentery	249	65	45	2	—	177	30	59	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	—	—	—	2	—	2	—	—	—	—
Deaths	—	—	—	—	—	1	—	—	—	—
Erysipelas	—	—	67	6	1	—	58	9	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	—	—	93	—	—	—	—	59	13	3
Deaths	51	6	14	25	6	48	2	15	—	—
Measles	546	50	47	17	—	6,803	360	379	40	30
Deaths	1	—	—	—	—	7	—	—	—	—
Ophthalmia neonatorum	91	13	13	—	—	68	3	13	2	1
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	—	—	1	—	—	7	1	3	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza*	579	41	19	1	5	659	39	6	—	2
Deaths (from, influenza)	13	4	8	1	3	18	1	1	—	—
Pneumonia, primary	—	—	195	11	—	—	164	19	7	8
Deaths	—	—	32	8	12	—	—	—	—	—
Polio-encephalitis, acute	—	—	—	—	—	2	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Polio-myelitis, acute	13	—	—	—	—	25	1	—	28	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	3	15	—	—	—	6	10	3	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	158	15	10	2	1	162	8	10	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	3,317	316	445	67	105	2,619	169	430	59	30
Deaths	1	—	—	1	—	1	—	—	—	—
Smallpox	—	—	—	—	—	—	—	7	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	7	—	13	—	—	12	2	6	8	2
Deaths	—	—	—	—	—	—	—	—	1	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	1,459	103	154	10	22	984	64	21	36	6
Deaths	13	1	1	1	—	6	—	—	3	—
Deaths (0-1 year)	355	49	67	43	19	314	27	67	25	27
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	4,089	627	612	199	124	3,818	523	550	182	—
Annual death rate (per 1,000 persons living)	—	—	13.8	13.1	—	—	—	12.4	12.2	—
Live births	5,973	704	859	395	283	5,847	715	899	380	260
Annual rate per 1,000 persons living	—	—	17.5	26.0	—	—	—	18.6	25.4	—
Stillbirths	200	24	37	—	—	188	17	39	—	—
Rate per 1,000 total births (including stillborn)	—	—	41	—	—	—	—	42	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evaluation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Members' subscriptions should be sent to the Secretary of the Association.

TELEPHONE No.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPH—TARY, "iology Westcent, London; 'SECRE-Gardens, Edinburgh.

B.M.A. Sec

ANY QUESTIONS?

Chronic Infective Sinusitis

Q.—May I have suggestions for the treatment of sinusitis affecting the maxillary and frontal sinuses and probably the deeper sinuses? The affection is of some standing. The age of the individual is 50. Is there any drug of the sulphonamide group which is recommended, and if so, what form of drug, what dosage, and what form of administration? Radiant heat and suchlike remedies have already been exploited, with small benefit and improvement for a short period only.

A.—The variety of treatments for chronic sinusitis is a gauge of its obstinacy. It is worth while first finding out by bacteriological examination of nasal swabs if there is a specific infecting organism, of which the most frequent are the haemolytic streptococcus, pneumococcus, *Staph. aureus*, Pfeiffer's or Friedländer's bacillus. The first two of these organisms are more susceptible than the others to sulphonamides, which are more likely to be effective in preventing a flare-up of the sinusitis after an acute coryza than in curing the chronic condition. Sulphamezathine, sulphadiazine, or sulphathiazole in doses of 1 g. by mouth 4-hourly should be given for 2 to 3 days after onset with the patient in bed or resting indoors. Continue with further smaller doses for another 2 to 3 days. An attempt at cure with an autogenous vaccine may be made, and in this connexion it is worth remembering that chronic sinusitis may be an allergic condition, so that dosage should at first be small and carefully graded. If during an acute attack there is obstruction to the discharge with pain over the sinuses, a few drops of 0.5% ephedrine in normal saline followed by argyrol instilled into the nostrils will often give relief. To relieve the chronic nasal obstruction which may be troublesome in the chronic state, giving rise to symptoms of chronic sore throat and bad taste in the mouth, an ammon. carb. or pot. iod. mixture (2- to 3-gr. doses) may be taken in the evening. The patient should be advised about maintaining his general health by regular habits and a well-balanced diet, and he should at all times take more than ordinary precautions to avoid catching colds. (See *B.M.J.*, Sept. 4, 1943, p. 318.)

Physical Training and Female Fertility

Q.—Is there any truth in the belief that excessive physical strain may produce sterility in a woman? I was asked this question recently by a girl about to embark on physical training as a career.

A.—There is no scientific evidence, known to the writer, to support this belief. Many girls who excel at physical training or athletics are naturally inclined to such pursuits by reason of their endocrine make-up. They are sometimes of masculine type, with a muscular, heavy build. Such women undoubtedly tend to have impaired fertility and complicated pregnancies and confinements, but these features should be regarded as further evidence of slight endocrine imbalance rather than the result of physical exercise. If the girl in question is essentially feminine then the pursuit of physical training should not affect her fertility.

Another Rh Question

Q.—Is there any evidence that congenital haemolytic disease is less severe when the birth has been by Caesarean section performed prior to or early in labour—that is, does the process of parturition cause an increased transference of the anti-Rh agglutinin from the Rh-negative mother to her Rh-positive foetus? Likewise is there an increased transference of the Rh agglutinin from the foetus to the mother? It has been stated that the mother's antibody titre is highest between the 7th and 21st days of the puerperium; this would presumably be consistent with an increased transference of the Rh factor from the foetus during parturition.

A.—Rh-negative mothers with anti-Rh agglutinins in the blood sometimes show a fall in the agglutinin titre for a few days after parturition, followed by a sharp rise to a maximum 2 to 4 weeks later. This is thought to be due to an increased transference of Rh

agglutinin from the foetus, probably owing to the escape of blood into the maternal circulation during parturition. A similar explanation is thought to account for the almost constant sharp fall in maternal iso-agglutinins after a hetero-specific pregnancy (Group A mother with Group A or B foetus; A or B mother with B, A, or O foetus). The condition is comparable with that observed in recipient of an incompatible transfusion, where the iso-agglutinin titre at first falls owing to absorption by the transfused antigen, later rises sharply; this is well seen in a mother with anti-agglutinins who is transfused with Rh-positive blood.

Very little is known about the quantitative aspects of the passage of anti-Rh agglutinins from mother to foetus. It is not at all possible to demonstrate them in the cord blood of affected children even when the mother's titre is high, but when demonstrable titre is always lower than the mother's. Such differences have been observed both in natural and in Caesarean births, though number of cases fully studied is small. Caesarean section has been advocated on account of the great liability to intranatal death of foetal asphyxia. Protracted and difficult labour is therefore dangerous, and the lower uterine segment operation under local or spinal anaesthesia has been preferred, since general anaesthesia and use of sedatives are undesirable from their liability to depress foetal respiratory centre. A common cause of foetal asphyxia in such babies is intracranial haemorrhage, to which there is a special liability from the associated haemorrhagic tendency in haemolytic disease of the newborn. There is no evidence that haemolytic disease is less severe when the birth is Caesarean, and the disadvantage claimed for such interference is a diminished risk of complications such as intracranial haemorrhage and foetal asphyxia.

Progressive Muscular Atrophy

Q.—Removal of the thymus gland has recently been advocated in the treatment of certain forms of myasthenia. In view of this would be grateful to learn whether there has been any recent investigation into progressive muscular atrophy, and of any advantage in the treatment of this most heartbreaking condition.

A.—There is no recent work about the treatment of progressive muscular atrophy. Its onset is not related to any disturbance of function at the myoneural junction, but it appears to be a primary degeneration of anterior horn cells, of unknown origin. Treatment is purely palliative, being aimed at conserving the patient's strength. Vitamin therapy has not been proved of use.

Inhibiting Secretion of HCl

Q.—What has been found experimentally to diminish or abolish free hydrochloric acid in a normal stomach?

A.—The secretion of free hydrochloric acid is inhibited by the intravenous or intramuscular injection of urogastrone, a water soluble substance obtainable from the urine of dogs and man. Urogastrone is possibly identical with enterogastrone, a substance which is formed in the intestine when fats are ingested; this also inhibits the secretion of hydrochloric acid on injection. Urogastrone is said to be diminished in the urine of patients with peptic ulcer, and there are good prospects that it may be developed in a suitable form for the treatment of that disease. These effects must be differentiated from those of pregnancy urine extracts, which are likewise said to accelerate the healing of peptic ulcers, though they do not diminish the acidity. Developments may also be expected from current research on carbonic anhydrase. This ferment is present in high concentration in the gastric mucosa and apparently plays a part in the formation of hydrochloric acid. Thiocyanate inhibits equally the ability of carbonic anhydrase to catalyse the hydration and dehydration of carbon dioxide and the secretion of hydrochloric acid by the gastric mucosa of dogs. It would appear that the toxic side-effects of thiocyanate are too great to permit its use for this purpose in man, and it would be well worth while to institute a search for a less toxic chemical with the same or greater power to inhibit the gastric secretion, in the same way as thiouracil and thiouracil were discovered from the systematic study of inhibitors of thyroid secretion.

Unconscious after Head Injury

Q.—A man aged about 70 is found deeply unconscious in his bed one morning. He had had a fall downstairs two weeks before, but had gone about as usual, though he complained of headache. Assuming that his condition might be due to one of the following causes, would you discuss the differential diagnosis and means of investigation: (1) extradural haemorrhage; (2) subdural haemorrhage; (3) subarachnoid haemorrhage; (4) cerebral haemorrhage; (5) cerebral thrombosis. I am assuming that an accident might determine the onset of a cerebral thrombosis. Do you agree?

A.—This differential diagnosis is very satisfactory. By far the most likely condition to have caused the headache and delayed unconsciousness in a man of 70 is a subdural haematoma. This normally gives headaches and a slowly increasing impairment of consciousness without correspondingly severe local signs. The

LETTERS, NOTES, AND ANSWERS

Nov. 13, 1943

story is long for an extradural haemorrhage, but does not exclude a fracture through the temporal bone in this condition might damage to the middle meningeal artery. Subarachnoid bleeding occurs in nearly every head injury and is unimportant unless a simple lumbar puncture could have excluded this. Intracerebral haemorrhage would almost certainly have been associated with long tract signs, and its differential diagnosis from cerebral thrombosis may be very difficult. The headaches for a fortnight before these were not the cause, and trauma does not usually give rise to cerebral thrombosis. In investigating this case I should have done a detailed neurological examination, an x-ray of the skull to look for fractures, and a lumbar puncture, reading pressures. If there was xanthochromia with a rise in protein I should have recommended bilateral exploratory burr holes as soon as consciousness had become impaired. Burr holes should never be omitted in cases of this sort.

Family History of Encephalitis Lethargica

Q.—A girl, now aged 23, tells me that, at the age of 6 she contracted encephalitis lethargica and was admitted to hospital. After five years she was discharged cured—one of the lucky 20%. The amazing thing about her case is that she gives a family history of both father and grandfather who died with encephalitis lethargica. She asks if it is safe for herself, and more particularly for the child, for her to have a baby. I have never heard of this in textbooks. Being hereditary and can find no reference to this in textbooks. The girl has been examined by myself and at a hospital, and physically she is perfect. She has an attitude and way of speaking which is a trifle "lethargic," but passably normal.

A.—Encephalitis lethargica is an infection and therefore cannot be inherited. It is caused by a virus, which can remain alive in the brain for many years, and some viruses can be transmitted from parent to child in the ovum or spermatozoon. The history of this patient suggests that the virus of encephalitis lethargica may be transmitted in this way, but, if so, it must be a very rare occurrence. I do not remember any example of a parent and child having had encephalitis lethargica, and I am sure I have never heard of one in which three successive generations were affected. I think that if this patient has a child the risk of it developing encephalitis lethargica is too remote to be considered seriously.

Treatment of Vulval Warts

Q.—Can you help me to treat a crop of gonococcal warts on the labia majora of a young woman who has just been confined? She acquired this disease during pregnancy (from her husband), was treated and reported cured. The child is free from disease and the mother has no signs or symptoms other than this crop of irritating warts. I do not want to send this girl back to a V.D. clinic unless it is necessary.

A.—Vulval warts tend to flourish during pregnancy; now that the confinement is over and there is no gonorrhoeal discharge they may begin to regress. The first thing to do is to allay them and bathe the affected parts with weak antiseptic; then dry them and keep them dry with a dusting powder, such as zinc oxide, boric acid, and bismuth subgallate, equal parts. If this does not cause disappearance, various local methods may be tried: (1) Paint frequently with: liq. arsen., 1 part, vin. ipecac., 1 part, sp. vin. rect., 2 parts. (2) Touch the warts with either nitric acid or trichloroacetic acid, or with a mixture of salicylic acid, 1 part, acetic acid, 8 parts; the neighbouring skin should be protected with vaseline and the labia majora kept apart with a piece of lint. (3) Destroy with electrocautery. (4) Coagulate with the diathermy current. A few move the warts by scraping with a curette or sharp spoon. A few applications of superficial x rays are often useful in preventing recurrence, which is common; these should be carried out only by an expert.

Much depends on how big a crop of warts has to be dealt with. Mild measures will usually be effective if the warts are few and scattered; more drastic ones are indicated if there are large masses. Warm, moist conditions favour the growth of warts, and warts are infective. In carrying out treatment these facts should be borne in mind.

Myopic Schoolboy

Q.—A schoolboy between 13 and 16 has myopia of mild or moderate degree. An oculist prescribes suitable lenses so that he can see at a distance. The boy is then told only to wear the glasses for near work or intense gazing at a distance, such as the blackboard. The usual result is that the boy keeps his glasses in his pocket and does not remember to wear them at all unless he really needs help for distant vision; he may then remember to use them. No boy wants to be seen in spectacles. The only value of the glasses, so far as I am aware, is to enable him to see at a distance. There is nothing curative about them. With them he can see birds, recognize his friends, watch the cricket, see the school clock across the quadrangle. Without them he misses all these things, whatever he may say to persuade one to think that he can

see well. If he always wore them he would not feel self-conscious for long. Why, therefore, tell him that he only needs to wear them on occasions? Some specialists tell him to wear glasses for reading, when he knows for himself that he does not need them. Is this on the assumption that it is close work which goes with study at schools that is the cause of the myopia? I am entirely in the dark as to the rationale of the modern treatment of myopia. It seems unreasonable to assume the condition is due to study, entirely wrong to wear glasses for near work, and psychologically unsound to start off by minimizing the occasions for which spectacles are to be used. I should be grateful if I could be put right in this matter.

A.—In myopia of a very mild degree it is better to be circumspect in prescribing glasses. The wearing of glasses by a scholar has a psychological effect dependent upon the make-up of the child. In cases of very slight myopia where the mental effort is likely to be marked it is better to await events. This, in practice, is found to be wise: for though glasses would benefit distant vision to some extent, the child can see the blackboard well enough without them, aid if he is in the front of the class, and he can see to read slightly better than with glasses. In these circumstances it is more than likely that any glasses will be kept in the pocket. The parents should be warned that myopia tends to increase with the growth of the child and that glasses may be required later. Where the short-sight is sufficient to prevent clear and easy vision of the blackboard from any position in the class, glasses should be ordered and should be worn all day long. With the exception of football and swimming this rule should be rigidly adhered to, otherwise the glasses will not be put on when they should. Unsplinterable lenses used to be ordered for games, but at the present time there is some difficulty in obtaining the safety glass. Plastic lenses are very light in weight and meet the case, but are rather easily scratched. At one children's clinic there has been only one case of splintering with ordinary glass in about 13,000 spectacles.

Glasses in myopia cannot be curative—there is no recognized cure of myopia—but there is a great weight of opinion that they limit the usual increase. Two factors must be considered when a moderate myope reads without glasses. First, the head is held too close to the book. This necessitates over-convergence of the eyes and consequent undue pressure by the eye muscles on the globe of the eye, tending to accentuate myopic elongation. Secondly, it is said by some that a congestion of the eye is engendered which is deleterious. The habitual stooping may also affect the carriage of the child. The wearing of the proper correction entails the use of the ciliary muscle when reading, with a consequent improvement in the intra-ocular circulation. In other words, the eye is being used as intended by Nature. The myope reading without glasses exercises little or no focusing (hence the popularity of dispensing with glasses), and atrophy of the ciliary muscle of a corresponding degree results.

To sum up: very slight myopia—no glasses, from the practical and psychological points of view: other degrees of myopia—glasses for constant wear.

Intractable "Athlete's Foot"

Q.—May I have suggestions for the treatment of an intractable case of "athlete's foot"? A patient contracted this complaint two years ago. He was first treated with the usual fungicidal ointments, to which later skin-healing ointments were added in order to get deep penetration, as the lesion seemed very deep-seated. X rays were later applied, with beneficial results for one month. After this, in spite of the application of new dye preparations, the lesion continued to spread. As a last resort I used carbolic to strip the skin deep, and reapplied dyes. I am now trying azochloramid, but so far results don't look very satisfactory. The condition now occupies all the sole of the foot except the heels, toes, and base of toes, and shows a tendency to spread up the medial surface of the foot.

A.—Although "athlete's foot" usually means ringworm, it also has a popular application to a variety of symptoms which may or may not be parasitic. Dermatologists are well aware of the refractory nature of a proportion of the ringworm infections of the foot, and have attributed this to the difficulty of getting at and destroying the fungus in the thickened white skin between the toes or to reinfection from diseased toenails. This difficulty is reflected in the very numerous "specifics" which are put on the market from time to time.

Eczematoid ringworm of the foot was first recognized and described in France in 1892 by Djelaleddin-Moukhtar and was elaborated by Sabouraud and other workers long before its nature was appreciated elsewhere. It is thus essentially a European complaint, although more common in the United States. The qualifying term "eczematoid" is significant because it calls attention to the eczema moiety of the eruptive process, which is often aggravated by the strong fungicides, which convert a simple process into an extensive eczema. In view of this it may be well, in the circumstances related by the questioner, to discontinue all active treatment and use simple measures suitable for acute eczema, such as boric zinc ointment and lead calamine lotion. When it becomes possible

a search for fungus in the skin between the toes or elsewhere should be made, as it is possible that the fungus has been eliminated by the previous treatment.

Epidermophytosis

Q.—Is there any known cure for chronic and intractable trichophytosis of the hands and feet?

A.—Presumably the question refers to epidermophytosis of the hands and feet. This can be very nearly impossible to cure. In my experience the most valuable remedy is dithranol as a 2% solution in benzene (B.P.), or in the form of an ointment from 2 to 4% in strength, preferably in an emulsifying base. Owing to its staining and irritating effects, dithranol has to be used with caution.

Paget's Disease Again

Q.—Can anything be done for a case of Paget's disease of the bone in a man aged 46? He has the usual gross thickening and sclerosis of bone in skull, pelvis, femurs, lumbar and dorsal spine. He has been treated with ultra-violet light, suprarenal extract, and many other remedies, without benefit. His chief complaint is that he cannot stand upright for more than a few moments because of the pain which runs down his back and into his legs, the pain being a rather unusual constant feature in his case.

A.—As stated in our previous answer about Paget's disease (Oct. 16, p. 501), in all such cases it is important not to allow the spectacular appearances in the radiographs to take attention away from other possible causes of symptoms. Spinal tumours and other lesions possibly causing referred pain to the legs must be satisfactorily eliminated. At the same time it should be remembered that a certain number of cases of Paget's disease undergo sarcomatous change. Radiotherapy, if nothing else is found, should be tried.

LETTERS, NOTES, ETC.

The Tobacco Habit

Sir HAROLD SCOTT (Braintree, Essex) writes: Referring to the question on page 502 of the issue of Oct. 16 concerning a cure of the tobacco habit, may I suggest a remedy which I have found efficacious, first with myself and later in other cases of those who have wished to stop the smoking habit? It is to rinse the mouth with a solution of 0.25% silver nitrate. I believe that I originally got the idea from the *British Medical Journal*, but it must have been at least thirty years ago.

Treatment of Sweating Feet

Surg. Capt. D. H. C. GIVEN writes: The following method of treating sweating feet, introduced by the factory chiropodist almost 12 months ago, has proved most successful. Many of the patients returned to report that it was the first remedy after years of suffering that had brought real relief and cure. Procedure is as follows. Apply a lotion of 3% salicylic acid in a spirit base to the affected parts t.d.s., allowing it to dry off before replacing the footwear. A small quantity of the following powder should be dusted daily into the socks: salicylic acid 3 parts, starch powder 10 parts, talcum 87 parts. Improvement is usually manifest in three to four days, when the application can gradually be reduced to suit the case.

Dr. ASTLEY V. CLARKE (Leicester) writes: During the last war we also had the problem of sweating feet and tried all sorts of remedies. We came to the conclusion that proper ventilation of the feet—that is, boots not too tightly fitting—together with daily washing of the soles with soap and either a nail brush or, better still, a pumice stone to rub the soap well in and remove sodden epidermis, was the simplest and was very effective. We found the men had never washed the sole of the foot with soap, as to do it is rather a gymnastic performance. In civil life, too, this treatment is all that is necessary in most cases. Forty years ago sweating feet among young women out-patients was very common, but this is almost unknown now that thin stockings and shoes give the proper ventilation. The same girls often had chlorosis, and removal of the stays they wore then has, I believe, been a potent factor in the disappearance of chlorosis.

Dr. ALBERT W. BAUER writes: Referring to the suggestion made by Capt. E. Colin Jones (Oct. 30, p. 558) on the treatment of sweating feet I take the liberty of calling attention to the treatment used in the old Imperial Austrian Army, which is still simpler, and proved very effective not only in combating sweating feet but also the spreading of furunculosis by contact and dressing to which soldiers (and civilians) often are subject through uncleanness caused by the impossibility of changing stockings and underclothing, etc. The treatment consists of painting the soles and spaces between the toes and/or the area where furunculosis is present with a 10% aqueous solution of formalin for three days daily and then once or twice weekly. By this painting the skin is tanned and so hardened against spread of infection. The actual furuncle is, of course, treated as usual. Here, too, a little supervision is necessary to prevent the skin

from getting too dry or too irritated. An aqueous solution of formalin contains about 40% of formaldehyde; to avoid error, prescription must be made by using the chemical formula—40% of H.CHO.

Recurrent Erysipelas

Dr. H. W. BARDER (London) writes: With regard to the case of recurrent erysipelas referred to in the "Any Questions?" column (Oct. 23, p. 533), I should suspect that the source of the recurrent invasion of the lymphatics is one or more streptococcal fissure the retro-auricular fold, or possibly at the entry of the meatus. This is so, no treatment is likely to prevent the attacks unless fissures are permanently healed. Recurrent lymphangitis (relapsing erysipelas) is one of the most important and serious complications of chronic streptococcal infection of the skin, because the repeated invasion of the lymphatics may eventually cause their blockage giving rise to persistent elephantiasis and permanent disfigurement. In these cases the attacks of lymphangitis are seldom accompanied by much rise in temperature, and the general disturbance is slight. This is as one would expect, since the patient is a chronic streptococcal carrier, and the strain of organism is not virulent. Fissures occur in the natural folds of the skin as a complication of chronic streptococcal intertrigo, or at muco-cutaneous junctions. For brevity's sake the cases may be classified according to site involved in tabular form:

Site of the Lymphatics	Portal of Entry to the Lymphatics	Comments
1. Nose, malar regions, and lower eyelids	Fissures at the angles of the nostrils, often associated with impetiginous anterior rhinitis, chronic nasal catarrh, and sometimes with sinusitis	If elephantiasis superimposed on the condition known as "erysipelas periorificial" (Kaposi) or "oedema" (Hutchinson) results
2. Ears, adjacent parts of the face and scalp	Fissures in the retro-auricular space with chronic streptococcal intertrigo, which may in turn be secondary to a seborrhoeic dermatitis spreading from the scalp; or chronic meatitis, with fissures at the entry to the meatus, also often primarily a seborrhoeic infection	Persistent elephantiasis of the pinnae may be a sequel
3. Lips	Fissures in the vermilion borders of the lips with chronic cheilitis, or at the labial commissures	Persistent lymphatic oedema of one or both lips is relatively frequent, and extremely difficult to influence by treatment
4. Scrotum and perineum	Chronic streptococcal intertrigo of the internal cleft with radiating fissures in the anal folds, over the coccyx, and in the median raphe of the scrotum	In these cases large numbers of pathogenic streptococci may be cultivated from the stools. Elephantiasis of the scrotum is not uncommon
5. Dorsum of the foot, ankle, and leg	Fissures between the toes, or a chronic paronychia	The streptococcal fissure almost always a complication of interdigital dermatophytosis, treatment of which is essential, attacks of lymphangitis in this situation may be accompanied by a considerable pain and malaise. Persistent elephantiasis of both legs may gradually become established. This is the most serious complication of epidermophytosis of the feet

These are the commonest sites at which relapsing lymphangitis occurs, but not the only ones. I have, for example, seen the wall involved in a woman with submammary intertrigo. The recognition of the nature and origin of this form of relapsing erysipelas, which is a clinical entity in itself, has led to many persons unnecessarily disfigured and even partially incapacitated. Its treatment is a chapter in itself.

Parodontal Disease

Dr. BRIAN BOYD-COOPER (the Royal Dental Hospital of London) writes: In the *Journal* of Oct. 23 (p. 534) I was much interested to read the answer given by your correspondent under the heading "Any Questions?" dealing with the query on the treatment of parodontal disease. I should like to congratulate him on the able and succinct and sound advice he has given. There is, however, a startling omission—namely, there is no mention of securing the collaboration of the dental surgeon in such a case. Your correspondent wisely states that "local treatment is of more value than general." Surely this is within the province of the dental profession, to whom such procedures as are suggested more naturally belong?

* We agree.—Ed., B.M.J.

LONDON SATURDAY NOVEMBER 20 1943

SOCIAL MEDICINE: ITS MEANING AND ITS SCOPE

BY

JOHN A. RYLE, M.D., F.R.C.P.

Professor of Social Medicine in the University of Oxford

"Salus populi suprema est lex"

There has been much discussion in the medical journals and the daily press in recent months as to the purport and prospects of social medicine. In the minds of some of the profession there would appear to linger a confusion of thought as to the meaning of the term; some uncertainty even as to the underlying ideas which have prompted the discussion. The laity and members of the social services and student bodies are eagerly seeking enlightenment; less harassed and preoccupied and, perhaps, more hopeful of the future than the overworked doctor, they have sometimes appeared more receptive and understanding than the profession whose intimate concern these ideas must shortly become. The prevailing uncertainties would seem to be based upon two main misconceptions: (1) that social medicine is just another name for preventive medicine as we now know it, and (2) that social medicine and socialized (or State) medicine are synonymous. It seemed to me that it might be helpful to trace the sources of these misconceptions and to attempt a brief account of what the actual meaning and objectives of social medicine are in the view of those who have, for longer or shorter periods, insisted on the need for an evolutionary change in much of our general teaching, philosophy, and practice.

A Recent Awakening

We are most of us conscious of the fact that medicine during the past quarter of a century has become (inevitably, be it allowed) not merely more specialized but also more technical, and that in the process—for the technicalities are often precise, intricate, and time-consuming—the old aetiological interest and humanism of our fathers have tended to take a second place. In the teaching hospitals this can scarcely be disputed. Investigation to the limit, mainly by objective methods and often with too little said to or done for the patient during or after the tedious process, has been the prevailing trend, especially in the case of the more chronic or seemingly more obscure varieties of disorder and disease. More and more accurate assessments of local pathology, with the help of more and more colleagues and instruments, and less and less intimate understanding of the patient as a whole man or woman with a home and anxieties and economic problems and a past and a future and a job to be held or lost, have become the order of the day. As we direct our students, so in large measure must the outlook and method of each new generation of doctors be determined. Over-reliance on specific objective tests; too strong a belief in the potency of certain treatments aimed at altering established disease-states or too deep a despair at the apparent unalterability of others; too little knowledge of morbidity and mortality figures, of the relative incidence of diseases in the community, of the vast prevalence of "illness" or "debility" without "physical signs" and of their several significances; too vague an appreciation of the fact that these illnesses and, indeed, many of the organic

diseases have discoverable origins in social, domestic, or industrial maladjustment, in fatigue, economic insecurity, or dietary insufficiency—have not these already set their stamp upon the work and outlook of the younger generation of practitioners? And are the majority of those who teach them, most of whom have but little close acquaintance with the conditions in which their poorer hospital patients live and work, much wiser? There are notable exceptions, it is true, but their numbers dwindle. The sciences and techniques have come to dominate medicine to the exclusion of the most important science of all—the science of man—and the most important technique of all—the technique of understanding. Science without humanism may work with atoms but it will not work with men.

In the United States, where this "mechanized" medicine has perhaps captivated the thought and action of the doctor even more than in this country, there has been a recent awakening to the need for a return to the older methods of study and assessment, the methods of the general physician—the methods which the writings of a Trousseau or an Osler were ever at pains to describe but which are often barely mentioned in modern textbooks. Canby Robinson (1939) has told how at Johns Hopkins it was found necessary to launch a new experiment with a physician and assistants to stand in a special personal relationship to the patient—a relationship which all the specialists and interns responsible for his more specific investigations and treatments somehow failed to achieve. With the aid of the trained medical social worker and with closer collaboration with the departments of public health and assistance, the interdependence of clinical, social, and environmental studies and the contribution which each can make to a better appreciation of aetiology and prognosis and to a better organization of after-care are now being taught to the student in several of the American schools. Visits are made to the environment in which illness has had its beginnings. Tuberculosis and venereal disease are being considered as human, educational, and social problems; and not merely as medical and surgical problems with their set routines for diagnosis and therapy. The neuroses and psychoneuroses, it is found, are often better helped by these new alliances than by calling yet another specialist to the bedside while the physician or surgeon, who has "excluded organic disease," retires from the scene with a sigh of relief for something accomplished—even though it was a "negative" something where the patient was concerned.

Causes of Misconception

Unprofitable trends in clinical teaching and research, educational errors at various stages in the curriculum—quite as much as its overcrowding—would indeed seem to be among the initial causes of misconception, of the failure to appreciate what social medicine, a direct development and expansion of clinical medicine, seeks to provide for the student and for the individual patient and for those closer and more useful relations between the people and their medical services which we would all like to see established. For social medicine, as its name implies, clearly has a main concern with the group as well as the individuals composing the group, with the many and varied problems created by sickness in the family and the community as a whole. The illustrations or texts

for the contributions which it makes, or at present fails to make, are often to hand in the ward and out-patient clinic, and should be first presented there, but there are many larger problems to be explored "in the field."

The Third Epoch of Preventive Medicine

We are living to-day at the end of the second (or the beginning of the third) of the three great historical epochs of preventive medicine in this country. Starting a hundred years ago with Chadwick—followed a little later by Parkes and Simon, Southwood Smith and Farr—the first epoch was occupied with the disclosure of the appalling conditions in which the working classes then lived, of the prevailing lack of sanitary provisions, of the hovel-like homes, of the defective and contaminated water-supplies; of the high death rates; and with the earlier endeavours to limit the ravages of the acute infectious diseases—typhus, typhoid, smallpox, cholera, and the malignant scarlet fever of those days.

The second epoch has continued and extended the work of the first, but it has also witnessed the attack on the chronic infective diseases—tuberculosis, venereal disease, and now (we may hope), with an improved understanding of its intimate connexions with poverty and crowding and streptococcal throat infections, on rheumatic fever, which (with chorea and rheumatic heart disease) remains second only as a cause of death to phthisis between 5 and 45 in women and follows phthisis and violence in men (Morris and Titmuss, 1942).

The idea that many non-infective diseases can also be considered as preventable and so may eventually be brought within the jurisdiction of a nation's health authority has sunk more slowly into the consciousness both of the profession and of the laity. But before our eyes and in the space of four years of war we have seen the work of the great students of nutrition bear fruit, a Ministry of Food established, and our people as a whole in better health through better feeding, in spite of many shortages, than they were in times of peace. Measures to secure better standards of nutrition, better housing, and better education, and to reduce industrial fatigue and hazards (although in all these directions we still have a long way to go) have marked the beginning of our third epoch. In this period we have realized not only that many non-infective diseases (including rickets, chlorosis, other nutritional anaemias, and much retarded physical and mental development) are readily preventable, but also that by preventing them and raising the general standards of health—*especially in early life*—we assist indirectly the attack on morbidity and mortality due to the diseases of infective origin (including tuberculosis and, in all probability, most of the acute infectious fevers of childhood). Universal pasteurization of milk and an extension of diphtheria immunization could carry us a stage further.

There remain, however, other diseases in plenty which must be regarded as in large degree preventable through socio-medical reforms: diseases which are associated with faulty habits of life or conditions of living; diseases too which are, in our existing order, becoming yearly more prevalent. Of such, for example, are gastric and duodenal ulcer, now greatly on the increase, and the psychoses. Peptic ulcer in the industrialized countries is competing with tuberculosis and rheumatic fever, not as a cause of mortality (although that is serious enough), but as a cause of sick-wastage, of chronic or recurring disability affecting men and women at the time of life when they should be most useful and most active and their responsibilities are greatest. It affects certain physical and temperamental types more than others; it affects all social groups, but whether equally or unequally we do not yet know. It is a disease notably of the latter half of the industrial era, the era of money-getting and money-lack, of occupational and domestic anxiety, of wars and rumours of wars, of restless living and "snack" meals and excessive tobacco consumption. Its therapeutics leave much to be desired. Its prevention has not been seriously considered. In common with other non-infective diseases it has not come within the scope of our present public health organization. What was once a relatively rare disease can, however, become so again when our work and our social and individual lives are better planned.

The same factors which have increased the incidence of peptic ulcer and a prominent group of visceral disorders commonly described as "psychosomatic" (an unsatisfactory title, since all diseases have their physical and mental components) have been partly responsible for the prevalent psychoneurosis in the community. Faults of upbringing, domestic stress, industrial fatigue,

inadequate sleep and holidays, economic anxieties—factors equally alterable by improved education, more ample accommodation for families, factory welfare, and social insurance—have played their significant part. In the meantime we try to cope with their consequences with bottles of medicine and certificates a multiplication of psychiatric clinics at an ever-increasing cost to the community.

Endemic goitre persists in many rural areas along the goitre belt of England. We know that it is largely preventable and that it has been partially controlled in other countries, but have not yet taken purposeful steps to control it in our own. Even cancer, quite apart from its occupational varieties, has its social or class distinctions, for deaths from cancers of the surface and of the stomach and upper alimentary tract are approximately twice as common among the poor as in the more privileged sections of the community. Dental disease (almost unknown in some native communities almost universal with us, but in its graver forms common among the poor, and has many serious secondary consequences.

A Socio-Medical Problem

Good food and habits of feeding, good houses, better facilities for open-air activities and cleanliness, better education and cultural opportunity, holidays and social security—could they be extended to the populace as a whole—would bring benefits, both human and economic, to the individual and to the State beside which the accruing from all our remarkable advances in remedial medicine and surgery of the last century, valuable though they have and must remain, would make but a poor showing.

The evidence for such contentions is already available in extensive statistical studies of the differential mortality figures as disclosed in the Registrar-General's records, relating to the five main social groupings; and mortality is only a very partial index of morbidity. Whether we consider deaths from tuberculosis or rheumatic fever, disease or the infantile death rate, the figures mount steadily; they are traced from the economically favoured classes to those of the lower-income groups. Notwithstanding that there has been a satisfactory downward trend in infantile mortality—always a crude index of social condition—in each of these social groups, there is some evidence for an increasing disparity in the mortality rates as between the highest and lowest groups (Titmuss, 1943). According to our national statistics for the period 1930-2 the disparity in mortality in the first month of life as between the best and worst economic grades was of the order of 50%, but in the latter phase of post-natal life (i.e., 6 to 12 months) the difference was as great as 439%. Before the war the infant death rate in some of our northern industrial cities was as much as three times that in certain suburban districts of Surrey, and British figures compared unfavourably with those from other progressive countries. The bearing of all this on national efficiency and happiness and on the population problem need scarcely be stressed. Outside the relatively small "social problem" group there is no good evidence of genetic inferiority among the poorer classes. The situation should therefore be regarded as susceptible of ultimate amendment by economic and environmental changes.

These and other cognate findings concerning the influence of class, occupation, or geography on health have been frequently reported upon by our leading statistical authorities. They are available in papers or publications by Major Greenwood, Peckham, Stocks, Bradford Hill, H. M. Vernon, and many others in this country, and in various reports prepared for the Medical Research Council. But the lag between discovery or demonstration and action is ever a long one. Here, however, is a socio-medical problem, a situation which we cannot lightly accept and of which we should all be more than vaguely aware. Of the mass of non-lethal disease, much of it alterable or avoidable, we have no reliable records, but the Peckham Health Centre experiment (1938) and family studies have given us a disturbing picture of the extent of urban unfitness and have suggested some of the measures which could help to lessen it. *Our Towns: A Close-up* (Oxford University Press, 1943) and other wartime revelations have also thrown light on dark places for the general public and for those of our profession whose particular experience has been remote from the lives of those who work in slum or factory or mine or who man the ships of the great but grimly unhygienic merchant navy. A more detailed knowledge of these things—in brief, of ultimate causes—is surely as much due to the medical student and the practitioner as to the detailed knowledge of bacteriology or morbid anatomy. If it

are ill informed, or if their own experience in the social and medical fields remains too limited or uncommunicated, how can we expect the people, as voting citizens, and their municipal or parliamentary representatives to know and act?

And how much yet remains to be done in the shape of combined medical and social inquiry! At present we have no reliable morbidity (as distinct from mortality) statistics apart from those relating to the notifiable diseases. Nor have we sifted, as carefully as we shall have to sift, the particular influences operating within the three main adversities due respectively to low economic, environmental, and educational standards. Nor have we seriously begun to study health itself within its considerable ranges of variation for age, sex, and occupation, or to determine the manifestations and standards which distinguish the individual in "full health" from the individual with "no demonstrable disease" or with early illness. We have much to learn from periodic health examinations and the study of fit groups in childhood, adolescence, and later life, and especially in the schools and Services. Growth and development in differing environments await a much fuller investigation. There is no lack of material for the student of social disease and disability, and of those states of physical, mental, and moral health or "wholeness" which must provide the target for our human planning. While disease accompanying poverty and manual toil provides a problem of far greater magnitude it should also be remembered that there are diseases of affluence or due to professional overwork and anxiety which better education and individual discipline and hygiene could conspicuously reduce. Man and his heredity, his types, and his reactions to environmental stress are inexhaustible studies.

New Training and Opportunity

But enough, perhaps, has been said to explain why social medicine—no new concept and certainly not a new specialism, for its principles have long been germinating in the minds and reflected in the motives of all good practitioners and health officers—has required and received its new impetus; enough, too, to indicate its wide scope and that it envisages something far more comprehensive than our existing preventive medicine. It is a concern of all branches of our medical and health services, remedial and environmental, and of their ancillary services, and, among these in particular, of the hospital and municipal social worker. It must eventually invoke, through health education as an essential part of a broader general education continuing into adult life, the co-operation of the public as a whole. Its teachers, although special appointments in medical schools and institutes will be required in due course, must come to include all teachers of the main clinical subjects. Social medicine is indeed a necessary interest of the general physician, whose numbers within our schools must surely be increased and whose demonstrations could often be both clarified and amplified by fuller and more frequent references to initial or basic aetiology, and to rehabilitation and subsequent care, as an offset to concentration upon particular pathologies and immediate treatments. The co-operation between clinical teacher and hospital almoner (as social worker) in ward and clinic must become much closer.

The students and investigators of social medicine have long been active, and will continue to be found especially among the epidemiologists and medical statisticians; they will be found among the workers on human nutrition, on industrial psychology and industrial and domestic fatigue, and on maternity and child welfare; or among Service medical officers with their fine opportunities for studying large bodies of fit men or men in the process of being trained and fed to a finer level of physical and mental efficiency and resource than their civilian lives allowed; and, last but not least, among all those physicians or surgeons whose interest has led them to the study, in home and clinic and hospital, of the broader natural history of man in disease (or health); of man as he continually reacts, emotionally and physically, not merely to the single noxious agent but to the multiple circumstances of his whole life and environment. For such as these and others with other problems our departments of social medicine will come to provide new training and opportunity.

The practitioners of social medicine will, it need hardly be said, eventually include the whole of the practising part of the profession as well as the officers of the environmental services. There is no sharp division between individual and social medicine. Health education and periodic health examination will some day

supplement the remedial activities of the general practitioner, and co-operation with his colleagues of the public health service will be a far closer one than it is to-day.

The Physician's Mission

And, finally, what should be said of the confusion which has arisen in some minds between social medicine and socialized or State medicine? Although social medicine and the planning for a comprehensive medical service, through the stimulus of the times we live in, have come simultaneously under review in the medical and the general press it should be abundantly clear, from what has gone before, that social medicine has no immediate concern with medical or other politics. That it will (in common with all other scientific and educational developments having a bearing on human betterment) influence legislation and prompt reforms in the fullness of time cannot be disputed. Jenner's observations and experiments were a precursor of compulsory vaccination. Osler's teaching expedited the attack on typhoid and tuberculosis. Without Gowland Hopkins, Edward Mellanby, John Boyd Orr, and others of our own day it may be doubted whether we should have had school meals or Lord Woolton and a Ministry of Food which—in our crowded island and in the midst of a long world war—has helped already, by legislation and organization, to improve the general state of fitness of the people.

There are those, it is true, who feel entitled to believe that social and individual medicine will find a better opportunity under a reorganized, co-operative and comprehensive medical and health service in which the uneconomic and often inequitable separations into "voluntary and municipal," "private and panel," and "preventive and remedial" services will no longer obtain. But the advocacy of changes of this kind is no more a function of social medicine than, let us say, the nationalization of the chemical industries is a function of the chemical sciences, or the framing of new regulations for the mines a duty for the Medical Research Council's Committee on Silicosis.

It may properly be argued that many of the social evils, so widely manifest by disease, which have been cited above call not for medical action but for drastic social and economic reform. For these the electorate through their representatives, and not the doctors (as doctors), must become responsible. But who unearths and exposes the evils and their secondary effects? The factual evidence, the socio-medical experience, the statistical data—all of which must be carefully and laboriously collected and analysed—must continue to be provided by the doctors and their scientific associates and field-workers and particularly by those whose concern is rather with the social than with the individual aspects of disease. Whether in this basic manner, or more immediately as an educator of opinion, or incidentally in the course of his daily professional activities, we have reached a time in which "the physician" (to quote Prof. Sigerist) "must assume leadership in the struggle for the improvement of conditions." Without research and teaching in social medicine to guide him he cannot faithfully fulfil his mission.

Conclusion

In summary, social medicine means what it says. It embodies the idea of medicine applied to the service of man as *socius*, as fellow or comrade, with a view to a better understanding and more durable assistance of all his main and contributory troubles which are inimical to active health and not merely to removing or alleviating a present pathology. It embodies also the idea of medicine applied in the service of *societas*, or the community of men, with a view to lowering the incidence of all preventable disease and raising the general level of human fitness.

As one who has been made responsible for the first institute of social medicine in this country and whose training and teaching for more than 25 years have been essentially clinical, I should like to add that I regard social medicine (for all its needful associations with public hygiene) as a logical development from and a direct expansion of clinical medicine, of medicine construed in its best Hippocratic sense and activated by the highest Hippocratic ideal; for "where there is love of man there also is love of the Art."

Of the work and intended programmes at Oxford it is too soon to speak, for they are but in their infancy. Suffice it to say that the Institute already houses the Oxford Nutrition Survey and is about to house one of two experimental bureaux supported

by the Nuffield Trust (the other based on Glasgow) for the collection and analysis of morbidity statistics; that it is sponsoring some studies of endemic goitre in rural England; and that its director and his colleagues have recently initiated regular socio-medical teaching and demonstrations (with the help of the hospital staff and social workers) for students in their clinical years at the Radcliffe Infirmary. Close co-operation with the Institute has been generously offered by the public health authorities of the city of Oxford and of the county. For our team of graduate assistants we shall have to wait until demobilization provides them with their opportunity for new service and us with a new stimulus.

To those in our universities or health departments, in practice, or serving with the armed Forces who are interested in these things and in the needs of the future it seems that the ideas and tasks of social medicine may be justly regarded as essential contributions (perhaps the most essential and practical of any at present within our range) to the developing philosophy of scientific humanism. The potentialities of this philosophy are very great. Wherever our science, our faith, and unpredictable chance may lead us it can now scarcely be doubted—even while the present mad epoch of destruction continues—that we are moving upon the borders of new and possible worlds. To the rational and humane enrichment of these worlds the profession and the sciences which have the most intimate concern with man himself—a very social animal—have surely much to offer. To envisage and design a close equality of opportunity for health in the coming generations is no longer an extravagant fancy. Whether at home, in India or the colonies, or in the broader international field, it may shortly become our most urgent common interest. Nor should we forget that in our Dominions and other countries, and notably in the land of our most virile and victorious ally, there have been important experiments in social medicine and hygiene from which we have much to learn.

REFERENCES

- Morris, J. N., and Titmuss, R. M. (1942). *Lancet*, 2, 59.
Peckham Health Centre (1938). *Biologists in Search of Material*, Faber and Faber, London.
Robinson, G. Canby (1939). *The Patient as a Person*, Oxf. Univ. Press, London.
Titmuss, R. M. (1943). *Birth, Poverty, and Wealth*, Hamish Hamilton, London.

THE THERAPEUTIC VALUE OF GAS-GANGRENE ANTITOXIN*

BY

M. G. MACFARLANE, Ph.D.

Secretary, Subcommittee on Anaerobic Wound Infections

as gangrene is characteristically a disease due to the invasion of tissues and the production of toxins by anaerobic bacteria of the Clostridium group present in infected wounds, particularly in wounds involving muscle, the most rational treatment appears to be a combination of measures—the use of surgery and bacteriostatic drugs to control the infection, and the use of antitoxin to alleviate the toxæmia. The War Wounds Committee of the Medical Research Council accordingly recommended (*M.R.C. War Memorandum No. 2*, 1940) that antitoxin should be used in conjunction with surgery and chemotherapy in the treatment of gas gangrene, the procedure then advised being the intravenous injection of 13,500 units† of polyvalent antitoxin as soon as possible after diagnosis, repeated according to the signs. In order that the value of this and other lines of treatment could be assessed, surgeons were asked to make detailed returns of all cases of gas gangrene and of lesser anaerobic wound infections on the forms issued (Army Form I 1241 and its supplement I 1241A). Through the courtesy of the Medical Directors-General of the three fighting Services and the E.M.S. the

returned forms have been made available for study, and enough data have now accumulated for a preliminary analysis of the therapeutic value of antitoxin.

Evidence of the value of the specific antitoxins in the treatment of gas gangrene developing in wounded men was brought forward by Weinberg and Séguin (1918); promising results were also obtained in 1918 by British workers (Medical Research Committee, 1919). MacLennan (1943a, 1943b) has recently made a detailed report on the clinical and bacteriological features of the anaerobic wound infections encountered in the Middle East Forces, in which he discussed the value of the various lines of prophylaxis and treatment. His demonstration that in a group of patients which comprised 70% of all the cases of true gas gangrene reported in these Forces the fatality rate was significantly lower among those who had received antitoxin provides further evidence of the therapeutic value of polyvalent antitoxin in field conditions. The present survey is based primarily on all the reports (259) of anaerobic wound infections received by the Medical Research Council up to June, 1943, excluding those from the Middle East Forces, and is concerned only with the value of antitoxin in the treatment of established cases of gas gangrene. The question of its prophylactic value will not here be discussed; it will only be repeated, as MacLennan has already pointed out, that the prophylactic value cannot at present be determined, as the necessary information on the number of casualties that have received this prophylaxis and have not developed gas gangrene is not yet available. The occurrence of gas gangrene in a patient who has received antitoxin soon after wounding is an individual failure of prophylaxis which is without significance, in a statistical sense, until the total number receiving this prophylaxis is known.

Object of the Present Analysis

It is not to be expected that gas-gangrene antitoxin will be of value in the treatment of anaerobic cellulitis and lesser clostridial infections without toxæmia. In order to provide an adequate and reasonably uniform test of efficiency, only those cases (treated or untreated) have been included in this analysis in which the presence of marked toxæmia, accompanying other signs and symptoms of gas gangrene, was recorded by the clinician. Since bacteriological confirmation of the diagnosis was, for obvious reasons, not always attainable, the possibility that some cases were due to streptococcal infections (MacLennan, 1943a) is not excluded. The figures in the ensuing paragraphs refer to the toxic cases on which the analysis was finally made.

The evaluation of a single therapeutic measure in gas gangrene is complicated by many variables, particularly in field conditions. First, there are the factors which may determine whether treatment as a whole is effective: these include the interval between the onset of the disease and treatment, in relation to the rate of development after onset; the site of the wound and the general condition of the patient; the nature of the pathogenic clostridia present, and of concomitant infections; the facilities for surgery and nursing. So far as is possible with the data available, these factors will be taken into account by grouping similar cases together and analysing the groups separately. Secondly, since the treatment advised consists of two measures—the use of surgery, to which the employment of drugs is ancillary, and the use of antitoxin—it is necessary to evaluate both measures. Thirdly, it is necessary to know whether there has been any selection of cases for treatment.

It may be useful to discuss here the general aspects of the probabilities with regard to the effectiveness and the practice of the two main lines of treatment. The necessity for speedy and adequate surgical treatment of patients with established gas gangrene is well recognized and has been repeatedly urged. The patients in whom gas gangrene developed formed a very small proportion of the total number of wounded, and were under the care of surgical specialists; the high general level of skill and care afforded can be gauged from the very low general fatality rate of patients with limb injuries—that is, with wounds of a type prone to develop gas gangrene (Pulvertaft, 1943). As might be expected, appropriate surgical measures were recorded in the majority (86%) of the reports

* A report to the War Wounds Committee of the Medical Research Council.

† Therapeutic dose: 7,500 i.u. *Cl. welchii* antitoxin; 3,750 i.u. *Cl. septicum* antitoxin; 2,500 i.u. *Cl. oedematiens* antitoxin; 20% in excess in each ampoule=16,500 units polyvalent antitoxin.

here analysed; the only reasons given for the omission of such measures were that the patient was too ill for operation and that gas gangrene was not diagnosed before death. For the present object it is not necessary—and certainly not within my competence—to criticize the surgical treatment in an individual patient; but the time of intervention and its effectiveness as judged by the recurrence or otherwise of infection after amputation have been considered.

The position with regard to the use of antitoxin was different, since its therapeutic value was not fully established. It might be suspected that its early and energetic use would be prompted largely by personal faith, and that its use at a later stage would often be due to a last hope of saving life. It has been realized that many were unfamiliar with the theory and practice of antitoxin therapy. It is a recognized principle that if antitoxin is given at an early stage of an infection by toxigenic bacteria it will be more effective in saving life than if it is given later, and that the amount of antitoxin needed for an individual patient cannot be arbitrarily prescribed. Though antitoxin was given to the majority (82%) of the patients, little more than half of them received it promptly or by intravenous injection, and frequently the dose was not repeated. The time of administration of gas-gangrene antitoxin is indeed a factor in determining its effectiveness; it is therefore very important to know whether the patients treated promptly with antitoxin were selected because they were less severe cases, since these might respond better to any form of treatment. The total amount of antitoxin given is also a factor, but a statistical analysis of the relative effect of different amounts of polyvalent antitoxin would require full bacteriological data, which are not yet available. It should therefore be emphasized that the main object of the present analysis was to find out whether antitoxin was of any value in treatment, by comparison of the fatality rates of the treated and untreated cases; the extent of this value is dependent on a number of factors, including, no doubt, the size of the dose of antitoxin.

Throughout this report a difference is regarded as significant if it exceeds twice its standard error, in which case it would occur by chance less than 5 times in 100 trials. If two groups differently treated show a "significant" difference of fatality the result does not prove, in the colloquial sense of the word, that the difference was due to the method of treatment, but it is reasonable to suppose so unless it can be shown that the groups were differentiated also in some other way.

Reports on Anaerobic Wound Infection

The reports received on cases of anaerobic wound infection fell into three series, excluding 6 in which the necessary data for tabulation were lacking:

Series I.—88 reports on casualties in the B.E.F. in May and June, 1940, returned on Army Form I 1241 (Dunkirk cases). In many of these reports the data recorded were not sufficient for the differentiation of toxic and mild cases, nor was it possible to distinguish casualties wounded in battle in Flanders from those wounded on the beaches. The entire series has been omitted from the analysis because the criterion for inclusion could not be applied; from other information available it seems probable that many of these cases were not examples of true gas gangrene, but rather of lesser forms of anaerobic wound infection.

Series II.—85 reports on casualties in the M.E.F. from 1940 to 1943. Most of these reports were considered by MacLennan (1943b) together with information on additional cases which had not been reported on Army Form I 1241. To avoid confusion this series has been omitted from the analysis, but the data obtained by MacLennan are quoted. The outstanding features of this series of cases were wounding in the desert, delay in treatment, with a high proportion of cases established on admission, and the frequent incidence of *C. oedematis* infection.

Series III.—165 reports of anaerobic wound infections from other theatres of war, returned on Army Form I 1241 and its supplement between Aug., 1940, and June, 1943. In the supplement clinicians were asked to report the presence and degree of general toxæmia. The criterion of gas gangrene taken for inclusion of a case in this analysis—the presence of marked toxæmia—was noted in 139 cases (85%). Three others were reported as "anaerobic wound infection without gas gangrene." Of the remaining 23 patients, 5 received prophylactic and therapeutic doses of antitoxin, 10 received a therapeutic dose, and 8 received no antitoxin; all these 23 subjects made satisfactory progress with, in general, the minimum of operative intervention, and in the absence (or non-recording) of marked

toxæmia it was doubtful if they could be included as "survivors from gas gangrene," either in the treated or in the untreated group.

The patients in Series III were grouped first according to Service, etc., and to the circumstances of wounding:

- 38 civilian air-raid casualties.
- 42 Army casualties treated in this country. In most of these patients the wounds were similar to battle wounds—i.e., caused by trench mortars, splinters, and bullets—and appear to have been sustained in accidents.
- 11 R.A.F. casualties treated in this country. There is no evidence that any of these patients was wounded during an operational flight.
- 17 casualties from the Royal and Allied Navies and Merchant Navies. These were scattered cases treated variously in this country, in hospital ships, and in medical units of the M.E.F. and B.N.A.F.
- 52 casualties from British, Allied, and enemy land and air Forces, treated in medical units of the B.N.A.F. between Oct., 1942, and May, 1943.
- 5 casualties in the Army over-seas.

Some particulars of the groups in Series III are shown in Tables I and II.

TABLE I

Group of Series III	Total Cases	Toxic Cases	Dths.	Fatality (% of Total Cases)	Amputations (% of Total Cases)	Transfusions or Infusions (% of Total Cases)
Civilian	38	32	20	52.6	50.0	58.0
Army U.K. .. .	42	34	17	40.4	54.8	54.7
R.A.F. U.K. .. .	11	11	7	63.6	36.4	54.5
Naval and seamen ..	17	16	9	52.9	29.4	68.8
B.N.A.F. .. .	52	43	25	48.1	50.0	63.5
Army over-seas ..	5	3	1	20.0	20.0	80.0
Total	165	139	79	47.9	47.3	60.0

TABLE II

Group of Series III	Toxic Cases	Estab. on Admission	No Antitoxin		With Antitoxin		
			Cases	Dths.	Cases	% of Total	Dths.
Civilian	32	6	5	5	27	84.5	15
Army U.K. .. .	34	4	3	3	31	91.5	14
R.A.F. U.K. .. .	11	0	2	2	9	81.8	5
Naval and seamen ..	16	7	4	3	12	75.0	6
B.N.A.F. .. .	43	21	11	8	32	74.5	17
Army over-seas ..	3	1	0	0	3	100.0	1
Total	139	39	25	21	114	82.0	58
Mean fatality rate			84.0%		59.9%		
			Difference = 33.1 = 10.9 Diff. S.E. = 3.3				

As might be expected from the difficulties of collection and transport, the proportion of the cases of gas gangrene in which the disease was already established on admission to hospital is much higher among the casualties wounded in battle—and in the few cases among those wounded at sea—than among those wounded in this country. The proportions of toxic cases, amputations, transfusions, and deaths, and the proportions of the total number of toxic cases treated with antitoxin, are not, however, significantly different in the different groups. It will be seen from Table II that the mean fatality rate for all the patients who received antitoxin is significantly less than for those who did not receive it. Moreover, the fatality rate of the treated patients is lower in each of the constituent groups, in spite of gross differences between these various groups in the circumstances of wounding—such as the nature of the soil and climate, the cause of injury, and the physique of the patients—and in the general facilities for treatment of casualties. It has been considered permissible, therefore, since the numbers in each group are too small for further subdivision, to take the series as a whole and regroup the cases according to the time and nature of treatment and the nature of the wound.

The cases have been graded according to the time of administration of antitoxin as follows: (a) initial dose given within 6 hours of diagnosis; (b) initial dose from 6 to 24 hours after diagnosis; (c) initial dose more than 24 hours after diagnosis. Owing to lack of detail in some reports it is not possible to distinguish between intravenous and intramuscular injection, but at least 40% of the cases in the first category received the initial dose intravenously: the initial doses ranged from 4,000

units intravenously at the time of diagnosis to 40,000 units intramuscularly. The time of administration was not always given explicitly; in the few instances in which it was not clear from the context that the dose had been given within 6 hours the case was placed in the 6-24 hour category.

Effect of Delay in Treatment

Treatment should properly be judged in relation to the time of onset of the disease, but in practice this is impossible, as the time of onset even in cases developing in hospital was often not known within several hours; generally the time noted was the time of diagnosis. When the patient was admitted with established gas gangrene, only the maximum possible interval between onset and diagnosis could be gauged from the time of wounding.

TABLE III

Antitoxin Therapy	Onset in Hospital			Established on Admission		
	Cases	Dths.	Fatality	Cases	Dths.	Fatality
Nil ..	19	17	89.5	6	4	66.7
24 hours after diagnosis ..	8	5	62.5	1	1	100.0
6 to 24 hrs. " " ..	22	19	86.4	7	4	57.2
0 to 6 " " " ..	51	22	43.0	25	7	28.0
Total ..	100	63	63.0	39	16	41.0

It might well be expected that the interval between onset and treatment would be so much longer in the cases already established on admission to hospital that treatment with antitoxin would be too late to be effective, and the fatality rate therefore higher than that of comparable cases developing in hospital. In Table III, however, no significant difference can be demonstrated between the fatality rates for the corresponding category of antitoxin therapy in the two groups. It could no doubt easily happen that the disease might develop in some patients during evacuation, only an hour or so before their arrival and examination at the hospital, so that they received treatment more promptly than others, already in hospital, in whom the disease developed more insidiously. Be that as it may, it appears probable that there was no material difference between these two groups in the range of time between onset and diagnosis, and that there is therefore no necessity to analyse the groups separately with respect to other factors. It will be realized that this is a finding particular to this series of cases, in which the majority of the gas-gangrene infections established on admission occurred in a single campaign; in different circumstances the patients in whom the disease developed during evacuation might be received too late for treatment to be effective.

Selection of Cases for Treatment

It was previously mentioned that it was necessary to know if the patients treated early with antitoxin were selected because they were less severe cases who would have responded better to any treatment. One test of the relative severity of the cases is to compare treated and untreated groups at the time of diagnosis to ascertain the proportion of rapidly fatal cases in each group. Table IV shows the numbers and proportions of the patients in each group dying at different intervals after diagnosis.

TABLE IV

Time of Death after Diagnosis	No Antitoxin		Antitoxin after 24 hrs.		Antitoxin 6 to 24 hrs.		Antitoxin 0 to 6 hrs.	
	Deaths		Deaths		Deaths		Deaths	
	No.	%	No.	%	No.	%	No.	%
0 to 6 hrs. ..	2	8.0	0	0	0	0	1	1.3
6 to 12 hrs. ..	5	20.0	0	0	5	17.2	8	10.5
12 to 24 hrs. ..	5	20.0	0	0	7	24.1	5	6.6
24 to 48 hrs. ..	3	12.0	0	0	5	17.2	6	7.9
2 to 4 days ..	4	16.0	4	44.4	5	17.2	6	7.9
Over 4 days ..	2	8.0	2	22.2	1	4.5	3	4.0
Total deaths ..	21	84.0	6	66.7	23	80.2	29	38.2
Total cases ..	25		9		29		76	

Of 34 patients who did not receive antitoxin within 24 hours, 7 (20%) died within 12 hours of diagnosis, while of 76 who received antitoxin within 6 hours, 9 (11.8%) died within 12 hours. The proportions are not significantly different, and

it is assumed that antitoxin has not already affected the fatality rate. Moreover, of the group who received no antitoxin within 24 hours more than half lived for more than 24 hours. It may be noted also that there was ample time for treatment to be given, whether or not it was effective: only 3 patients died within 6 hours of diagnosis. The group given antitoxin between 6 and 24 hours after diagnosis has not been taken into consideration, as times of administration and death were not noted exactly enough. It appears that the group treated early with antitoxin contained a fair proportion of rapidly fatal cases, and that the group not treated contained a high proportion of cases which were comparatively slowly fatal. This is therefore no evidence of a selection of the less severe cases for early treatment with antitoxin.

Fatality Rate in Various Categories

The time of diagnosis in the hospital at which treatment was carried out has been taken as the base-line in grading the time of the initial dose of antitoxin and the time of surgical intervention. Table V shows the data relevant to the effect of surgical treatment and antitoxin on the fatality rates of the toxic cases and of two categories separated approximately according to the site of the gas gangrene as "thigh" cases (thigh, buttock, and abdomen) and other cases (leg, arm, and other sites).

TABLE V

Therapy	"Thigh" Cases			Other Cases			All Cases		
	Cases	Deaths		Cases	Deaths		Cases	Deaths	
		No.	%		No.	%		No.	%
Surgery nil; antitoxin nil	6	6	100.0	1	1	100.0	7	7	100.0
Surgery nil; antitoxin plus	11	10	91.0	2	2	100.0	13	12	92.4
Surgery plus; antitoxin nil	12	8	66.7	6	6	100.0	18	14	77.8
Surgery plus; antitoxin after 24 hrs.	2	1	33.4	4	2	50.0	6	3	50.0
Surgery plus; antitoxin 6 to 24 hrs.	11	11	100.0	13	7	53.7	24	18	75.0
Surgery plus; antitoxin 0 to 6 hrs.	29	16	55.0	42	9	21.4	71	25	35.2
Total ..	71	52	72.2	68	27	39.7	139	79	56.8

Table VI shows the fatality rates, according to the time of amputation and the time of the initial dose of antitoxin, in the 69 patients who underwent amputation for the treatment of gas gangrene.

TABLE VI

Antitoxin Therapy	Amputation 0 to 6 hrs.			Amputation after 6 hrs.			All Cases		
	Cases	Deaths		Cases	Deaths		Cases	Deaths	
		No.	%		No.	%		No.	%
None ..	4	3	75.0	8	7	87.5	12	10	83.4
After 24 hrs. ..	0	0	0	4	1	25.0	4	1	25.0
6 to 24 hrs. ..	5	5	100.0	7	3	42.8	12	8	66.7
0 to 6 hrs. ..	28	10	35.8	13	4	30.8	41	14	34.2
Total ..	37	18	48.6	32	15	47.0	69	33	47.6

Amputation was the first major surgical measure recorded in 64 of these cases; in 5 patients it was carried out after excision had failed to control the infection. Recurrence of gas gangrene in the stump was noted in only two patients, so that this group is substantially one in which the infection was eliminated at a definite time.

From the data in Tables V and VI the following points emerge:

Fatality Rate of Untreated Cases

There are three groups of patients who did not receive the composite treatment recommended—namely, those who had no surgical treatment and no antitoxin, those who had antitoxin but no surgical treatment, and those who had surgical treatment but no antitoxin; the fatality rate is not significantly different in the three groups. These groups comprise 29 cases, with 24 deaths, in which the site of gas gangrene involved the thigh, buttock, or abdomen; and 9 fatal cases in which the gangrene involved the leg, arm, or other sites. The mean fatality rate (87%) emphasizes the remorseless nature of the disease, and

ne data—so far as they go—suggest that when treatment is lacking or inadequate the site of the infection makes no inference to the issue.

Effect of Antitoxin in Patients receiving Surgical Treatment

The mean fatality rate of all the patients who received both antitoxin and surgical treatment (Table V, last column) is 5.5%. This rate is significantly lower (41.3 ± 9.4) than that of the mean rate of those who did not receive the combined treatment. This result would probably occur by chance less than once in 1,000 trials. A similar effect of antitoxin is seen in the group of patients in whom the spread of infection was controlled by amputation (Table VI, last column), the mean fatality rate of the treated group (40.4%) being again significantly lower than that of the group who did not receive antitoxin. It seems clear that the combined use of surgery and antitoxin was a more effective method of treatment than either of those measures alone.

Time of Administration of Antitoxin

Considering the fatality rates for all types of cases (Table V, last column), it will be seen that the decrease on treatment with antitoxin is due almost entirely to the decrease in the group treated within 6 hours of diagnosis, as the rates for patients treated later are not significantly different from those for the untreated group. In a comparison of the fatality rates of different groups of patients who all received antitoxin, the total amount of antitoxin given and the identity of the infecting organism should be taken into account, and not merely the time of the initial dose. The distribution of the total dosage given to those patients who also received surgical treatment is shown in Table VII, the patients being grouped according to the site of the infection and the time of the initial dose of antitoxin.

TABLE VII

Time of initial dose:	Group A				Group B			
	0 to 6 hours				6 to 24 hours			
Subgroup:	1		2		1		2	
Site of infection:	"Thigh" Cases		Other Cases		"Thigh" Cases		Other Cases	
Total Dose of Poly-valent Antitoxin	No.	Dths.	No.	Dths.	No.	Dths.	No.	Dths.
Units:								
Up to 20,000	6	2	18	6	3	3	8	5
20,000 to 50,000	12	8	12	2	6	6	4	1
50,000 to 100,000	5	3	7	1	0	0	1	1
Over 100,000	6	3	5	0	2	2	0	0
Total	29	16	42	9	11	11	13	7
Fatality rates	35.2%				75.0%			

It is not possible to draw any definite conclusion from the figures in Table VII, since, apart from the fact that the numbers are small, the necessary bacteriological data are not available. Nevertheless there are some tendencies which are of interest.

First, with an early initial dose and the same total dose of antitoxin, the fatality rate of the "thigh" cases tends to be higher than that of the other cases; if the patients are grouped as receiving up to or over 50,000 units of antitoxin the difference between the two types of case is quite significant arithmetically. MacLennan (1943b), in noting the distribution of the different sites of infection in his series of cases, gives figures which show that the mean fatality rate of all the thigh, buttock, and abdominal cases was 68%, and of all those involving the arm or leg 37.6%; these figures are closely similar to those given in Table V for the present series of cases (72.2 and 39.7%). The poorer response to treatment when the gas gangrene involves the thigh and buttock region appears to be a general experience, and it is probably attributable to the difficulties of surgical excision and to the anatomical factors affecting the blood supply of these sites.

Secondly, Table VII shows that there is a tendency for the fatality rate to be higher when a dose of a certain size—e.g., 20,000 units—was given later than when it was given early. This, of course, is consistent with both the theory and the results of experimental work—that an amount of antitoxin sufficient to neutralize all the toxin present will be effective in saving life if given at an early stage, when the damage done by the toxin is minimal, and ineffective if given later, when the damage is irreparable.

Thirdly, it will be seen that in the subgroup A2, in which all the patients received the initial dose of antitoxin within 6 hours, the fatality rate tends to fall as the total dose rises from 20,000 to 50,000 units or more. Moreover, of all the patients receiving antitoxin early (Group A), 32.4% received a total dose of more than 50,000 units of antitoxin, compared with only 12.5% of those (Group B) who received the initial dose late; it appears probable that the striking difference in the fatality rates is due not only to the fact that the one group received antitoxin more promptly than the other, but also to the fact that this group received larger doses, though, as has been said, the data are not sufficient for statistical treatment. That there is a possible fallacy in this tentative conclusion has been pointed out by Prof. M. Greenwood: thus, one cannot be certain that the fatality was lower because the larger dosage of antitoxin was given and not that the larger dosage was given because the fatality was lower—i.e., the patients in this group lived long enough to receive the larger dosage. For that reason any conclusion from these data as to the value of the high doses of antitoxin can only be provisional.

Time of Surgical Intervention

Surgical operations of a major nature were carried out within 6 hours of diagnosis in 68 of the 120 patients treated, within 12 hours in 81, and within 24 hours in 98 (81.6%). It seems clear, however, that even rapid elimination of the whole site of infection is not by itself a sufficient treatment in a toxic case; the fatality rate for patients who underwent amputation within 6 hours of diagnosis without having received antitoxin (Table VI) is not significantly different from 100%, while for those who received antitoxin within this time the rate is significantly less. Most of the patients who were treated early with antitoxin received the dose pre-operatively or at the time of operation; this is perhaps worthy of consideration, since in 11 of the 60 fatal cases in which surgical treatment was carried out death took place during or within two hours of operation.

Effect of Sulphonamide Drugs

MacLennan (1943b) showed that in his series of cases in the M.E.F. the striking reduction in the fatality rate of the group treated with antitoxin was independent of treatment with sulphonamide drugs; his figures are reproduced in Table VIII.

TABLE VIII (From MacLennan, 1943b)

Drug Therapy	No Antitoxin		With Antitoxin		Difference
	Cases	Deaths	Cases	Deaths	
With sulphonamides	28	22 (78.6%)	58	19 (32.8%)	35.8 ± 11.5
No sulphonamides	19	15 (78.9%)	8	2 (25.0%)	53.9 ± 20.3

In the present series more than 90% of the patients had received sulphonamide drugs, and the numbers untreated with drugs were so small that it was not possible to find out from the records whether the combined use of surgery, sulphonamide drugs, and antitoxin was more effective than surgery and antitoxin by themselves. It should be emphasized that several varieties of sulphonamide drugs and regimes were employed, and this necessarily complicates any attempt to assess the results. All that can be said under this heading is that the relevant data (Table IX) are not sufficient to provide significant statistical evidence of a beneficial effect of the drugs.

TABLE IX

Therapy	"Thigh" Cases		Other Cases	
	No.	Deaths	No.	Deaths
Surgery; antitoxin 0-6 hrs.: With sulphonamides	28	15 (53.6%)	41	8 (19.5%)
No sulphonamides	1	1 (100.0%)	1	1 (100.0%)
Surgery; antitoxin late or nil: With sulphonamides	23	18 (68.3%)	22	14 (63.6%)
No sulphonamides	2	2 (100.0%)	1	1 (100.0%)
No surgery; antitoxin 0-6 hrs.: With sulphonamides	3	2 (66.7%)	1	1 (100.0%)
No sulphonamides	1	1 (100.0%)	0	—

Effect of Complications; Serum Reactions

The opinion was recorded by the clinician in 14 reports that death was due not solely to gas gangrene but to complicating factors. After making an initial recovery, 2 patients died from secondary hæmorrhage and 1 from pulmonary embolism. The

omission of these 17 cases from the appropriate categories makes no difference to the general trend of the results.

Serum reactions were noted in only 3 of the 114 patients in the series treated with antitoxin; these occurred after some hours or days in the form of a rash or pyrexia, and apparently gave no cause for anxiety.

General Remarks

The reduction of the fatality rate in the group receiving both surgical treatment and antitoxin can be reasonably held to establish the value of antitoxin in the treatment of gas gangrene. It is to be hoped that with a more effective use of antitoxin the fatality rate of 45% for treated cases will fall considerably. Speed in the administration of antitoxin is clearly essential for good results, but it is no less important that the amount of antitoxin given should be adequate for the individual case, since the neutralization of toxin by antitoxin is a quantitative reaction. It has been recently recommended (*M.R.C. War Memorandum No. 2*, revised second edition, 1943) that the initial therapeutic dose of polyvalent antitoxin should be not less than 50,000 units; the figures in Table VII indicate that, though often enough such a dose may be more than ample, it is not excessive as a routine.

The clinician still has the onus of judging quickly whether the dose given has been sufficient to neutralize all the toxin—that is to say, whether a previously rapidly progressive toxæmia has been arrested—or whether the dose of antitoxin has been insufficient and the progress of toxæmia is still acute. Delay in the neutralization of the toxin present cannot be compensated by giving an excess of antitoxin at a late stage; on the other hand, since the individual capacity to recover from the effects of toxæmia is incalculable, there is no justification for withholding an adequate dose of antitoxin from a patient received late for treatment, however small the chance of recovery may be. In the treatment of gas gangrene the probability should be borne in mind that the amount of toxin present in the body is increasing so long as the infection is spreading in the affected tissue. A patient received late for treatment, or one in whom surgical and chemotherapeutic measures have not been completely effective in eradicating the infection, may therefore need heroic or repeated doses of antitoxin, not because an excess has at any time a beneficial effect, but because an amount equivalent to the toxin present is the dose justifying a hope of recovery. This is entirely different from deprecating the continued administration of large doses of antitoxin to a patient in whom the infection has been controlled and the effects of the toxæmia are already vanishing.

Patients in whom the site of gas gangrene involved the thigh, buttock, or abdomen showed a poorer response to doses of antitoxin of the order recommended than those in whom the site was more favourable to the elimination of the infection either by the surgeon and by Nature. These findings support the recommendation that surgical treatment should be supplemented by chemotherapeutic measures as well as by antitoxin therapy, and point to the need for local chemotherapeutic agents more effective against clostridia than the sulphonamide drugs in use.

Summary

The value of antitoxin in the treatment of established gas gangrene has been examined in a series of 139 cases in which the patients were suffering from toxæmia to a marked degree. The fatality rate was significantly lower among the patients who received antitoxin, and this difference between treated and untreated cases persisted in those who received major surgical treatment, including a group in whom the site of primary infection was rapidly extirpated by amputation. The combined use of surgery and antitoxin was therefore more effective than that of surgery alone.

The effect of antitoxin was more pronounced in those who received the initial therapeutic dose soon after diagnosis, but this difference was probably due not only to the speed of administration but also to the fact that a greater proportion of the patients in this group received a large total dosage (50,000 units or more) of antitoxin.

The fatality rate of the patients who received no major surgical treatment was nearly 100%, and in the cases reported here the rate in this group was not reduced by antitoxin therapy. Patients in whom the site of the gas gangrene involved the thigh, buttock, or abdomen showed a poorer response to doses of antitoxin of the

order recommended than those in whom the site was more favourable to the elimination of the infection.

These results emphasize the necessity for the early and combined use of surgery, effective chemotherapy, and antitoxin in the treatment of gas gangrene.

This evaluation of antitoxin in the treatment of gas gangrene has been made possible by the work of the medical officers reported their cases, often in difficult conditions. Thanks are due to the Medical Directors-General of the three fighting Services, the E.M.S. for making the case records available for analysis, greatly indebted to Prof. M. Greenwood and Dr. E. Lewis-Francis for their constructive criticism and for the verification of the significance of the data; to Mr. C. H. S. Frankau for his advice on clinical aspects; to Dr. F. H. K. Green for his help in preparing this report; and to Lieut.-Col. H. J. Bensted for much useful information. It is a pleasure also to thank Major-Gen. L. T. I and the members of the Anaerobic Wound Infection Subcommittee for their criticism and many illuminating discussions.

REFERENCES

- MacLennan, J. D. (1943a). *Lancet*, 1, 582.
 — (1943b). *Ibid.*, 2, 63, 94, 123.
 Medical Research Committee (1919). Sp. Rep. Ser. No. 39, London.
 Medical Research Council (1940). War Memorandum No. 2, London.
 — (1943). *Ibid.*, revd. 2nd ed., London.
 Pulvertaft, R. J. V. (1943). *Lancet*, 2, 1.
 Weinberg, M., and Séguin, P. (1918). *La Gangrène Gazeuse*, Masson et Cie.

DYSPEPSIA: AN INVESTIGATION

BY

HAROLD EDWARDS, M.S., F.R.C.S.

Brigadier, A.M.S.

AND

W. S. C. COPEMAN, M.D., F.R.C.P.

Lieut.-Col., R.A.M.C.

The enrolment into the Forces of most of the young manhood of the country has presented us with an opportunity for statistical investigation of some of the commoner ailments. The immediate demands of warfare are so far uppermost that the clerical assistance necessary for statistical research cannot be spared. Thus little can be done towards elucidating the medical problems which in civilian life were so urgent and which we shall have to face again in the years of peace. One of the most important of these problems from a sociological and industrial standpoint is dyspepsia. In the years preceding the war the project of a research centre for gastric disorders was very much before the mind—a centre whose sole object was research into the causation of these disorders. The clinical, radiological, biochemical, and sociological data were to be collected and collated, and submitted to statistical analysis.

An opportunity of doing something along such lines presented itself at a military hospital. A scheme was devised and put into practice which had a twofold object: (1) to make some contribution to the immediate problem of dyspepsia among the troops the hospital served; (2) to furnish data for statistical research. A "gastric board" was formed consisting of the officers in charge of the medical and surgical divisions, the medical specialist, the radiologist, the pathologist, the psychiatrist, and a general-duty officer.

All dyspeptics were admitted into a 30-bed ward for investigation. None was treated there—an important point, and a partial answer to the criticism levelled against the segregation of dyspeptics. The general-duty officer examined each patient on admission, and took the history according to an agreed schedule. The whole worth of the scheme depends upon the way this part of the work is done, and it requires for its performance a medical officer of ability who is really interested in the problem. In the present instance we were fortunate in having the services of Captain (Miss) Phoebe Charlton, who, except during brief periods of leave, was responsible for all the histories taken. Within five days of admission each patient was x-rayed (Major Baird; later Major Wearing), and test-meal and occult-blood examination were done (Major Roper; later Major Stewart). The board met weekly, and saw and discussed each case, and decided upon disposal. If indicated gastroscopy was performed. Cases

which there was no evidence of organic disease or in which there seemed to be a psychological background were sent for interview with the psychiatrist (Major Barber; later Lieut., now Major, Stungo). It was the duty of the medical specialist (Major Slot; later Major Cherniack) to examine each patient from the general standpoint, and to prevent the board from falling into the error of attributing all symptoms to the stomach or duodenum.

After 12 months, during which 436 patients were seen, the data were collected and submitted for analysis. Through the agency of Lord Dawson of Penn, Mr. W.J. Martin, of the Division of Epidemiology and Vital Statistics of the London School of Hygiene and Tropical Medicine, paid a brief visit to the hospital and took away the case sheets for analysis. The policy of having the analysis made by a disinterested and unbiased worker was deliberate. It resulted, however, in certain unforeseen disadvantages—for example, the "lumping" together of gastric and duodenal ulcers, and difficulty in interpreting the data on gastric analysis (which for this reason has been omitted from Mr. Martin's report). It is now realized that a closer liaison between clinician and statistician would have been an advantage.

For reasons of space it is not proposed to publish the actual figures furnished by the statistician, excepting one table as a specimen; we shall confine ourselves to quoting the headings and a statement of what the figures tended to show. Unfortunately, it was impossible to obtain data from a similar age group of non-dyspeptics to act as a control.

Analysis of Cases

There were 436 cases in all. These were divided into two groups—139 ulcer and 217 non-ulcer cases. The remaining 80 cases were not included in the statistical analysis; in 65 no diagnosis had been made, as evacuation interrupted investigation, and in 15 the symptoms were thought to be due to a lesion other than one affecting the stomach or duodenum.

The Ulcer Group.—We accepted the following criteria in making the diagnosis of ulcer: (1) the presence of an ulcer crater in the radiograph; (2) a typical clinical history, with high acidity and positive occult blood (even if the radiological diagnosis was doubtful or negative); (3) a previous history of perforation; (4) visual evidence at gastroscopy—this, of course, only in the case of gastric ulcer.

The Non-ulcer Group.—In this group were placed all cases complaining of dyspeptic symptoms in which there was no radiological evidence of an ulcer and in which the clinical evidence of ulcer was insufficient. Most of the cases were gastroscopied. The 217 cases are made up as follows:

No physical disease detected (functional dyspepsia)	..	..	180
Gastritis (diagnosed at gastroscopy)	..	..	23
*Duodenitis or duodenal enteritis	..	..	9
Gastro-enterostomy	..	..	3
Pyloric spasm	..	..	1
Hypersecretion and hyperchlorhydria	..	..	1

*Radiological diagnosis.

It is probable that some of the cases in the non-ulcer group actually had a duodenal ulcer. For instance, in one case an operation for perforated duodenal ulcer was performed at another hospital within a week of discharge. It is thought unlikely that many cases of ulceration were overlooked, however, though it must be admitted that the influence of pending medical boards was felt considerably, for few of them are prepared to accept a diagnosis of duodenal ulcer unless there is definite radiological evidence of it. There is no doubt that the frailties of radiological diagnosis of duodenal ulcer are not sufficiently recognized.

Findings

1. **Civilian Occupations.**—No difference in the two groups (ulcer and non-ulcer) was found relating to occupation except in the case of miners, in whom the percentage in the ulcer group was 2.9 (4 out of 139) and in the non-ulcer group 7.4 (16 out of 210). There is thus a suggestion that miners may be subject to a type of dyspepsia in which localized ulceration does not occur.

2. **Marital State.**—The incidence of both ulcer and non-ulcer dyspepsia appears to be equal in single and childless married

men. Ulcer dyspepsia is, however, relatively more common than non-ulcer dyspepsia in men with two or more children. This is probably due to the fact that the mature married man is less likely to seek treatment unless he has definite cause.

3. **Rank.**—Private soldiers in the non-ulcer group numbered nearly twice those in the ulcer group (172 : 98), whereas there were rather more N.C.O.s (lance-corporals, corporals, and sergeants) with an ulcer than those without (38 : 34). There are two explanations for this: (a) the selection of the best types for promotion; (b) responsibility diminishes the tendency to report sick without adequate cause.

4. **War Service.**—One-third of the cases in each group were Regulars or Reservists and two-thirds were war enlistments. In about one-third of the cases in both groups (ulcer and non-ulcer) the symptoms began during civilian life. There is thus no evidence that Army service has any influence upon the development of non-ulcer dyspepsia as opposed to ulcer dyspepsia. This is a point of interest, for it suggests that functional dyspepsia is as common, relative to organic dyspepsia, in civilian as it is in Army life. It is possible, indeed probable, that more use is made of it in Army life in order to evade the performance of duties.

5. **Family History of Dyspepsia.**—As expected, this is common, and occurs almost equally in both groups (ulcer in 57% and non-ulcer in 54.3%).

6. **Duration of Symptoms.**—There was no difference between the two groups in the duration of symptoms, which averaged six years. Both the age at onset of symptoms and, it follows, the age when seen were earlier in the non-ulcer group.

7. **Habits.**—There were few heavy drinkers and few teetotallers—most drank beer in moderation. Likewise with smoking. The largest group was in fact composed of those who drank and smoked moderately—61.6% of the ulcer patients and 61.2% of the non-ulcer patients. This does not suggest that smoking and drinking are not a factor in the cause of dyspepsia—a comparison of non-dyspeptic cases would be of especial value here—but that whatever part these habits may play is equal in both ulcer and non-ulcer dyspepsia. In both groups two-thirds of the patients stated that their meals were regular.

8. **Symptoms.**—(a) **Pain in relation to food.**—The average interval between food and pain was much higher in the ulcer than in the non-ulcer group, and the presence of a considerable period of freedom after food is significant of ulceration. (b) **Nocturnal pain.**—This was significantly more common in the ulcer group, and emphasis is laid upon this. If the patient is awakened by pain an hour or two after falling asleep and the pain is alleviated by taking something by mouth the probability of an ulcer is high. (c) **Miscellaneous.**—There was no significant difference between the two groups in the following: appetite—good in 57% of ulcer and 55% of non-ulcer patients; nausea—present in 82% of ulcer and 85% of non-ulcer patients; vomiting—present in 71% of ulcer and 76% of non-ulcer patients; flatulence—present in 79% of ulcer and 82% of non-ulcer patients. It is a matter for some surprise that vomiting is so common a symptom of an uncomplicated ulcer. In most cases, however, it was only an occasional incident.

9. **Relation of Symptoms to Food and Alkalis.**—The findings here are significant, and the statistician's figures and remarks are given in full.

Reaction to Food and Alkalis

	Ulcer		Non-ulcer		Difference Ulcer/Non-ulcer
	No.	%	No.	%	
Food:					
Relieved by food	92	71.9	70	42.7	29.2 ± 5.9;
Not relieved	36	28.1	94	57.3	significant
Total	128		164		
Alkalis:					
Relieved by alkalis	99	77.3	101	61.6	15.7 ± 5.5;
Not relieved	29	22.7	63	38.4	significant
Total	128		164		

Difference between percentage relieved by alkalis and percentage relieved by food:

Patients with ulcers, 5.4 ± 5.4; not significant.
Patients without ulcers, 18.9 ± 5.5; significant

Distributions

	Ulcer			Non-ulcer		
	Alkalis			Alkalis		
	Relieved	Not Relieved	Total	Relieved	Not Relieved	Total
Food:						
Relieved ..	78	14	92	55	15	70
Not relieved ..	21	15	36	46	48	94
Total ..	99	29	128	101	63	164
	$\chi^2 = 8.8756$ $P = 0.01$			$\chi^2 = 13.6682$ $P = 0.01$		

Remarks by Statistician: The percentage of patients with ulcers who were relieved by food and alkalis is larger than in the group without ulcers. The percentage relieved by food is not significantly larger than the percentage relieved by food in the group with ulcers. In the group without ulcers the percentage relieved by alkalis was significantly greater than the percentage relieved by food. The χ^2 s show that there is a relation between food and alkalis; the numbers who reacted in a similar way to both food and alkalis were larger than would be the case if the reaction of food and alkalis were independent.

The findings are clear-cut:—In most ulcer cases the pain is relieved by both alkalis and food. In the non-ulcer cases food usually fails to relieve but alkalis usually do. These findings are of the greatest diagnostic importance.

10. *X-ray Diagnosis.*—It should be noted that the 9 "negative" cases of ulcer were those in which either the clinical evidence was sufficient for a diagnosis or, in cases of gastric ulcer radiologically negative, diagnosis was by gastroscopy. The two terms "duodenitis" and "duodenal enteritis" crept in because of a change of radiologist. They are, we believe, synonymous, though we put little faith in either diagnosis.

	Ulcer	Non-ulcer
Negative ..	9	169
Inconclusive ..	4	12
Ulcer ..	119	—
Gastritis ..	—	9
Hypertrophic gastritis ..	—	1
Gastro-enterostomy ..	1	2
Duodenitis ..	1	7
Duodenal enteritis ..	—	2
Deformity of stomach (external causes) ..	—	4
Cholecystitis ..	—	1
? Adenoma ..	1	—
Congestion ..	1	—
? Prepyloric ulcer ..	—	1
	136	208

11. *Gastroscopy and Radiography.*—The gastroscope should be regarded as complementary to radiological examination. Its chief value is in those cases in which the symptoms appear genuine but in which the radiograph is negative, and in cases in which the radiograph suggests a lesion of the stomach but is not conclusive. Twenty-three gastroscopies were done in the ulcer group and 86 in the non-ulcer group. Gastroscopy diagnosed a gastric ulcer on 3 occasions when the radiological diagnosis was in doubt. It diagnosed gastritis on 23 occasions. In these the radiograph was positive in 7 cases, doubtful in 6, and negative in 10. In 3 cases of gastro-enterostomy the radiograph showed a duodenal ulcer in 1 and a normal stoma in 2. Gastroscopy showed evidence of a stomal ulcer in 1 and of peristomal gastritis in 1, passing 1 as normal. The gastroscope is thus an invaluable addition to our means of diagnosis.

12. *Psychiatrist.*—Only selected cases were referred to the psychiatrist—2 of the ulcer group and 101 of the non-ulcer group. No abnormal psychological state was found in 36 (including one of the ulcer cases). Some evidence of a psychological background was found in the remaining 67, varying from an anxiety state (25 cases) to maladjustment to surroundings (1 case). No conclusions can be drawn from these findings without the psychiatrist's assessment of a similar numerical group with no gastric symptoms, apart from the fact that no one personality type was characteristic.

13. *Previous Operations.*—Of the ulcer cases 23 and of the non-ulcer cases 28 had had an operation upon the abdomen. Of the 23 ulcer operations 7 were for perforation. There was a very significant finding in that of the 51 cases with a history of operation 26 had been for chronic appendicitis. In each case the operation had been done to relieve the symptoms of dyspepsia. We have no means of telling how many "chronic appendices" are successfully removed for this purpose, but the present figures

suggest strongly that the diagnosis of chronic appendicitis made, and acted upon, too frequently.

14. *Disposal.*—It may be of some interest to include following details of disposal:

Disposal of 336 Cases

	Ulcer	Non-ulcer
Returned to unit ..	1	116
Returned to unit after period of treatment or convalescent home ..	—	—
Evacuated (convalescent home or hospital) for treatment or observation ..	2	11
Transferred to another unit or change of duties ..	1	—
Prolonged period of convalescent treatment ..	—	—
To be kept under observation and x-rayed in six months' time ..	1	—
Category B (minor disability) ..	—	—
Category C (home service only) ..	4	2
Category E (discharged from the Army) ..	119	2
	128	20

Summary of Findings

Of 356 cases completely investigated 139 were regarded as having a peptic ulcer. Of these, 16 were gastric and 121 duodenal. Of the remaining 217 cases, 37 had evidence of a gastric or duodenal lesion other than ulcer; in 180 no organic lesion was found and the condition was labelled "functional dyspepsia."

The more significant results of the statistical returns were:

(a) Ulcer was relatively more common than non-ulcer dyspepsia among N.C.O.s than among privates.

(b) There was a family history of dyspepsia in a little over the patients in both groups.

(c) Duration of freedom from pain after food was longer in ulcer than in the non-ulcer group.

(d) The pain is relieved by food in nearly three-quarters of ulcer dyspepsia cases, but in less than half of the non-dyspepsia cases.

(e) True nocturnal pain, alleviated by taking something by mouth, is a more pronounced feature of ulcer dyspepsia than of non-dyspepsia.

(f) Gastroscopy is an invaluable aid in diagnosis.

(g) Of 103 patients referred to the psychiatrist (only 2 had ulcers) evidence of a psychological background was found in 65%.

(h) 26 of the patients had been operated upon previously for chronic appendicitis without relief from their dyspeptic symptoms.

Commentary

How did the scheme serve the two objects for which it was intended?

As a help to the immediate problem of dyspepsia in the Army, it was a success. The special features were: (a) The formation of a team to represent various aspects of knowledge. (b) Admission of patients for investigation only. They were kept on normal diet unless this was contraindicated; very few cases were treated. Investigation was carried out expeditiously and on an organized plan. (c) Rapid decision as to disposal. The president of the medical board in making the final decision in cases recommended as Category E was helped materially by the fusion of all the expert opinion available.

As a method of research the project is sound, but in the way it was carried out there are defects, which this experience should enable us to correct in future. The two chief lessons are: (a) a medical statistician should be employed; (b) a constant control should be kept of healthy men in similar age groups.

Our thanks are due to Col. M. J. Williamson, M.C., late R.A.M.C., for permission to publish, to Lord Dawson for his interest and help, and to Mr. W. J. Martin for his masterly analysis of the data.

W. H. Gordon, F. B. Parker, jun., and S. Weiss (*Arch. intern. Med.* 1942, 70, 396) record their observations on three cases of gummatous aortitis in patients aged from 35 to 42. In the first case the gummatous process completely occluded the right coronary artery and partially occluded the left one. In the second, gummatous lesions were present also at the base of the aortic valve; and in the third an extensive gummatous process affected not only the aorta but the pulmonary artery. Symptoms of gummatous aortitis such as dyspnoea, orthopnoea, precordial distress, cardiac asthma, pulmonary oedema, and haemoptysis are present only where there is narrowing or occlusion of the coronary arteries.

Nov. 20, 1943

Nov. 20, 1943

THE BACTERIOLOGY OF BRAIN ABSCESS

BY
PEARLAN, M.B., B.Chir.
(Service)*

BY
ALLAN M. McFARLAN, M.B., B.Chir.
(Emergency Public Health Laboratory Service)*

This paper reports the bacteriological findings in 48 cases of brain abscess which had been referred to neurosurgical clinics. I am indebted to the surgeons of seven such clinics for sending specimens of pus and for providing data about their patients.

Details of the Cases

Sex and Age.—Of the 48 patients, 36 were male and 12 female. The ages of three were not stated; the ages of the remaining 45 ranged from 5 to 53 years, and the numbers in successive decades were 4, 8, 11, 13, 7, 2.

Site of Abscess.—Forty-two patients had a single abscess of the brain was affected in 27. Of the single more than one. The right side and left sides in 2. Of the left in 19, and both right and left in the frontal lobe, 5 in the occipital lobe, 3 were cerebellar, 18 were in the frontal and parietal lobes, 15 in the temporal lobe, and 1 in the parietal lobes. Abscesses were present in the frontal and parietal lobes, and in 2 cases in the parietal and temporal lobes, and in 2 cases in the parietal and temporal lobes.

Probable Source of Infection.—Ear disease was considered to be the source of infection in 18 cases, sinusitis in 7, lung disease in 7, trauma (penetrating injury) in 3. Staphylococcal septicemia each provided one case. In 4 cases the source of infection was unknown.

Clinical Course.—The duration of abscess symptoms was known in 47 cases; in 15 it was less than one month, in 6 between one and two months, in 10 between two and three months, in 4 more than three months, in 4 years or more. Information about capsule formation was available for 39 cases. In 16 of them encapsulation was demonstrated histologically. In 7 of these cases there was a definite tough or firm wall was noted at operation. In 18 others a definite tough or firm wall was noted at operation. Of the 48 patients in whom observations indicated the absence of a capsule in 3 cases, in 15 others a definite tough or firm wall was noted at operation. Of the 48 patients in whom observations indicated the absence of a capsule in 3 cases, in 15 others a definite tough or firm wall was noted at operation. Of the 48 patients in whom observations indicated the absence of a capsule in 3 cases, in 15 others a definite tough or firm wall was noted at operation.

Technique and Results

Technique and Results

Films of the pus were stained by Gram and Ziehl-Neelsen methods. In all cases aerobic and anaerobic cultures were made on horse-blood agar plates and in ox-serum broth. When examination suggested the need for enriched or selective media, Fildes's agar, 20% ox-serum agar, or horse-blood agar with crystal violet (1 in 500,000) or sodium azide (1 in 1,000) were used.

TABLE 1.—Organisms found in 48 Brain Abscesses. (The Pus from One Abscess showed no Organisms in Films and Cultures were Sterile)

	Number of Times Each Organism Appeared		
	In Pure Culture (33 Cases)	With Other Organisms (14 Cases)	Total (47 Cases)
<i>Staph. aureus</i>	13	2	15
<i>Strep. pneumoniae</i>	6	4	10
<i>P. vulgaris</i>	4	1	5
<i>Strep. pyogenes</i>	2	9	11
<i>Strep. viridans</i>	1	8	9
<i>Non-haemolytic streptococci</i>	2	1	3
<i>Anaerobic streptococci</i>	1	2	3
<i>Unclassified streptococci</i>	1	—	1
<i>Pusiform bacilli</i>	1*	—	1
<i>M. tetragenus</i>	—	29	29
<i>Anaerobic diptheroids</i>	—	—	—
<i>H. influenzae</i>	33	—	33
Total number of organisms .. .. .	..	..	..

- Seen in films only.

• Seen in films only.
† Two strains of fur.

Examination of films and cultures showed in 33 cases a single bacterial species (Table II), in 14 cases more than one species (Table II), and in one case no organisms. It is unlikely that delay in the post was responsible for any errors in the results concerned, as many were identical with those obtained at the clinic concerned. From some abscesses several specimens were examined and

* A report to the Medical Research Council.

the same organisms found on each occasion. Only in one traumatic abscess due to *Strep. pyogenes* did later specimens prove sterile. In budding the organisms the following points were noted. The three Type III strains were bile-soluble. The three Type III strains were anaerobic streptococci, and fusiform bacilli

[illegible]

Strep. pyogenes.—All four typed, one was Type 1, and one Type 2.

Strept. pyogenes.—The single strain gave a-lysis on horse-blood agar, and produced no soluble haemolysin. In primary cultures it was not bile-soluble, and produced no soluble haemolysin. In primary cultures it was not bile-soluble, and produced no soluble haemolysin. In primary cultures it was not bile-soluble, and produced no soluble haemolysin.

Non-haemolytic Streptococci.—Two strains grew on horse-blood agar horse-blood plates and no soluble haemolysin. In phosphate-buffered broth growth was more profuse anaerobically than aerobically.

Anaerobic Streptococci.—After 24 or 48 hours incubation at 37°C. as pin-point colonies obtained aerobically with liberal inoculum. No growth was obtained in serum broth. Four of these seven strains produced agar or in serum broth. Three other strains produced no precipitation with Group A, C, or G sera. Three other strains produced small coal-black colonies on horse-blood agar after 5 days' incubation. They were apparently similar in this respect to strains isolated by Colebrook and Hare (1933) from cases of puerperal fever.

Fusiform Bacilli.—These organisms appeared in pus films as long, thin, rod-shaped, Gram-negative bacilli, with some in pairs and some in chains. They were apparently similar to those described by Colebrook and Hare (1933) from cases of puerperal fever.

Fusiform bacilli.—These organisms were Gram-negative bacilli, slender fusiform or diphtheroid, Gram-negative. Many "ghost" cultures showed slender, beaded, Gram-negative bacilli; other cultures showed slender, beaded, Gram-negative bacilli; some cocci-bacilli and filaments. No growth was obtained after heating forms and irregular swellings. Three strains were killed by autoclaving at 60° C. for 30 minutes. The colonies on horse-blood agar plates after two days' anaerobic incubation were in most cases 1 mm. in diameter, round, smooth, and low convex; but a few strains had a diameter of 2 to 3 mm. diameter with a rough surface and gas, irregular edge. In serum sugars two strains produced acid and gas, one strain and salicin were not fermented. It seemed justifiable to place these organisms in the *Fusiformis* group, but not to assign them to any particular species in it, because individual strains shown Mannitol and organisms in the *Fusiformis* and some of *F. necrophorus* have these characteristics of *F. fusiformis* (Dack, 1940).

Aerobic Diphteroids.—Two strains of slender Gram-positive rods. On horse-blood agar plates they grew in the form of small, round, slightly raised, low convex colonies. The colonies were aerobic.

Anaerobic Diptheroids.—Two strains of slender Gram-positive bacilli seen in pus films grew only anaerobically. On horse-blood agar after two days' anaerobic incubation the colonies of one strain were 1 mm. in diameter, round, smooth, and convex; the colonies of the other were 2 mm. in diameter, irregularly circular, rough, flat, and sunken in the agar. Films from cultures showed Gram-positive diptheroid bacilli. No acid was produced in glucose, maltose, sucrose, or starch serum sugars.

the other were killed by the acid. No acid was produced by the diptheroid bacilli. No acid was produced by the sucrose, or starch serum sugars.

Micrococcus tetragenus.—An abundant growth of this organism was obtained from a specimen of pus which showed clusters of Gram-positive cocci in films. A similar result was obtained from another laboratory which had isolated *Srep. pyogenes* and *Staph. aureus* from specimens taken some months earlier when the abscess was first aspirated. The specimens from which *M. tetragenus* was isolated were obtained at the first aspiration of a recurrence.

Some of the strains isolated were used for the production of experimental brain abscesses in rabbits (Falconer, McFarlan, and Russell, 1943).

Most Common Organism in Brain Abscess

Of the 100 cases collected by other workers, 50 were studied here.

The Commonest Organism in Brain Abscess

The Commonest Organism in Brain Abscess

A comparison of the clinical data of cases collected by other authors (Evans, 1931; Atkinson, 1934) with those studied here showed that this series, though small, is a representative one. Analysis of the bacteriological findings in this series revealed no close association between the type of organism and the site of abscess or source of infection, so that the data as they stand are a fair sample for use in estimating the frequency with which various organisms are found in brain abscesses that are referred to neurosurgeon clinics. Rapidly fatal cases which do not reach the neurosurgeon might give different results.

Staphylococcus aureus was isolated from 15 of 48 cases. The age distribution of 11 of the cases from which *Staph. aureus* was isolated in pure culture was 1, 2, 3, 1, 4, 1 in successive decades. Thus the organism occurred in roughly one-third of the whole series and of each age group. "Streptococci" were seen in films or

Staphylococcus aureus was isolated from 15 of 48 cases. The age distribution of 11 of the cases from which *Staph. aureus* was isolated in pure culture was 1, 2, 3, 1, 4, 1 in successive decades. Thus the organism occurred in roughly one-third of the whole series and of each age group. "Streptococci" were seen in films on

isolated from 21 cases, but culture showed 10 strains to be anaerobic streptococci, 4 to be *Strep. pyogenes*, 2 *Strep. viridans*, and 2 non-haemolytic streptococci. Three strains were seen only in films. Thus, although "streptococci" were common, several species were represented. Fusiform bacilli were found in 10 cases; in 7 of these they were accompanied by streptococci of one species or another, and in one case by both streptococci and staphylococci.

The commonest organism, therefore, was *Staph. aureus*. Fusiform bacilli and anaerobic streptococci came next in order of frequency. *Strep. pneumoniae*, *P. vulgaris*, and *Strep. pyogenes* were also found in several cases.

Discussion

Although staphylococci were present in 15 of the 48 cases in this series and in 14 of 27 cases reported by Alpers (1939), other authors (Hasslauer, 1907; Lund, 1926; Atkinson, 1934) found them in only a few of their cases of brain abscess. It is difficult to account for this discrepancy. The predominance of staphylococci in the present series was not due to the inclusion of cases in infants, in which staphylococci are said to be very common (Sandford, 1928). Several authors have stated that streptococci are the commonest organisms, but the results of culture in this series suggest that several species of streptococci may have been represented. It is unjustifiable to group these species together and misleading to state that streptococci are the commonest organisms in brain abscess. Fusiform bacilli and anaerobic streptococci were often found, and on several occasions pneumococci grew only anaerobically in primary cultures. It is clear that anaerobic culture is an essential part of the examination of pus from brain abscesses.

It appears from Table I that more than one species of organism was present in a large proportion of the abscesses from which anaerobic organisms were isolated. Wámoscher and von Vársárhelyi (1933) showed that the injection of agar furnished a nidus in which tetanus spores could germinate, and it is possible that the use of agar in the inoculum was responsible for the production of abscesses in rabbits' brains with anaerobic streptococci and fusiform bacilli by Falconer *et al.* (1943). It seems therefore quite probable that brain abscesses due to anaerobic organisms originate in foci of lowered O-R potential (Fildes, 1927) produced by a vascular accident or by aerobic organisms which later die out.

In this series clinical evidence of encapsulation was obtained in 5 cases two months after the onset of symptoms, and in 8 cases with three months' history. Histological examination showed well-marked fibrous walls in 2 (pneumococcal) cases with six weeks' history, in 3 cases with two months' history, and in 6 cases with three months' history. However, the clinical observations concerned the superficial part of the abscess wall, where encapsulation is more rapid than in the parts nearer the ventricle (Northfield, 1942; Falconer *et al.*, 1943). Moreover, a deeper unencapsulated loculus was present in several abscesses which had apparently been present for six months or longer. It was therefore impossible to draw any general conclusion about the time relations of capsule formation or to compare the speed of encapsulation of abscesses due to different organisms.

Of the two cases without a capsule, one in which cerebral symptoms had been present for a week was due to anaerobic streptococci, and the other, in which symptoms had been present for a fortnight, was due to *Strep. pyogenes*. It is clear that no deductions as to delay in capsule formation should be drawn from these two presumably recent abscesses. The same argument applies to the three abscesses in which the absence of a capsule was noted at operation. One of these with a fortnight's history was due to *P. vulgaris* and anaerobic streptococci, one with a three-weeks history to fusiform bacilli and anaerobic streptococci, and one with a four-weeks history to *Staph. aureus*.

There are repeated statements in the literature (Neumann, 1909; Alpers, 1939; Grant, 1941) that anaerobic and Gram-negative bacilli inhibit capsule formation. Histological examination demonstrated well-formed collagenous capsules in two cases in this series from which fusiform bacilli were isolated (in one case together with anaerobic streptococci and in the other with streptococci seen only in films). One of these cases has already been cited by Falconer *et al.* (1943), who found that encapsulation occurred in brain abscesses caused by the intracerebral inoculation of fusiform bacilli or anaerobic

streptococci in rabbits. There is therefore both clinical and experimental evidence that encapsulation does occur in the presence of fusiform bacilli or anaerobic streptococci. Similarly the authors just cited showed that encapsulation occurred in experimental abscesses due to *P. vulgaris*, and well-formed capsules were found in two abscesses in this series in which *P. vulgaris* was present. These observations agree with Atkinson's (1934) statement that *P. vulgaris* is apparently a highly virulent in brain abscesses, but do not support the statement, probably derived from Lund's (1926) record of two fatal cases due to coliform bacilli, that Gram-negative bacilli inhibit capsule formation. Thorotrast, which favours encapsulation (Falconer *et al.*, 1943), had not been introduced into abscesses considered here.

Summary

Specimens of pus from 48 brain abscesses were examined. Details of the cases, of the bacteriological technique, and of the organisms isolated are set out. Of the cases 33 yielded a single organism, 14 more than one species of organism. One specimen was sterile.

Staph. aureus was present in 15 cases, fusiform bacilli and anaerobic streptococci each in 10 cases, *Strep. pneumoniae*, *P. vulgaris* and *Strep. pyogenes* each appeared in several cases. "Streptococci" were found in 21 cases, but several species were represented, the statement that streptococci are the commonest organisms in brain abscess is misleading.

Anaerobic culture is a necessary part of the examination of pus from brain abscesses both for the isolation of obligate anaerobes and for the isolation of some strains of pneumococci.

Data concerning the encapsulation of the abscesses were sufficient to permit any general conclusions about the rate at which the capsule is formed or the effect on that rate of the species of the infecting organism. Two abscesses from which fusiform bacilli were isolated were shown histologically to be well encapsulated, were two abscesses from which *P. vulgaris* was isolated. The cases and some experimental studies (Falconer *et al.*, 1943) are in variance with the statement that anaerobic and Gram-negative bacilli inhibit capsule formation.

I wish to thank Dr. Dorothy S. Russell for allowing me to use her histological findings in the discussion of capsule formation, the neurosurgeons, particularly Brig. Cairns, without whose help this study could not have been undertaken.

REFERENCES

- Alpers, B. J. (1939). *Arch. Otolaryng.*, Chicago, 29, 199.
Atkinson, E. M. (1934). *Brain Abscess*, Med. Publications Ltd., London.
Colebrook, L., and Hare, R. (1933). *J. Obstet. Gynaec. Brit. Emp.*, 40, 609.
Dack, G. M. (1940). *Bact. Rev.*, 4, 227.
Evans, W. (1931). *Lancet*, 1, 1231, 1289.
Falconer, M. A., McFarlan, A. M., and Russell, D. S. (1943). *Brit. J. Surg.*, 245.
Fildes, P. (1927). *Brit. J. exp. Path.*, 8, 387.
Grant, F. C. (1941). *Int. Abstr. Surg.*, 72, 118.
Hasslauer (1907). *Int. Zbl. Ohrh.*, 5, 1.
Lund, R. (1926). *Z. Hals-, Nasen-, Ohrenheilk.*, 14, 341.
Neumann, H. (1909). *Otitic Cerebellar Abscess* (trans. R. Lake), Lewis, London.
Northfield, D. W. C. (1942). *J. Neurol. Psychopath.*, 5, 1.
Sandford, H. N. (1928). *Amer. J. Dis. Child.*, 35, 256.
Topley, W. W. C., and Wilson, G. S. (1937). *Principles of Bacteriology and Immunity*, Arnold, London.
Wámoscher, L., and Vársárhelyi, J. von (1933). *Z. Hyg. Infektkr.*, 115, 535.

ON THE HANDLING OF SMALL BIOPSY MATERIAL

BY

ALAN C. LENDRUM, M.D.

Lecturer on Pathology, the University of Glasgow;
Assistant Pathologist, Western Infirmary, Glasgow

The increasing frequency of diagnostic biopsy, especially of the epithelium of the uterus and the respiratory tract, has prompted this description of the technical procedures used in this laboratory. First, however, it is important to state that biopsy material removed with a blunt scalpel or curette, or subjected to squeezing, tearing, crushing, or deep coagulation during removal will, no matter how good the technique of the pathologist, show nuclear changes that are characteristic of intravital trauma; it should be more widely known that these changes may make the difficulties of histological diagnosis insurmountable.

Many of the methods to be described are of long usage, and are due to predecessors or colleagues; a few are personal innovations, but all have formed an established and satisfactory routine for several years. The importance of scrupulous technique in the handling of such delicate material can scarcely be over-

emphasized, and the description and recommendations are therefore given in a somewhat dogmatic tone.

Fixation

The fixative used exclusively is formal-corrosive. This is prepared by adding 10 parts of commercial formalin (not neutralized) to 90 parts of saturated aqueous solution (5.6%) of mercuric chloride; to this is added enough saturated aqueous magenta acid (acid fuchsin) to give a pale pink colour (depth of 1 in 20,000 KMnO_4). This mixture keeps satisfactorily for months. The addition of the dye has the advantage not only of distinguishing the solution in the laboratory but of imparting to the small fixed fragments a very visible and so helpful red colour. The fixative is supplied in 4-oz. wide-mouthed bottles with bakelite screw caps, about three-quarters full. Metal caps must not be used. The tissues are dropped direct into the fixative, although with endometrial curettings it is of proved value to follow the method employed by Dr. Adam Barr, gynaecologist to this hospital. The curettings are dropped on to an adjacent sterile towel, and the theatre sister, with clean forceps, immediately transfers the fragments of tissue into the fixative. Fixation should be for eight or more hours; in practice this means until the following morning. The tissue is then transferred direct to 95% ethanol (methylated spirit) in a 4-oz. wide-mouthed glass-stoppered specimen jar, where it lies till evening.

Dehydration is completed by transfer to "absolute spirit" (industrial methylated spirit 74 degrees overproof) or absolute ethanol, in which the tissue lies until the morning of the next day (second day after biopsy). **Clearing** is done by benzol (commercial 90%), into which the tissue is now put; two hours is usually enough. Thanks to the fuchsin the cleared tissue is still easily visible—an important point. **Paraffin impregnation** follows, and at 54° C. is adequate in three to six hours (depending on the size and consistency of the tissue). The tissues are thus ready for cutting by the evening of the second day after operation; in practice they are usually cut and stained the following morning.

Notes and Comments

The use of a fixative containing mercuric chloride holds the fragments together by the rapid coagulative effect, and gives a much better fixation of nuclei than fixing for the same period in ordinary formal-saline. The absence of a chrome salt (as in Zenker's solution) removes the need for washing out the fixative, while the presence of formalin in the mixture produces a better fixative for diagnostic purposes than plain aqueous corrosive sublimate (Lendrum, 1941a). It is of course necessary to remove the corrosive by treating the sections with iodine during their hydration before staining.

The fixative thus used is generally quite suitable for filtering and subsequent re-use in fixation of the more gross surgical tissues; the bottles are scrupulously cleaned before refilling with fresh fixative.

In handling small bits of tissue it is of great help to use, as Dr. Janet Niven suggested, dental plugging forceps rather than the usual tissue forceps; they certainly add a noticeable delicacy to the touch.

Denser and tougher tissues (such as biopsies of skin) can be subjected to the same routine if the pieces are small. If, however, a piece is thought to be too large one can cut it with a sharp knife after eight or more hours' fixation, knowing that the face thus cut, thanks to the coagulative power of the corrosive, is not likely to distort. In practice the larger fragment of tissue is left uncut until the next morning; it is then bisected (e.g., through a suspected ulcer), returned to the fixative till midday, then transferred to 95% ethanol, and in the evening to the "absolute spirit" as usual.

If an unsuspected toughness or hardness in a tissue is discovered only when the block is being cut on the microtome, the following procedure is used. The mixture called "mollifex" (B.D.H.; see Baker, 1941) has the power of softening tissue in a paraffin block. In practice if such a troublesome tissue is encountered the paraffin block, still on its wooden chuck (see Carson, 1941), with the tissue already exposed by the attempted cutting, is immersed in mollifex for three or four hours (or till the next day), and it is then found that a satisfactory section can usually be cut. Glycerin has a similar but slower action. If unsuspected calcification is revealed at the stage of cutting, the block and chuck are immersed

in a modified Ebner's decalcifying solution (6% mercuric chloride in 15% sodium chloride, with 1% of hydrochloric acid), and by the following day it is usually possible to obtain a satisfactory section. Slightly longer staining with haematoxylin is necessary because of the acidity of the tissue.

Lymph nodes present a particularly difficult problem, and, since diagnosis of the reticuloses is so dependent on perfect histology, they should be treated by a slower method of dehydration (Lendrum, 1941b).

Summary

Satisfactory diagnosis of biopsy material demands good technique on the part of surgeon or gynaecologist and of the pathologist.

The routine as used at the Western Infirmary Laboratory is described in detail, and recommended as being capable of giving consistently good results.

REFERENCES

- Baker, J. R. (1941). *J. roy. microscop. Soc.*, 61, 75.
Carson, W. (1941). *Mon. Bull. path. bact. Lab. Ass.*, 7, 32.
Lendrum, A. C. (1941a). *J. Path. Bact.*, 52, 132.
— (1941b). *Ibid.*, 52, 138.

Medical Memoranda

Congenital Atresia of the Oesophagus

In recording a case of congenital atresia of the oesophagus in the *Journal* (Nov. 12, 1938, p. 983) J. W. D. Bull says: "The following case is recorded not on account of its rarity but because the condition has been so seldom mentioned in the English literature." For the same reason it may be worth while to record another case, in which the fistulous tract opened at the extreme end of the trachea between the bronchi, thus differing from Dr. Bull's case, in which the opening was a little way up on the posterior wall.

CLINICAL HISTORY OF CASE

The mother attended ante-natal clinics and was confined at this hospital. She was a primigravida aged 33. As in Dr. Bull's case, hydramnion had been noted. Apart from premature rupture of the membranes labour was normal. A female child was born on March 17, 1943, at about 35 weeks' gestation. She weighed 4 lb., measured 17½ in., and was apparently healthy. The following night the child vomited thick mucoid material. Cyanosis and rapid shallow respirations were noted. Oxygen, brandy, and glucose were given, but it was found that the child seemed better when left alone. Next day the vomiting continued and fluid was regurgitated through the nose. Cyanosis occurred after each feed and disappeared when the vomiting ceased. Inspection of the palate showed no abnormality, and tracheo-oesophageal fistula was tentatively diagnosed. Feedings were stopped and rectal and subcutaneous glucose-salines substituted. Later the same day frothy white material was ejected from nose and mouth, during which cyanosis persisted. Meconium was passed per rectum. The following day the condition was similar, and the child died early next morning—i.e., after three days.

Post-mortem Examination.—Since the essential points are shown in the photograph, it will suffice to say that no other abnormality was discovered and to describe the procedure. After removal of the thoracic and abdominal viscera in one piece, a metal catheter was passed into the oesophagus from above and was arrested after about 14 in. The oesophagus was opened on to the catheter and found to end blindly. After opening the stomach the catheter was passed up the oesophagus from below. It passed quite readily and emerged from the larynx. Cutting down on to the catheter showed that the lower part of the oesophagus entered the trachea at its bifurcation. There was no evidence of bronchopneumonia, which is apparently the usual cause of death in such cases.



Photograph of specimen

The specimen is now in the Teratological Section of the Museum of the Royal College of Surgeons. In the accompanying photograph the highest pin impales the epiglottis. The metal stylet lies in the trachea and shows the fistula proceeding from the trachea and opening into the stomach. The blind sac of the upper part of the oesophagus is opened and pinned out. The trachea and bronchi are shown opened.

I am indebted to Dr. J. Laurie, medical superintendent, for permission to publish the case, and to Mr. Beggs, clerk of the hospital, who kindly took the photograph.

WALTER CALVERT, D.R.C.O.G.,

Late Obstetrical Officer, Sharoe Green Hospital, Preston;
now Obstetrical Officer and Deputy Medical Superintendent,
dent, Stepping Hill Hospital, Stockport.

Ether Clonus treated by Hexobarbitone Soluble

The following case may be considered of sufficient general interest to be recorded.

An obese woman aged 47 was admitted with an acute appendix. Anaesthesia was induced with gas-oxygen-ether given through a standard Boyle apparatus. Induction was uneventful, but just as the surgeon had opened the peritoneum contractions began abruptly and, so far as could be judged, throughout the whole body simultaneously. The anaesthetic was withdrawn at once, and pure oxygen given under as much pressure as was possible with the apparatus being used. The contractions continued with extreme violence and did not permit of a single complete inspiration. Cyanosis rapidly became extreme; 0.5 g. of hexobarbitone soluble (civapan sodium) was dissolved in 5 c.cm. of distilled water and administered intravenously. No more than 1 c.cm. of the solution had been given when the clonus ceased abruptly. The remainder of the solution was slowly injected and the operation was completed without difficulty. No more anaesthetic was required.

It may be noted that: (1) It is very difficult to enter even a good vein when clonus is present, and almost impossible to be sure of not spilling the solution into the surrounding tissues. (2) Induction required a rather large amount of ether; the appendix was gangrenous, and the theatre unusually hot owing to black-out conditions.

Evesham General Hospital.

H. L. HEATH, M.B., Ch.B.

Unusual Cases of Diphtheria

In view of the recent note by Dr. Manuel Anderson (*Journal*, July 24, p. 104) on an unusual case of external diphtheritic membrane the following cases seem worthy of record.

CASE I

A boy aged 4 years was admitted to this hospital on Dec. 14, 1940, from the Royal Liverpool Children's Hospital, with large patches of diphtheritic membrane on both tonsils. He had been given 10,000 units of antidiphtheria serum before admission, the throat swab being positive. Shortly before developing the faucial diphtheria he had had a second-stage Edmund's operation for hypospadias.

On admission it was observed that the glans penis was very oedematous and that there was a yellowish membrane covering it, blackening in the area of the corona. Cultures taken from this were positive for the Klebs-Loeffler bacillus. A further 40,000 units of A.D.S. was given; the whole penile slough thickened and blackened, and was removed with hydrogen peroxide. The general condition rapidly improved. On Jan. 6, 1941, swabs were taken; the throat proved negative, but the penis positive, as it was again one week later. There were two catgut sutures in the region of the corona; these were removed, and on Jan. 16 a negative swab as obtained.

CASE II

On Jan. 29, 1941, a woman aged 25, with her child aged 5 weeks, was admitted to hospital. The mother had faucial diphtheria with a large patch of membrane on the left tonsillar area. A swab was positive. The course of her case was normal, although in view of her feeding the baby I swabbed the nipples, which were negative for K.L.B.

The child was the interesting case. Before admission there had been a nasal discharge and epistaxis, and the nasal swab was positive for K.L.B. Three weeks previously the child had been circumcised, and there was a filmy membrane on the glans penis and also on the umbilicus, which was still moist. Cultures from both these areas were positive for K.L.B. The throat was negative. 16,000 units of A.D.S. was given. On Jan. 31 there was still some nose-bleeding, but the umbilicus was drying rapidly, forming a blackish scar. The condition of the penis was much the same. On Feb. 3 the black scar had dried and lifted off, leaving a clean healed area. On Feb. 14 small blisters appeared on the penis, but these were negative for K.L.B. and soon cleared up. The mother and child were discharged on March 1, 1941, with swabs from all areas negative.

COMMENT

As in Dr. Anderson's case, undoubtedly the "raw" areas were ready to be "inoculated" with K.L.B. In these cases trauma was not slight, however; but perhaps the cases bear out the suggestion that trauma plays some part in the introduction of the Klebs-Loeffler bacillus.

I should like to thank Dr. Hillman Gray for access to the records.

JOHN W. CROWTHER, M.B., Ch.B.,

Late Medical Superintendent, Dutton Isolation Hospital.

Reviews

EXAMINATION OF THE CHEST

Chest Examination: The Correlation of Physical and X-ray Findings. Diseases of the Lung. By Richard R. Trail, M.D., F.R.C.P. With foreword by Sir Walter Langdon-Brown, M.D., F.R.C.P. (Pp. 10 illustrated. 10s. 6d.) London: J. and A. Churchill, 1943.

Wing Cmdr. Trail has written the little book which many of his colleagues have thought of writing but have hitherto shirked the task. Its main purpose is to correlate the anatomy and pathology of the lungs with the physical findings—clinical and radiological. The book contains two sections. The first consists of a very useful summary of the static and dynamic anatomy of the lungs, including the normal radiological appearance. The second and main section correlates the abnormal physical and radiological findings in common chest diseases with the pathology. This is well done, and the section contains much information not readily accessible to students. Wing Cmdr. Trail is very dogmatic, as is essential when writing for students, but many of the statements concerning the deductions which can be drawn from physical signs are by no means generally accepted. It is a pity that these were included, because many of the less orthodox claims could have been omitted without loss to the general clarity of his explanations. The two sections containing notes on physical signs and on reading films of abnormal chest conditions bear evidence of their origin in lecture notes, as the author explains in the preface. The former gives many useful hints, but the subsection "Crepitations" will not clear the muddle which exists in many students' minds when classifying adventitious sounds. The section on reading x-ray films suffers from brevity and from insufficient diagrams and reproduction of conditions described, but internal evidence in the text suggests that this is the fault of the publishers rather than the author.

A small volume on these subjects was needed badly, and students will learn much from the careful study of the book. Readers must, however, realize that some of the explanations are useful hypotheses rather than proven facts, and not discouraged if they fail to obtain as much information as the author does from the physical examination of the patient.

PHYSIOLOGICAL BASIS OF MEDICINE

The Physiological Basis of Medical Practice. By Charles Herbert Best, M.D., D.Sc., F.R.S., F.R.C.P., and Norman Burke Taylor, M.D., F.R.C.S. Ed. Third edition. (Pp. 1,942; illustrated. 55s.) London: Baillière, Tindall and Cox, 1943.

We welcomed the second edition of this valuable book after its appearance in 1939, since when it has been reprinted three times. Now that a third edition appears we need only repeat our praise, for with one exception the book stands much the same, though there has been revision of detail throughout. The exception is the contribution of Dr. A. M. Wynne on intracellular respiration, which has been entirely rewritten. This is a subject of such growing importance in biochemistry that a brief review of its complexities may be of interest. Intracellular oxidation is primarily concerned with liberation of free energy in the living cell. It is not true, as used to be said, that "all life depends on oxygen," if that statement is read as it stands, for certain organisms and anaerobic bacteria can obtain energy in the complete absence of oxygen by rearranging the atoms in, for example, glucose. In all fermentations there is a cleavage of the molecule, the oxidation of one half being achieved by the reduction of the other half. Even in animal tissues there is an anaerobic mechanism for the liberation of energy. In muscle this comes into play when there is an acute need for energy which the oxygen supply is inadequate to meet. On the other hand, when the oxygen supply is abundant it suppresses the fermentative method. The utilization of intracellular oxygen was studied by Warburg, who revived interest in the muscle pigments detected by McMunn as long ago as 1886, which were subsequently found to be iron-porphyrin compounds. But Warburg's conception of this as a "respiration enzyme" was inadequate to explain the observed facts. Keilin renamed the pigments cytochromes, of which there are three—a, b, and c. He showed that in whatever way oxidation was effected it involved the loss of one or more electrons, which were regained on reduction. Intracellular

Nov. 20, 1943

REVIEWS

idation is achieved by handing on an electron from the iron in the cytochrome to the next in the series, thus becoming oxidized itself and reducing its neighbour by means of the gift thus received. Such in barest outline is the remarkable story. The book is a valuable work of reference, but, as we said before, the particular need now is for books on the principles of physiology and medicine side by side with such admirable encyclopaedias.

PROBLEMS OF POST-WAR EUROPE

When Hostilities Cease. (Pp. 124. 4s. 6d.) London: Victor Gollancz, 1943.

This booklet contains papers on post-war relief and reconstruction that were written for the Fabian Society. Julian Huxley writes on relief and reconstruction, H. J. Laski on the machinery of international relief, W. Arnold-Foster on international controls, John Marrack on food for starving Europe, John A. Leck Bourne on post-war medical relief in Europe, and Kenneth Hammond on relief measures for agriculture, and Kenneth G. Brooks on the re-establishment of displaced peoples. Leonard Woolf contributes the introduction, and there is a foreword by Philip Noel-Baker. The introduction states, "The citizen who has read this book cannot evade responsibility for the plea of ignorance, for he knows the facts, the problem, and the policy of action which the Government of his country should adopt. It remains, therefore, for him to see that his Government adopts it." Such an *ex cathedra* utterance is unfortunate; it is certainly an over-simplification. The reader will find stimulating accounts of numerous aspects of post-war relief, but some of the views expressed are unlikely to secure universal approbation. There are, indeed, divergencies of opinion among the authors of this book; it would be surprising if it were not so. There is, however, general agreement that post-war relief should be much more than a mere salvage operation or an act of charity. Relief must be a prelude to reconstruction; it should be the first step in practical international economic co-operation, an integral part of the future international organization. It is very desirable, then, that relief and reconstruction should be planned and administered with due regard to the structure and attributes of the future "League of Nations." Some international controls will be essential as soon as hostilities cease, and in many fields such controls must be permanent and more effective than any that the League of Nations was ever able to secure. The political failure of some of its technical organizations—such as the International Labour Office and the Economic and Health Sections. In the fields of public health and medical research and readjustments, might make a very valuable contribution to post-war relief and reconstruction. In any case the medical profession will have a vitally important part to play in the rehabilitation of this war-stricken world, and for that reason, if for no other, the subject-matter of *When Hostilities Cease* is of immediate concern to it.

In describing the magnitude and scope of the post-war catastrophic conditions that will call for relief much is inevitably based on conjecture and on analogy with conditions after the last war. The book is not altogether free from errors. Thus in the chapter which deals with food for starving Europe it is stated that "the number of cattle in Germany fell from 20,994 in 1913 to 17,227 in 1918." These are impossibly low figures. Elsewhere in the book the probable deficiency in numbers of cattle in Europe, excluding Russian losses, is given as 10,000,000 head.

Notes on Books

The Governors of the Royal Cancer Hospital, London, have authorized the republication of selected papers from that hospital and the associated Chester Beatty Research Institute. The first volume appeared at the end of last year and was briefly noticed in this column on April 10. Volume 2 has now been issued. Like its predecessor, it is a substantial book, and it comprises 34 papers published during 1939 and 1940. All the articles are well reproduced by the Replika process, and they cover a wide range of subjects related to cancer, its genesis and treatment. By far the longest

contribution is an important paper by Prof. J. W. Cook and Prof. E. L. Kennaway entitled "Chemical Compounds as Carcinogen Agents: second supplementary report: literature of 1938 and 1939 reprinted from the *American Journal of Cancer*; this occupies 309 pages. Copies of Volume 2 are available at a cost of 16s. p. 90 and may be had on application to the Secretary, Royal Cancer Hospital (Free), Fulham Road, London, S.W.3.

A fifth edition of *A Guide to Anatomy*, by E. D. EWART, has now been published by H. K. Lewis at 17s. 6d.: Written originally in 1920, this book has proved useful to a long succession of students preparing for the examinations held by the Chartered Society of Massage and Medical Gymnastics, and it has grown much with the passage of years. Dame Barrie Lambert, who helped the author with the first draft, writes a foreword to the new edition.

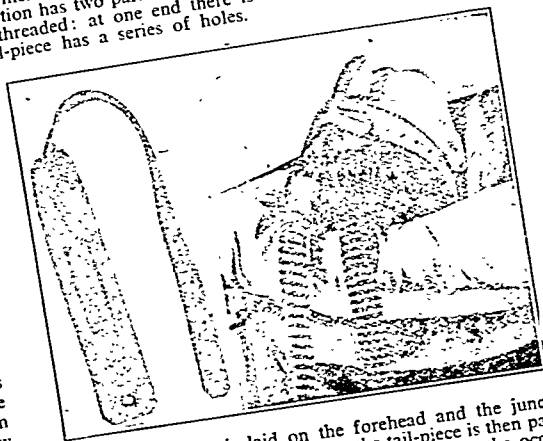
Eight Hundred Years of Service: The Story of Britain's Voluntary Hospitals is the title of a neat and attractive pamphlet issued by the British Hospitals Association (12, Grosvenor Crescent, S.W.1). The spirit of hospital service, and a good many of its details to could not have been more pitifully set out in fewer than a score of pages. The title, perhaps, is open to a little question. It is true that St. Bartholomew's has had more than eight hundred years of history, but, apart from that great foundation and St. Thomas's, the story of hospitals so far as London is concerned, and most of the English counties as well, is a very thin one until the beginning of the eighteenth century. The pamphlet does not attempt any definition of what "voluntaryism" means, but it describes in a terse fashion the triumph of planning which a modern hospital represents, and the humanity of its administration, with a brief account of the great medical discoveries and achievements that have taken place within its walls. The object is to show the general public how voluntary hospitals can take a major part in the coming co-ordination of hospital services.

Preparations and Appliances

AN ENDOTRACHEAL HARNESS

Dr. M. W. P. HUDSON writes from Queen Mary's Hospital, Roehampton:

The device shown in the illustrations is designed to prevent the drag of the accordion tubing on the nose and to avoid separation of this from the endotracheal tube during anaesthesia. It consists essentially of a rubber band three inches wide and ten inches long with a tail-piece sixteen inches long. The centre portion has two parallel slots through which the junction tubing is threaded: at one end there is a stud; at the other end the tail-piece has a series of holes.



The main portion is laid on the forehead and the junction tubing is threaded through the slots: the tail-piece is then passed immediately above the ear, behind the head below the occiput, and immediately above the ear on the other side. Tension is adjusted as required and the tail-piece is fixed by pressing the appropriate hole on to the stud.

It will be noted from the figure that no movement can occur between the nose and the point of fixation however much the position of the head is altered during an operation. I wish to thank the Director-General of Medical Services, Ministry of Pensions, for permission to publish this note. Mr. T. P. Kilner for his encouragement, and Mr. J. E. L. Mayes for the photographs. The harness can be obtained from Medical and Industrial Equipment, Ltd., 12, New Cavendish Street, London, W.1.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY NOVEMBER 20, 1943

MEDICINE AND SOCIETY

If civilization means the art of living together in towns we cannot yet be sure that our civilization will survive. We have removed the major pestilences of town living and we are on the way to remove some of its discomforts, but new problems arise as the old problems are removed and we are hard pressed to keep pace with our self-created troubles. The success of our efforts will be judged on the rate of our progress and by our wisdom in the choice of means of achieving it. Some of this disquiet is evident in medicine to-day; it finds expression in a rising interest in social medicine, and in a demand that the medical profession, by research, teaching, and practice, should play its appointed part as no other profession can. This interest in social medicine is tinged with some misgivings about its objects, and there are fears that if it is pressed upon the student the intellectual discipline of the old clinical training will be replaced by a loose sentimentalism of the new. Prof. John Ryle's description of the meaning and scope of social medicine, printed in our opening pages this week, should do much to remove these doubts. There will be no great dissension from his view that the last generation of medical students have directed too much time to the details of technical diagnosis and specialized treatment; that they had been engaged too much on the study of how men die and too little on the study of how men live. The fault does not lie entirely at the door of the clinical teachers. They may have followed too much the intellectually satisfying pursuits of technical diagnosis, but on the other hand their field of study has been narrowed by unhappy accidents of legislation and administration which have relieved them of those responsibilities which an earlier generation of teachers shouldered. This is one of the reasons for the decline in their interest in any of the common diseases of civilization.

The Royal College of Physicians of London has recently published the interim report of its Committee on Social and Preventive Medicine, and this indicates the lines upon which the teaching of social medicine might be developed.¹ The committee has foreseen the danger that social medicine might become merely another specialism added to the student's curriculum or tacked on to the existing public health course. Its recommendations include practical suggestions for a scheme of training which would help the student throughout his clinical years. The first aim of the training in social medicine would be to indicate to the student the industrial and social factors which contribute to the causation of disease and to train him in the practice of social investigation. The next aim would be to demonstrate the structure and working of the various social organizations provided by local authorities and

voluntary agencies. With this knowledge the doctor would be able to make better use of these instruments for the benefit of his patients. But we must expect still greater results. If the medical profession had a deeper interest in the efficiency of the instruments of medical aid it might bring the steady pressure of its opinion to bear on the reform. We are faced by many schemes of social reform. Not a few of these concern the doctor and the agencies he uses. He should be able to assess the efficiency of an institution as readily as he assesses the effects of other forms of treatment.

It will be difficult straightway to set up in all medical schools departments of social medicine, and it is important that this should not be done until suitable head departments are available. But this does not mean that nothing should be done. In most medical schools there is at least one teacher with an "interest in humanity who could arrange and inspire if the responsibility were placed upon him. If he did no more than arrange with his colleagues that time and place should be found for the instruction of students he would have done much. Beyond that there is the practical task of bringing the almoner's department into its proper status, of organizing a student's health service, and of improving the hospital social machinery. It may appear strange that hospitals should need "humanizing" in some of the ways that are recommended in the report of the Committee of the Royal College of Physicians, but it is no more strange than the first recommendation that the College "should take an active interest in the organization of the teaching of social and preventive medicine," for there was a time when it was expected to advise on all matters concerning the health of the people and to suggest means for its improvement. We shall await with interest the fulfilment of the promise that in its next report the Committee on Social and Preventive Medicine will discuss the arrangements of social medicine outside the hospital. Here it will be in touch with problems more difficult than the teaching of students or the arrangement of almoners' departments.

TREATMENT OF GAS GANGRENE

The concerted study of gas gangrene planned shortly after the war began is now bearing fruit. The Middle East has for long been the only theatre of operations in which an abundance of clinical material was available, and the excellent use made of it is evident from the papers of J. D. MacLennan,¹ whose study is classical in its scope and thoroughness. He was enabled not merely to obtain information about all cases of gas gangrene among the casualties in a whole series of campaigns, but personally to investigate a large proportion of them. Full bacteriological data, such as are only forthcoming when an expert examines the original material, are thus available for correlation with clinical findings. MacLennan's definition of various types of anaerobic wound infection distinguishes several other conditions from true gas gangrene, and among cases of the latter there were enough due to the more uncommon *Clostridia* to define, in some cases

¹ See *British Medical Journal*, Oct. 30, 1943, p. 553.¹ *Lancet*, 1943, 2, 63, 94, 123.

the first time, the clinical picture which they produce. Two points which emerge clearly are the graver prognosis in mixed infections, and the invariable fatality of infection by *Cl. histolyticum*. Sulphonamide treatment was disappointing—a fact for which the frequent occurrence of *M. oedematiens* in Libya may be partly responsible, since his organism is relatively insusceptible; combined sulphonamide and antitoxin treatment was clearly more effective.

The organization which worked so well in Libya has naturally had no parallel in the more scattered medical services in this country, nor has any considerable number of cases ever been available at one place and time. The best that could be done was to collect information about diagnosed and treated cases after the event, and Army Form I 1241 was issued to the Services and to the E.M.S. for this purpose three years ago. Returns on this form have now been collected and analysed by Miss M. G. Macfarlane, who describes her findings on page 636. Excluding 88 Dunkirk casualties, about most of which the information was inadequate, and 85 North African cases included in MacLennan's series, her material consists of 165 reports from various sources, including casualties in all three Services treated in this country, recent casualties in the B.N.A.F., and civilian air-raid cases. Unfortunately no bacteriological data are included; the nature of each case is defined only in terms of the site of the lesion and the degree of toxæmia judged to exist on clinical grounds. Nor are any conclusions drawn with regard to the value of sulphonamide treatment; almost all patients received it, and presumably an analysis of response in relation to dosage or choice of drug is not thought feasible. Gas gangrene calls for sulphonamide dosage on the highest possible scale, and if material becomes available for judging its effect a comparison between cases so treated and those given the ordinary doses more appropriate to a less acute emergency might well be made. What this analysis does afford is evidence of the value of antitoxin treatment. From this point of view the data are examined in every possible way, and it emerges clearly not only that the general fatality rate is lower in antitoxin-treated cases but that this applies equally to cases also treated by surgical measures, including amputation, and that early administration is more effective. The main lesson to be learned from this series is that a dose of not less than 50,000 units of antitoxin should be given with the least possible delay; a few hours may be vital in a disease of which the progress is so rapid. Amputation was performed in 64 of the 139 cases; this, and an over-all mortality of 41%, make up a somewhat discouraging picture.

The frequency of amputation suggests that there may have been a tendency to report only more severe cases. That those reported represent only a small fraction of those that have occurred is almost certain: no one is going to believe that in the whole period of the air war on Britain the number of civilian casualties suffering from gas gangrene in hospitals under the control of the E.M.S. has been only 38. Perhaps the publication of these findings may lead to more consistent notification and reporting, but it is doubtful whether form-filling research can ever

in any way take the place of personally directed investigation. We would nevertheless emphasize, not for the first time in these columns, the obligation which lies on every surgeon to give others the benefit of his experience.

THE UBIQUITOUS THREADWORM

Seven years ago the chief of the Division of Zoology of the National Institute of Health of the U.S. Public Health Service, the late Dr. Maurice C. Hall, began an extensive research into the various problems of the threadworm. Since then 27 articles by various members of the team of workers employed have appeared in different periodicals, and earlier this year Dr. Eloise B. Cram¹ summarized the work done and came to certain conclusions, some of which are of special interest to the general practitioner. First, it is not sufficiently realized how infectious threadworm infestation is. A single worm may turn out an average of 11,000 eggs; this gives some idea of the extent to which an infected person may be a source of reinfection to himself and of infection to others. Moreover, household studies have shown that the eggs are distributed in the dust of the rooms. Positive findings for eggs, at all levels of the walls, amounted to 91.7% of the samples, and it was concluded that about half of the eggs found were viable or had recently been so. Chemical methods of destroying the eggs were unsuccessful, and it is clear that preventive methods alone cannot control threadworm infection. It is also clear from these American studies that *familial infection is only too common*. If one person in a family is infected, most or all of the children are likely to be infected, and probably also one or both parents. This is true of all classes, and it is clear that treatment of a patient must usually include treatment of most other members of the household. The second big problem concerns diagnosis. Recent studies have shown that nail-biting, thumb-sucking, nose-picking, grating of the teeth, and nocturnal enuresis are no more common in the infected than in the non-infected child. Positive symptoms are restlessness and insomnia, vague gastro-intestinal disturbances, and local irritation. But the clinical picture is blurred, and the fact that out of 4,000 persons examined by the special "N.I.H." swab method 41.5% of whites and 12.9% of negroes were found to be harbouring threadworms shows how pertinacious worms are, since sampling was considered as representing a fair cross-section of the population. The swab method of diagnosis should be more widely used:

"The swab consists of a glass rod with its rounded tip covered with a 25-mm. square of plain, transparent, unwaterproof cellophane, the rod being inserted in a perforated cork fitted in a small test-tube. The cellophane tip is stroked firmly over the perianal surface. In the laboratory the cellophane is detached from the rod, mounted in water or tenth-normal sodium hydroxide solution, and examined under the microscope for the presence of pinworm eggs."

The best time for taking the swab is immediately after the patient gets up in the morning—before a bath or evacuation of the bowels. The efficacy of treatment has been checked in the American series by requiring 7 consecutive negative daily N.I.H. swabs beginning from the tenth to the forty-second day after the end of treatment. Most popular remedies come badly out of this strict test. The only way to control this widespread infestation at present is to tackle all infected persons in a household with an effective anthelmintic. This must be relatively un toxic, cheap, and easily administered. The most nearly satisfactory drug tested was gentian violet; although treatment with this was described in this country some time ago,

¹ *Am. J. Dis. Child.*, 1943, 68, 46.

it has apparently not attracted sufficient attention, as judged by inquiries received in the "Any Questions?" section of this *Journal*.

"The dosage of the drug for adults was two 32-mg. (1/2 gr.) tablets three times a day before meals and for children 10 mg. (1/6 gr.) a day for each year of apparent (not chronological) age, the total daily amount of the drug for children being divided into three doses. The routine of treatment was varied in different series of tests with a view to determining the most suitable regimen. Part of the patients were given the drug for ten consecutive days, and part were treated for eight days, allowed to rest for seven days, and then re-treated for an additional period of eight days. Both enteric-coated and water-soluble-coated tablets were employed."

A fair proportion of patients experienced some degree of gastro-intestinal upset while gentian violet was being used, but such symptoms subsided quickly when the dose was reduced or if the drug was omitted for a day or two. The method should not be used if there is a concomitant infection with roundworms, with moderate to severe cardiac, hepatic, or renal disease, and any disease of the gastro-intestinal tract. The American summary also includes as a contraindication "alcohol in the digestive system."

PENICILLIN IN TUNISIA

The meeting of the Section of Experimental Medicine and Therapeutics of the Royal Society of Medicine on Nov. 9, the proceedings of which are reported elsewhere in this issue, attracted a large attendance. By common consent the film by which Prof. H. W. Florey illustrated his recent experiences in penicillin treatment was accorded the chief welcome among several notable contributions to the study of this subject. He spent the summer months in Tunisia, evolving, with the help of Army surgeons, methods of treating battle wounds to prevent sepsis. The film first depicts the conditions under which wounded have to be nursed, prominent among which are shade temperatures never below 90° F., clouds of dust sweeping over the tents from every passing vehicle, and swarms of flies settling on every exposed wound. The cases treated had been evacuated from Sicily, and treatment was usually begun several days after wounding, when infection was already established. The method adopted for wounds of soft parts, however extensive, was excision of the skin edges and of damaged tissue bordering the wound, and complete suture, leaving the wound cavity several narrow tubes, secured in stab incisions bordering the wound, through which penicillin solution was injected at intervals subsequently. In a very large proportion of cases primary healing was secured, and some of the wounds were obviously of a nature and extent which must have led to prolonged suppuration and very slow healing by granulation had "orthodox" methods been used. Suture was possible only under considerable tension in some of the cases. Functional results appeared to be excellent, even in cases classified only as "subtotal" union of soft parts. Compound fractures needed more drastic treatment: a penicillin-sulphanilamide powder was introduced into the wound at the C.C.S., and débridement and complete closure at the Base were followed by about 5 days of systemic penicillin treatment, a total of usually 500,000 units being given by 3-hourly intramuscular injections or by intravenous drip. This method of controlling sepsis in an even more difficult type of case appears also to have achieved a remarkable degree of success, and months of invalidity can evidently be avoided by this method. It is now abundantly proved that wherever penicillin can be continuously maintained sepsis due to Gram-positive bacteria cannot exist: repeated infiltration through

tubes can secure this condition in wounds of soft tissue after closure, but nothing short of systemic treatment serve the purpose when bone is involved. No one sees this remarkable testimony to the possibilities of penicillin treatment in dealing with battle wounds will give the large share of available supplies which the Army doubtless receive until the end of the war.

Gas gangrene due to either of the three main toxic species of *Clostridia* should be susceptible to penicillin treatment, judging by the *in vitro* susceptibility of the organisms and by the results at least of prophylactic use in mice. Information about therapeutic effects in gangrene has been awaited with interest, and it was somewhat disconcerting that the first clinical evidence on subject should consist of the 4 cases described by Elliott C. Cutler of the U.S.A.M.C. which developed gangrene actually during treatment with penicillin compound fractures. It would be interesting to know what the infecting organisms were and whether they exhibited corresponding resistance *in vitro* and in the experimental animal. Two of the cases were in members of Flying Tress crews wounded in action over Germany. The seems a strange place to get gas gangrene, and contaminated clothing is presumably the only possible source of infection. It was said of the German Navy in the war that before they put to sea every man was ordered to have a hot bath and put on clean underclothes and uniform in order to avoid sepsis if casualties occurred. Whether such measures are either feasible or worth while for the crews has no doubt been considered.

MINISTERIAL CHANGES

Of the new Cabinet appointments announced last week two of them are of the greatest interest to the medical profession—that of Mr. H. U. Willink, K.C., as Minister of Health and that of Lord Woolton as Minister of Reconstruction. Lord Woolton has been more than a distributor of the nation's food during wartime. Guided by first class scientific advice, he has in fact become "Minister of Dietetics," and has done much to instruct the people of this country that the greater part of good health is good food. If he is as successful in his new Ministry in providing "food, houses, and work" for peacetime Britain then the ground will be clear for Mr. Willink—the new Minister of Health—to reconstruct the health services of England and Wales. Mr. Willink is under 50 and comes to the task with his recent record of successful achievement as Special Commissioner for the London Region. As son-in-law of Dr. H. Morley Fletcher he will have personal acquaintance with the aspirations of the medical profession. As a former senior Scholar of Trinity College, Cambridge, he will, we can be assured, have real understanding of the ideals of medicine as a learned profession and of the needs and aims of medical education and research, to which the Cambridge departments of physiology and of medicine have made such weighty contributions. He comes into office at a moment when there is confusion of counsel in the profession at large, and a moment when medical distrust of the Ministry of Health is widespread. He will find a medical profession intensely suspicious of doctrinaire plans, but anxious for reform, fully aware of present shortcomings, and eager to respond to a broadminded handling of the problems of health and disease that come within the scope of a central government department. The medical profession has listened patiently to Mr. Ernest Brown, and if he has at times caught the ear of the profession he has never quite touched its heart or its mind. Mr. Brown seemed always to be speaking with two voices—the voice of reason on one day

he voice of the politician on the next. He had a difficult term of office. But he deserves our gratitude for the campaign on diphtheria immunization, for trying to clean up the milk situation, for introducing measures to detect tuberculosis more quickly. Perhaps more than any other man Mr. Brown knows what difficulties lie before his successor—and may Mr. Willink remain in office at least long enough to profit by the mistakes which he, like all Ministers of Health, will probably make.

CONTROL OF DISEASE IN THE TROPICS

The report of the fourteenth meeting of the Ross Institute Industrial Advisory Committee, held in May, gives a very adequate summary of many widespread recent activities in relation to the control of disease in the Tropics. Referring to the work of the Ross Institute, the chairman, Mr. G. H. Masefield, discussed recent successful work in India, Ceylon, and Africa, particularly in the tea and rubber areas in those territories. Sir Malcolm Watson, speaking in more detail of what had been done, paid tribute to Sir Ronald Ross, whose insight had correctly pointed out the way in which malaria could best be combated. Events had shown that what he had said was right in every respect, and had stimulated research in many tropical diseases, such as yellow fever, relapsing fever, and plague, all of which it is now known are conveyed by different insect hosts. The importance of the part played by the London School of Hygiene and Tropical Medicine, in teaching, in conducting laboratory work, and in field researches, was emphasized by Dr. V. B. Wigglesworth, F.R.S. Without a broad scientific foundation applied work soon became sterile and ceased to grow. On the other hand, were it not connected with practical field problems the scientific work of the school would soon become academic. Thus close liaison between the work of the Ross Institute and that of the Entomological Department of the School was most desirable. During the war almost all the workers in the department had been fully occupied with problems of immediate practical importance to the Services. Prof. P. A. Buxton, F.R.S., and Dr. J. R. Busvine had devised new and more effective methods of dealing with the destruction of lice, the carriers of typhus and other diseases—methods which are being extensively employed at the present time in the Middle East. The question of larvicides and the effective blending of waste oils for the destruction of mosquitoes and work on substitutes for Paris green and for pyrethrum, of which there is at present a world shortage, had also been taken up with useful results. Prof. R. T. Leiper, F.R.S., stressed the need for a scientific basis in dealing with the problems of curative and preventive medicine, and referred to the importance of parasitological studies not only in medicine but in agriculture in the maintaining of healthy crops. Col. Mackie, I.M.S., spoke on yellow fever in Africa and the regulations for controlling the spread of this disease. He explained the term "mouse protection test" and its great usefulness by enabling dangerously infected areas to be accurately determined and quarantine regulations made in accordance. He referred to the necessity for controlling mosquitoes, especially a species of *Aedes* and other mosquitoes known to carry the disease in the vicinity of aerodromes, and for destroying insects in aircraft alighting in endemic areas, now carried out with a recognized insecticide and an efficient spraying apparatus.

Sir Eric Macfadyen said that the Industrial Advisory Committee was the direct link between the Institute and industry in the Tropics, and that the linking up of the London School of Hygiene and Tropical Medicine, with its

high repute and its distinguished achievement in scientific research, and the Ross Institute, with its world-wide record of useful service in combating malaria and other tropical diseases, ought surely to be fruitful. The Industrial Advisory Committee was formed in October, 1928, by the late Sir Charles McLeod with the idea of enlisting the help of those largely associated with the control of industry to allow of a quicker appreciation of the possibilities of radical health improvement in the Tropics by the adoption of new ideas in the control of disease.

THE CLINICAL SOCIETY OF LONDON

In his recent presidential address on this subject before the Clinical Section of the Royal Society of Medicine Dr. J. D. Rolleston said that the formation in 1868 of the Clinical Society of London, the parent of the Clinical Section of the R.S.M., was mainly due to Dr. Headlam Greenhow and Dr. (afterwards Sir) John Burdon Sanderson, who were both assistant physicians of the Middlesex Hospital, the latter being subsequently appointed Waynflete Professor of Physiology and later Regius Professor of Medicine at Oxford. According to Dr. Rolleston the most interesting historical event connected with the Clinical Society was the first medical description in this country of x rays, which was made before it nearly fifty years ago. Early in 1896 the society invited Prof. Silvanus Thompson to tell its members about the new discovery. A special meeting was held on March 30, 1896, and was attended by nearly 400 members. Subsequently numerous cases illustrating the diagnostic and therapeutic value of x rays were reported at the meetings of the Society and recorded in its *Transactions*. A remarkable custom in the practice of the Society was the frequent establishment of special committees to describe various subjects or individual cases. The most important of these committees were those on myxoedema, the periods of incubation and contagiousness of certain infectious diseases, and the antitoxin of diphtheria which had just been introduced into this country. The course of the Society was successful from the first. At the time of its amalgamation with sixteen other societies in 1907 it numbered 572 ordinary members and 17 honorary members. The first meeting was held on Jan. 10, 1868, under the presidency of Sir Thomas Watson, who was regarded at the time as the greatest English physician of the century and author of a textbook on medicine which was without a rival for over 30 years. The subjects and cases discussed covered the whole field of medicine in the widest sense of the word. It was a remarkable fact that the subject of acute infectious diseases received much more attention from the Society than it subsequently did from the Section, as is seen from the fact that during the forty years of the Society's existence its *Transactions* contained 50 records of acute infectious disease, as compared with only 15 in the *Transactions* of the Section between 1907 and 1942.

The President and Council of the Royal Society have awarded the Copley Medal to Sir Joseph Barcroft, F.R.S., for his distinguished work on respiration and the respiratory function of the blood; and the Davy Medal to Prof. I. M. Heilbron, F.R.S., for his many notable contributions to organic chemistry, especially to the chemistry of natural products of physiological importance.

The Canadian Medical Association has decided to hold a regular annual meeting next year in Toronto during the week beginning on May 22.

EMPLOYMENT OF THE TUBERCULOUS IN INDUSTRY IN THE U.S.S.R.

[FROM A SPECIAL CORRESPONDENT]

Recent numbers of the journal *Problemy Tuberkuloza*, Moscow, provide interesting information on Russian experience of collective arrangements for employing the tuberculous, or those in whom the disease is quiescent, in industry.

Provision of modified working conditions in ordinary industry seems to have been sporadic until about 1936-7, when more systematic arrangements were made through instructions from the People's Commissariat for Health of the Central Council of Trades Unions (which is responsible for much of the factory welfare services). N. E. Vredenskaya of the Central Tuberculosis Institute gives a critical survey of such arrangements in 25 large factories (including the now famous Barricades Factory of Stalingrad) with an aggregate population of 250,000 and 1,500 tuberculous employees (1938, No. 6). (Over half of the latter had a positive sputum, a proportion probably higher than in comparable industrial populations in this country, even in wartime.) There was considerable variation in the arrangements from one factory to another, but the following were some of the desirable features: preliminary survey of the tuberculous persons employed and of their working conditions; accurate clinical and social records of those requiring modified work; education of and explanation to the mass of the workers; special factory committees with executive powers, representing the management, the tuberculosis dispensary, medical officers, the shop stewards, and the social insurance fund, to plan and control suitable work arrangements; and close co-operation between tuberculosis dispensary and the administration, health centre, and T.U. organizations of the factory.

The arrangements might provide that the tuberculous person continued in the same occupation, but the pace or strain of the work was reduced—e.g., fewer benches, part-time work, no night work, more frequent rest pauses, special rest rooms, extra food from the canteen, etc.—or the occupation might be altered with or without similar amelioration; in the case of part-time workers, any loss in earnings was made up from the Social Insurance Fund. Stress was laid on keeping the skilled worker in a skilled job and, if possible, in his own industry; indeed, it was laid down that in selecting workers who were to be retained when personnel was reduced preference should be given to the tuberculous. Retraining for new jobs took place sometimes at sanatoria, but generally in a special centre within the factory by instructors provided by the management. Trainees received allowances and, where necessary, were accommodated at "night sanatoria" (well-known Soviet institutions). The author concludes that these enterprises show great promise, but are only in an early stage of development, a number of difficulties remaining to be hammered out.

The "Prophylactic Workshop"

One of the methods most favoured in the Soviet Union whereby tuberculous workers can be employed, and one capable of catering for relatively large numbers, including selected infective cases, is the special shop or section within a large factory. An example, which was started in 1938 in the Hammer and Sickle works in Kharkov, is described in some detail by Y. M. Gaft and A. A. Kalinin of the Ukrainian Institute for Study of Tuberculosis (1940, Nos. 2 and 3). First a survey was made of the clinical state, working and living conditions, productive efficiency and earnings, records of temporary absence from work, etc., of all the known tuberculous persons in the factory. A special committee, composed as already mentioned, then interviewed each individual. The work of about one-third of them required adjustment owing to its unsuitable nature (e.g., hot foundry work), hours, or shifts. Some of these people were transferred to more suitable jobs in other parts of the works, if necessary after training, and individual arrangements were made also for highly specialized workers drawing high wages.

In all, 56 persons were transferred collectively to the "prophylactic workshop," including those with effective A.P., fibro-caseous disease, and other types; nearly half of them had

positive sputum. The workshop served as an independent production unit, making locks, spanners, hinges, etc., and its occupations included those of fitter, turner, and so forth. The workers were kept under supervision by the works medical officer in consultation with the local tuberculosis officer. There were no night shifts, and the working day was reduced at rest pauses lengthened as necessary. Extra food was supplied and infective persons ate at a special canteen. In certain cases the worker slept at the night sanatorium; in others a period away at an ordinary sanatorium might be prescribed. Of the 56 cases studied over 2½ years, 13 improved sufficiently to be transferred to normal sections of the works, 24 were still retained in the "prophylactic shop" at the time of reporting, 13 had deteriorated and been invalidated, and 6 had left for personal reasons. A considerable number of those who originally had a positive sputum ceased to expectorate bacilli.

The majority of workers in the special shop showed all subjective improvement; production was satisfactory, and some of them even exceeded their quota. There was less temporary absence than before they were transferred to the special shop. The authors conclude that the "prophylactic shop" has a definite place in the management of tuberculosis in industry. With correct choice of cases and with adequate individual medical care the favourable conditions are beneficial to the course of the disease and help to preserve working capacity though deterioration in unfavourable types cannot be averted.

Special workshops for the tuberculous may also be independent of existing factories, and P. B. Torkanov describes one of these (1940, Nos. 2 and 3) which employ 200 workers making furniture, nails, cardboard, and knitted goods. This undertaking was self-supporting, though the author recommends subsidies from the insurance funds for establishments of this kind. In such shops, owing to the wide selection of patients necessary if they are to cater for large numbers, an absence rate of as much as 30% must be expected; the absences are mainly of persons in whom exacerbation has occurred and those passing a period in a sanatorium.

Retraining the Tuberculous

The retraining of tuberculous persons for new industrial occupations is of major importance in schemes of rehabilitation, and, as already mentioned, this has been considerably developed recently at centres within the large factories. In a further paper (1940, No. 10) Vredenskaya gives some of the advantages of this system—namely, affected persons are retained in their own industry, equipment and instructors can be obtained, and it is comparatively easy to place the worker in a job when trained, and to do so in consultation with the tuberculosis officer who has supervised his medical and social requirements during retraining. Workers are also retrained in special workshops connected with tuberculosis dispensaries with residential sanatoria ("prophylactic work centres"), as this system is described by P. P. Pekar and D. K. Kuryachina (1940, No. 11) and by Y. E. Berensón (1941, No. 2).

The findings of these authors may be summarized as follows: the aim of retraining should be to maintain if not to increase the earning power of the affected worker; tuberculous persons should be retrained who are engaged in work at high temperatures or in dusty occupations, in work involving heavy physical exertion, work in the food industry or in contact with children or who are exposed to toxic hazards or to rapidly changing weather conditions; manual occupations suitable for trainees include those of turner, fitter, electrician, knitting and sewing machinist, etc.; persons with an unfavourable prognosis should be excluded from retraining schemes, the most suitable candidates being those with satisfactory lung collapse or with limited productive lesions; courses of retraining usually have to last 6, 8, or even 12 months.

The enormous transferences of heavy industry since the war have necessitated many adjustments in the Soviet rehabilitation programmes. To make up for inability to use many residential sanatoria, the number of night sanatoria has been increased, and, to supplement these, there is an extensive network of "day sanatoria," most of which are near large factories and providing of assistance in the rehabilitation problem. The employees who are thought by the tuberculosis dispensary to require special care can eat and rest at the sanatorium during

air midday break, while part-time workers can spend their i-time there (Soviet War News, 1943, No. 534).

United Nations' Experience

It is interesting to note that rehabilitation schemes for the tuberculous are developing according to different patterns in different countries. In the U.S.A. there is the "Altro" sheltered workshop scheme in New York City. In England interest has centred round the "village settlement" or colony, either for permanent residence, as at Papworth, or for prolonged or semi-permanent settlement, as at Preston Hall. While in the U.S.S.R. there is wide recognition of the value of the village settlement, Soviet authorities appear to be concentrating upon large-scale rehabilitation of the tuberculous in or around normal sites of industry, mainly by special arrangements within existing factories, though also by separate workshop units. There is no doubt that by these means they hope to provide, within a reasonable time, suitable and safe re-employment for all those needing it, whether they are convalescent and non-infective or chronic, still active (and often infective) cases (i.e., the "good chronics"). In England the war has increased the problem of the tuberculous in industry, for many persons previously idle have re-entered factories and offices and are doing unsuitable full-time work, often subjecting their and young workers to the risks of infection. The war has also increased general interest in the problem and has brought about a realization of public responsibility, as evidenced by the reactions to the recent reports of the Medical Research Council and Tomlinson Committees. The Ministry of Health's new schemes for mass radiography and for financial help will bring the need for systematic tuberculosis rehabilitation schemes to the front. Fortunately, the pooled experience of the United Nations will be available to facilitate a rapid advance in this branch of social medicine.

ASSOCIATION OF PHYSICAL MEDICINE

Nearly twenty years ago, in opening the winter session at the Leeds School of Medicine, Lord Horder (Sir Thomas Horder, as he then was) spoke on physical medicine, and urged the formation of an association to encourage the study of the action of physical agents and their application in the promotion of health. The British Association of Physical Medicine has at long last been formed, with Lord Horder as its first president and Dr. P. Bauwens as its honorary medical secretary.

Inaugural Address

In delivering the inaugural address Lord HORDER said that the birth of the association had come at an appropriate time when the problems of reconditioning and refitting the people of this country, physically, mentally, and spiritually, after their injury in all these aspects by a life-and-death struggle against a sporadic outburst of barbarism had to be faced. There could be no rigid boundaries of physical medicine, but it might be said, on Brig. F. D. Howitt's definition, to have three functions: the achievement and maintenance of physical fitness; diagnosis and treatment, by physical means, of disease and disability of the locomotor system; and the physical selection, training, and reinstatement of personnel in industry and the armed Forces.

"Never was the individual citizen so marked down for hygienic attention as now. Statesmen vie with each other in schemes for improving his physique and giving him an equal mind, so valuable to the State is the contribution which in the last resort he, and he only, can make." One good result was a re-survey of the position from the national point of view, with a clearer vision than before. There was no doubt that in the past we had "let our bodies go, as it were; our civilization had literally gone to our heads, and our heads were not standing it too well either, for there were quite a lot of folk bothered by anxiety, fear, hopelessness, and odd tricks played by their nerves. So let's give the body a chance for a bit, and don't let us think we are wasting time in doing so."

The association's "brief," Lord Horder went on, included control of the whole range of physical measures of diagnosis, prognosis, and treatment which went conveniently by the generic name of physiotherapy. The range was very wide and included some of the most valuable agencies and methods

known to medicine. Into this group came skilled manipulation, massage, gymnastics, remedial exercises, balneology, and other forms of hydrotherapy, the application of light, heat, and cold in various ways, other kinds of ray therapy, and electrical methods. In all these matters the association could speak with authority, and if it did not "pull its punches" its influence would be incalculable. He warned against the temptation to play up to the public demand for the machine—the public thought an apparatus could not lie—or to give them the physiotherapist's equivalent of the bedside manner. The consideration of the spas and health resorts of the country also entered into this matter. The position which these had so far taken in physical medicine was unsatisfactory as compared, for example, with the use made of its spas by Soviet Russia. The State must be educated in the value of spa and health resort treatment in the prevention as well as in the cure of disease and in promoting the efficiency of the worker.

In the aetiology and treatment of chronic rheumatic diseases we had gone ahead with treatments in the absence of exact knowledge of causative factors (as also in cancer), or, the causative factors being known, we had lacked specific therapy (as also in tuberculosis). In the case of cancer it was really a form of physical treatment—namely, radium and x-ray therapy—which had brought relatively good results, and in tuberculosis also it was a series of physical treatments that had changed for the better the outlook for the chronic case.

Education of Profession and Public

Lord Horder went on to point out that the constitution of the new association stressed the importance of undergraduate and postgraduate training in the principles and practice of physical medicine, and it existed to encourage both of these. It also included a general clause in which it expressed as its aim the protection and furtherance of the interests of physical medicine. "We hold a brief for improving the status of the physical medicine specialist and for securing a diploma in physical medicine. The endowment of one or more universities would help us further towards attaining our aims than anything else that we could do." There remained the education of the community in the value of physical medicine—a big task, but one which must be undertaken. It included close co-operation with the educational authorities, the schools, and industry, keeping always in mind the doctors who advised these bodies and interests. These doctors should be invited to join in such discussions and the subsequent recommendations.

Certain aspects of physical medicine, Lord Horder concluded, had been markedly developed during recent years, as, for instance, radiology, which had staked out its special claim and taken its place within the hierarchy of medicine. This had grown to such dimensions that it could look after itself; but he recalled that he helped to nurse it in its infancy and stood by it in its tender years. The Chartered Society of Massage and Medical Gymnastics had developed into a corps of extremely proficient technicians, and he had for two periods occupied its presidential chair. It had also been his privilege to lead a group of colleagues in the formation of the Empire Rheumatism Council, a body which had produced a scheme for national action in the endeavour to solve the problem created by the series of crippling diseases due to rheumatism, and he was now chairman of the joint committee recently set up between that Council and the British Orthopaedic Association. Not all the causes of physical medicine which he had championed had been won. Now the British Association of Physical Medicine had been formed, and although he was president for its first year "the future of this association lies with you, and not with me, but I have faith that you will make that future a good success."

V. J. Birnberg and A. E. Hansen (*J. Pediatr.*, 1942, 21, 774), under the name of thrombophlebitis migrans, describe a rare clinical syndrome characterized by repeated venous thromboses occurring intermittently or concurrently, chiefly in the superficial veins in various parts of the body. Their case, which occurred in a boy aged 14, was the first recorded in a child. Heparinization failed to prevent further venous thromboses, and necropsy showed that death was due to mesenteric thromboses. Bacteriological examination gave no clue as to causation, but the presence of eosinophil inflammation and swelling of the intima of an involved vein suggested an allergic phenomenon.

Reports of Societies

DISCUSSION ON PENICILLIN

One of the largest meetings ever held at the Royal Society of Medicine took place on Nov. 9 for a discussion on "Penicillin" in the Section of Experimental Medicine and Therapeutics (the new name of the Section of Therapeutics and Pharmacology). The Barnes Hall was crowded out, and many stood during the whole three hours of the proceedings. Dr. R. D. LAWRENCE presided.

Early Experiments

Prof. A. FLEMING said that "penicillin" was the name he gave originally to an antibacterial substance produced from a mould. Mycologists knew many varieties of the fungus *Penicillium*, but only one of these, apparently, resulted in the substance known as penicillin. All the substance which had so far been made in this country derived from that early culture. He cultivated it in fluid medium, and found that the fluid under the mould had an antiseptic property which acted powerfully on certain micro-organisms, such as the haemolytic streptococcus and the gonococcus. He then tested it on leucocytes, because the antiseptics he had previously tested had a far greater lethal action on leucocytes than on bacteria; but that was not the case with penicillin. Nevertheless, the crude penicillin which he obtained in those early experiments was not very strong, early attempts at concentration were not successful, and, although it remained in the laboratory for certain purposes, its therapeutic use fell into abeyance until revived by the work of Florey and his associates at Oxford.

A warning was necessary that penicillin treatment should not be applied in infections by micro-organisms which were not sensitive to the drug; it was not a cure-all. Further, it was desirable to make tests of the bacteriostatic power of the blood to determine how much of the drug remained. It might be that good therapeutic results were obtainable with penicillin even when such a small dose was injected that by present methods no bacteriostatic power could be detected in the serum. Perhaps its most important use was locally in more or less minor infections, and not in the dramatic cases where patients were occasionally snatched back from death. The action of penicillin was bacteriostatic rather than bactericidal. With penicillin, as with the sulphonamides, the destruction of the organisms had to be largely by the tissue cells or blood cells, and therefore it followed that the best results would be obtained in patients who had the highest degree of immunity. Although in most cases brilliantly successful results were obtainable by penicillin alone, there were cases where immunological methods could help, just as with the sulphonamides. He added that as soon as the chemists discovered what the substance was and could make it, no doubt they would experiment with the molecules and produce a series of new preparations, some of them perhaps far stronger and with a wider application than the original penicillin.

Characteristics of Penicillin

Prof. H. W. FLOREY (Oxford) said that any credit for the Oxford work attached to the whole of a group of workers there, who, incidentally, were under no delusions concerning the discovery, and realized that a series of lucky accidents had led to the present position, although there had at the same time been a good deal of hard work. Pure penicillin would inhibit sensitive organisms in dilutions of 1:50,000,000 to 1:100,000,000, and morphological effects on the streptococcus were to be seen even to dilutions of 1:250,000,000. The sensitive bacteria included *Str. pyogenes*, *Staph. aureus*, *Str. pneumoniae*, *Str. viridans*, *B. anthracis*, and several others. Among those which did not give good therapeutic results was the bacillus of tuberculosis.

Chemical properties affecting clinical application were the stability of the salt between pH 5 and 7, its destruction by boiling, by oxidizing agents such as hydrogen peroxide, by the enzymes produced by some bacteria, and by heavy metal ions such as copper and lead. There must be neither acids

nor alkalis in any vessel in which penicillin was handled. These facts explained why the substance was so difficult to make. Its biological properties included lack of toxicity to mice and other animals. Leucocytes and tissue cultures were unaffected by solutions many times stronger than were required for bacteriostasis. It was little influenced by the number of bacteria present. It was not inhibited by pus, a matter which was of cardinal importance in explaining why results were obtained with it in purulent infections, nor was it inhibited by tissue autolysates or by blood or serum. It was excreted in urine (rapidly), in bile, and in saliva, but not in tears or pancreatic juice. It did not penetrate to the cerebrospinal fluid. Absorption was rapid from muscle and subcutaneous tissue and from the small intestine. It could not be given by the stomach because most stomachs contained acid, but by the rectum on account of bacteria.

Methods of Administration

It was clear from animal experiments, Prof. Florey continued, that it would have to be given by certain indicated routes. It could be given continuously intravenously or intermittently intravenously, and the dosage on which they worked was 15,000 units every three or four hours. Penicillin was one of the few drugs—indeed, he did not know of other—with which it was not necessary to worry about excretion. With the sulphonamides one had constantly to consider whether one was getting to the toxic level, but with penicillin an overdose offered no terrors, and as time went on and more penicillin became available, if the chemists rose to the occasion, they would have to beware of trying to work minimums, because they were bound to give not enough some time or other. Inadequate dosage was a real danger. Another factor to be remembered was the possibility of having an inactivated penicillin as the result of the presence of a strain of organisms which, though belonging to the sensitive species, was in fact an insensitive strain. One worker had said that about 4% of staphylococci encountered were penicillin-resistant. In local administration there must be adequate access to infected parts, and this depended upon surgical technique which was the main problem in the use of penicillin at present time. Sustained application must be made, for it was fairly rapid absorption. What looked like a great effect of penicillin would quickly diffuse into the infected tissues.

Penicillin in the Treatment of War Casualties

Prof. Florey went on to say that he recently had the opportunity of going to North Africa and using penicillin in co-operation with ten surgeons in that theatre of war. They tried to do as well as to sew up infected wounds and fractures, giving penicillin to prevent sepsis. He showed a film taken in North Africa and the Middle East illustrating the treatment of war wounds by this method. Out of 171 cases so treated, complete union was obtained in 104, subtotal union in 60, and failure in 7. The film showed the operation, the first cleaning of the limb with soap and water, the trimming of the skin edges and muscle, the insertion of tubes, and closing of the wound, to the instillation of the penicillin, which in a number of the cases was repeated twice daily for five days. The stitches were removed after ten days, and in many of the cases, as illustrated on the film, the patient showed excellent recovery with a good usable limb about 24 days after treatment or 28 days after the infliction of the wound. In some cases penicillin was used with sulphanilamide powder and the mixture blown on to the wound. Stress was laid on the necessity of an efficient blower to secure good distribution of the powder with the minimum of wastage. In the case of one dirty wound treatment was by insufflation of powder for four days, another the patient was given 500,000 units of sodium penicillin parenterally. In the case of a septic stump a similar dose was given over five days. In certain cases the penicillin-sulphanilamide mixture was inserted locally at the clearing station, and afterwards at the base hospital 500,000 units of penicillin parenterally were given.

The PRESIDENT at this point asked for a definition of unit of penicillin. Prof. Florey replied that the unit was purely arbitrary amount of material which had been chosen for the very early days for experimental purposes.

Vehicles for Penicillin Administration

Flight Lieut. D. C. BODENHAM (R.A.F.) described some experiences at an R.A.F. hospital in the treatment of localized streptococcal and staphylococcal infections by direct applications of penicillin. He said that certain conditions responded extremely well to very small doses; other conditions responded poorly by the methods at present available for local treatment. As for the preparations of penicillin which could be used for these different types of wounds, the calcium salt supplied to him had varied in potency from 6.8 to 163 units per milligramme, and the daily application of only 4 units per sq. cm. of granulating surface could be effective. Some method of diluting penicillin became necessary, and three methods had been adopted. The first was a simple solution of penicillin dissolved in water, and for practical purposes the strength had varied from 100 to 500 units per c.c.m. Then the need arose for a powder which could be applied with an insufflator to the wound. A neutral diluent was wanted, and the choice was made of sulphanilamide prepared in powdered form. The preparation consisted of mixing with the sulphanilamide a 5% light magnesium oxide. This could be autoclaved at 5 lb. pressure for 15 minutes. When cooled it was shaken with penicillin powder to give a final strength of the penicillin and sulphanilamide mixture of 1,000 units per gramme. Another preparation was ointment which could be applied to the granulating surface. For this purpose lanette wax 33%, vaseline 33%, and water to 100% were taken. This could be autoclaved at 10 lb. pressure for 20 minutes. When it was cooled the penicillin solution, prepared beforehand in the strength of 500 units per c.c.m., was mixed with it, and the emulsion state was retained. One important point about this emulsion was that it was an oil-in-water emulsion in continuous phase. The consistency of it could be altered by simply adding more and more water. It was easily mixed with penicillin, it would adhere to a wet surface, and could be easily removed with water alone. The strength which had been used for most of the infected surfaces had been 100 units per gramme. For success in all these conditions the penicillin must gain access to every part of the wound all the time. That might be beyond the scope of the technique in some cases, but unless it could be achieved success was not likely.

Types of Wound Suitable for Treatment

Flight Lieut. Bodenham, continuing, said that in treating a large number of cases it became obvious that if the greatest good was to be obtained some chart should be prepared from which the salient observations could be made and rapidly recorded. It was necessary to know what was the type of wound, its cause, and what time had elapsed since it was inflicted. The cases which Prof. Florey had illustrated had been fairly recent ones; many of his own series came late, after other methods had first been tried. The earlier these cases were treated the less penicillin was needed and the better the result. It was necessary also to know the nature of any previous treatment, the type of organism, and the type of surface discharge.

In surface wounds such as burns the treatment used had been the application of 100 units of penicillin cream per gramme every 24 or 48 hours. The response had been good, negative swabs being obtained after four or five days. This was the most successful of the groups. In so-called "gutter" wounds penicillin cream had been applied to the amount of 100 to 200 units per gramme. In severe infection penicillin powder applications might be made every 24 hours. A wound measuring 10 in. by 2 in. and 1½ in. deep required 7,000 units per day. Powder could be applied to the wound and solution to the pockets, but the latter were a difficult problem. In sinuses the treatment was to give penicillin solution through a catheter passed to the limit of the track, the solution being 250 units per c.c.m. The injection should be sufficient to fill the track every four hours. Quite obviously in these more complicated wounds penicillin alone could not be expected to heal them when other factors, such as fibrotic cavity walls, were playing a part. The treatment of cavities turned largely on whether they were dependent or inverted, as the former would hold fluid. Penicillin solution was given through a catheter, 100 to 250 units per c.c.m., and 10% of the volume of the capacity of the cavity should

be given every four hours. The bacteriological response was good; the clinical result depended upon various other factors and was sometimes disappointing. The most difficult problem was the complicated cavity occurring in infections of joints, multilocular empyemata, and the like. Here the response to local treatment, even in large doses, was poor. Two cases of acute arthritis of the knee (staphylococcal) had 10,000 units per day for 15 days, but the result was poor. Complicated cases could not be expected to respond to penicillin alone, and surgery must be used to convert such cases to one of the simpler types in which penicillin was effective.

American Army Experience

Col. ELLIOTT C. CUTLER (U.S.A.M.C.) described four cases of severe fracture—in three of them of the femur and in the other of the tibia and fibula—which had received an instillation of 10,000 to 20,000 units of penicillin in solution when treatment was started. But in spite of continuous intramuscular applications of penicillin the presence of gas-forming organisms was detected in the wound after three or four days, and in all these cases the limb had to be amputated. Large amounts of penicillin were again applied intramuscularly—in one case 20,000 units every three hours until the patient received 1,000,000 units—and in all cases the condition after amputation was satisfactory and the patients had remained well.

In reply to a question as to whether the penicillin had any effect at all upon the gas gangrene, Col. Cutler said that they all felt that it had played a major part in survival. His own opinion was that anti-gas-gangrene serum was not very efficacious.

Major J. N. ROBINSON (U.S.A.M.C.) described an experience in treating sulphanilamide-resistant gonorrhoea with penicillin. The series of cases numbered 95, and in nearly all of them the penicillin was given intramuscularly to a total of 100,000 units. Of these cases 93 were cured at the end of one course of treatment, another was cured after a second course, and the last one did not respond to two courses and was considered a failure. Treatment was also tried in three cases of gonorrhoeal arthritis, one of which was successful after 200,000 units of penicillin had been given intramuscularly—15,000 units every three hours—but the other cases, which received only 100,000 units, were not cured. There were no toxic manifestations. The first 30 cases had been followed up and showed no evidence of recurrence or urethral discharge.

Further Clinical Trials

Mr. R. VAUGHAN HUDSON (Middlesex Hospital Penicillin Research Committee) described an investigation on 33 cases chosen because they were penicillin-sensitive as compared with an equal number chosen chiefly because they were insensitive. One method of treatment did not necessarily avail in all the stages of infection. It was in the case of the open wound that the issue was so complicated by the depth of tissue involved and the alteration of blood supply due to trauma. They had learned that a wound might be sterilized but would not heal if the blood supply or local metabolism was insufficient, and, alternatively, in the face of a good blood supply and lowering of the bacterial count, a wound would heal in spite of the fact that it was not completely sterile. As soon as infection was controlled, structure being adapted to function, early movement would improve the blood supply and hasten repair. Penicillin broke the link between the mobilized tissue and the dead tissue, so that by the systemic route with quite a short term of dosage the slough would separate, and proteolytic action of the contents of the tissue fluid would fragment it and enable it to be easily removed. The dosage for this purpose was somewhere between 100,000 and 300,000 units by the systemic route administered every three hours.

Prof. R. V. CHRISTIE (Hill End Hospital) said that during the past six months 117 cases had been treated in his department with penicillin, 104 by local and 13 by systemic administration. In a group of 34 patients with infection of bone, 14 were cured after penicillin administration. The administration was in some cases combined with surgical treatment, but whenever such treatment was performed it was shown that the identical operation was unsuccessful without penicillin. Of the remaining patients 13 were improved and 7 unaffected. In only three of these cases had the duration of infection been less than

one month. The presence of a sequestrum was not in itself a contraindication to penicillin therapy, but the results were not so good as in cases without sequestra. In the group of infections of the soft tissues 44 cases were treated, 23 being cured and 10 improved. Those having a duration of less than one month obviously responded better than those of longer duration. He also mentioned the use of penicillin in certain skin conditions. Excellent results had been obtained in some cases of impetigo.

Lieut.-Col. J. S. JEFFREY said that in the surgical treatment of these wounds penicillin very quickly dealt with the Gram-positive pyogenic organisms, but they were still left with the Gram-negative, which resulted in Gram-negative pus in considerable amounts. When the wounds were sutured up closely this might collect in the dead spaces and cause trouble; therefore where there was danger of a dead space it was thought better to leave the centre of the wound open. He also mentioned rather disappointing results from giving penicillin alone in cases of gas gangrene. In gas gangrene the necrotic tissue was no longer getting an adequate blood supply, and therefore the penicillin was no longer being carried to that part. Nevertheless, there was absorption from that necrotic part, and therefore anti-gas-gangrene serum should be given.

Mrs. FLOREY gave an account of some work in which penicillin had been used in generalized infections, chronic sinuses, abscesses, arthritis, skin infections, infections of the eyes and lips, empyemata, acute mastitis, and acute infections of the hands—a miscellaneous collection of separate clinical entities. From the biological point of view they had been chiefly staphylococcal infections. Out of rather over 300 cases 250 had shown complete recovery, 41 had improved, and in 14 no change had been registered. She showed some photographs illustrating the restoration of function in hands following treatment of the infection by penicillin. There were rapid relief of pain and disappearance of swelling, but the restoration of function was the most striking of the differences. The cases included palmar sepsis and tendon-sheath infections which had been successfully treated.

The report of the 1942-3 session of the Royal Academy of Medicine in Ireland states that the attendance at sectional meetings was well maintained, and the Council notes with pleasure the increased interest shown by Fellows in the Section of State Medicine. Dr. T. Percy C. Kirkpatrick, who signs the report, includes memorial tributes to two Honorary Fellows of the Academy—Howard Atwood Kelly, professor of obstetrics and gynaecology at Johns Hopkins, and George Washington Crile, professor of surgery at Cleveland; also to three ordinary Fellows, Dr. William Boxwell, Dr. J. C. Mant Martin, and Sir William Ireland de Courcy Wheeler. A year ago the Council of the Academy, at the request of the Sections of Medicine and of Surgery, appointed a committee to consider the outbreak of anterior poliomyelitis which had lately been reported in various parts of the country. The committee, under the chairmanship of Dr. C. J. McSweeney, found that 364 cases of the disease, or 12 per 100,000 of the population, had been recorded. The mortality varied from 41% in County Clare to 28.8% in Cork Street Fever Hospital, Dublin. The report put forward valuable recommendations for dealing with future outbreaks of poliomyelitis, and urged that the Department of Local Government and Public Health should organize, among its chief medical officers, a body prepared to deal at once with the disease should it again appear in epidemic form.

The annual general meeting of the Association of Industrial Medical Officers was held at the London School of Hygiene and Tropical Medicine on Oct. 16. The chair was occupied by the retiring chairman, Dr. M. W. Goldblatt, who reviewed the work of the association during the past two years, and spoke of the part that he hoped industrial medicine would play in the future reorganized medical services. In proposing Dr. J. C. Bridge, C.B.E., as the next chairman of the association, Dr. A. J. Amor spoke of the honoured place which Dr. Bridge occupied in the world of industrial medicine. Dr. Bridge was elected with acclamation. Dr. W. Blood was re-elected as hon. secretary and Dr. S. A. Underwood as hon. treasurer. At the afternoon session Dr. M. W. Goldblatt read a paper on "The Investigation of Toxic Hazards," and discussion followed.

At the annual general meeting of the Association of Anaesthetists of Great Britain and Ireland held on Oct. 23 the following officers were elected for the ensuing year: President, Brigadier Ashley Daly, R.A.M.C.; Vice-President, Dr. C. Langton Hewer; Hon. Treasurer, Dr. Z. Mennell; Hon. Secretary, Dr. A. D. Marston.

Correspondence

Some Therapeutic Fallacies

SIR,—I was much interested in the article on some therapeutic fallacies (Nov. 6, p. 572), and I hasten to respond with my own views as a general practitioner.

Regarding the question of essential hypertension, I can disagree that the patient should not be told; otherwise making too light of the matter, the seriousness of the condition will not be fully appreciated. It certainly is not necessary to over-estimate the danger of the condition or to alarm the patient unduly. If one just states that the blood pressure is on a high side, and the patient should take things quietly and see a doctor, say, once a month, then much will have been achieved. It must be remembered that Drs. Linnell and Thomson are such patients from a consultant's point of view, but it is a general practitioner who is called suddenly late one day, to find such a patient develops a stroke while engaged at a laborious task during his work, or, as has been my experience on the golf course. In so far as treatment is concerned, I agree that there is no specific therapy, but diet in the obese will contribute much to the patient's well-being. A repeated blood-letting at frequent intervals will often relieve unpleasant symptoms.

I endorse the remarks on arteriosclerosis and angina pectoris and also on the use of digitalis. This drug is probably more frequently abused than even the sulphonamides. I consider digitalis a dangerous drug in inexperienced hands, and sooner the newly qualified practitioner learns to appreciate its use the better. I should imagine the amount of digitalis used in this country must be appalling. In those cases where Drs. Linnell and Thomson mention as benefiting from digitalis therapy its use is invaluable.

Anaemia is a condition which requires the utmost consideration. Why prescribe iron *ad lib.* to a patient who is regarded as being anaemic on no grounds other than an examination of the conjunctivae? But how many general practitioners are as fortunate as we in Kingston in having good laboratory facilities easily and cheaply available? It is safer to give iron to the non-anaemic patient than to withhold it from the one who needs such treatment. This raises the fundamental question of co-operation between the laboratory, indeed all ancillary diagnostic services, and the general practitioner. The foregoing remarks apply in great measure to the use of the sulphonamide group of drugs. Until the general practitioner is able to determine the cause of infection scientifically the abuse of sulphonamides will continue.

I am disappointed at the remarks made on the use of expectorant mixtures. Do Drs. Linnell and Thomson seriously believe that I can satisfy my chronic bronchitis by telling them to hang over the edge of the bed and cough? Bronchiectasis this treatment may seem reasonable, but in every patient seen by the general practitioner develops bronchiectasis. I have found the average patient with chronic bronchitis as a rule obtains much relief and comfort from simple alkaline expectorants. So far as their use in lobar pneumonia is concerned, when there is associated bronchitis their value has been well proved.

I am in whole-hearted agreement on the subject of constipation. Much harm has been caused by the highly exaggerated advertisements tending to make one feel "bowel-conscious." The treatment of constipation begins with the mother, and can do much by withholding purgatives and training her child into regular habits. A good mixed diet with plenty of fruit and regular exercise are all that are needed for the normal person. It should, however, always be remembered that constipation is often the first symptom of serious disease, and a complete investigation should always be undertaken.

In conclusion, may I express my appreciation to Drs. Linnell and Thomson for their very interesting observations. I am, etc.,

Kingston-on-Thames.

M. H. FRIDMAN.

SIR.—A more depressing exposition of the doctrine of therapeutic nihilism can scarcely have been written than the contribution under the above heading in the *Journal* of Nov. 6; and yet, with the experience of years, one has to admit that much of it is true. Such being the case it is clear that medical textbooks need revision in great part, and equally manifestly teachers of medicine should not exceed the age of about 3, for only thus can it be ensured that the stream of medical instruction will remain pure and undefiled by the babbling inaccuracies of dotards.

While they become almost lyrical about the "beautifully aligned rhythmic movements" and so on of the intestinal anal, the writers, in their suggested treatment of constipation, re all in favour of the *vis a tergo* rather than the *vis a fronte*. But what, after all, can be more unnatural, more unphysiological, and, in most cases, more unnecessary than an enema? One of my teachers used to say, with an air of considerable disdain for the constipated, "All you want is a little marmalade for breakfast." "Shades of colocynth, jalap, and gamboge! Just little marmalade for some of our 'chronics'!"

The fact of the matter is that there is more egregious nonsense written and talked about constipation than about anything else, and usually by doctors. When someone discovers that there is to know about Auerbach's plexus then the hidden mystery of constipation may be revealed. As yet constipation is merely the happy hunting-ground for lectures by the dogmatic and the cranky inside the profession and by manufacturing chemists outside. Sophistication, however, in medicinal treatment is not exclusively the property of people of the calibre of the writers, and a sound critical attitude towards remedies and their effects is not unknown among practitioners.—I am, etc.,

Hore.

G. L. DAVIES.

Vitamin B Deficiency

SIR,—I was very interested in the article on vitamin B and psychological disorders (Oct. 23, p. 503). For a long time I have found vitamin B particularly useful in psychological states, but my experience, in contradistinction to that of your observers, has been more of its use in psychotic states associated with defective nutrition and absorption, and also in alcoholic patients. Your contributors stress that a certain amount of psychological disturbance, perhaps principally psychoneurotic, is attributable to deficiencies in the amount of vitamin B in wartime diet, and that this, combined with the stresses and strains of these times, precipitates symptoms. I feel that this may well be so, and the authors make a strong case, but in addition I would suggest that there is a by no means inconsiderable number of patients who, where no deficiency in vitamin B is present, seem nevertheless to require amounts of this vitamin considerably in excess of the normal. My own feeling is that there is a definite relationship between the central nervous system's requirements in vitamin B and the amount of intellectual work, whether or no this latter be accompanied by stress, accomplished by the individual.

We should not forget that some of the toughest stocks in Europe—say, our own Highlanders and Norwegian fishermen—live habitually on a diet in which the content of vitamins B and C is very low. It can be argued that these people as a whole show no very marked signs of vitamin deficiency. They are, however, living natural lives, whereas in our grossly urbanized communities a large number of the population are in what one might call occupations requiring mentation as much as manual work. As these accessory factors are necessary for the oxygenization of carbohydrate for the nutrition of the central nervous system it does not seem too far fetched to postulate that, apart from any question of stress or strain, the brain in more constant use requires more vitamin B than that of those engaged in more natural occupations.—I am, etc.,

Bath.

A. GUITDHAM.

Retention of Urine and Pyelitis in Girls

SIR,—I hope you will kindly allow me space to air these comments on a detail affecting the health of young children in schools.

Recently I have had a girl of 7 under my care. She was acutely febrile, running a temperature of 104.5° for the first two days, and complained of abdominal pain and headache.

The condition proved to be an acute pyelitis, and under treatment with sulphanilamide and a citrate mixture subsided in a week. A chat with her parents elicited a fact which gave me a clue to a possible cause for the condition. The child herself, an only child, was exceptionally well cared for, and the home spotlessly clean and tidy. I was informed that the little girl had come home from school on a number of occasions with wet underclothes. It was stated with conviction that the schoolmistress was in the habit of refusing permission to children to leave the classroom to perform natural excretions. This child had either been frequently refused, or, being nervous, was afraid to ask permission to leave the classroom.

Now, although I am aware that pyelitis is not uncommon in young female children, it struck me that here was at least one reason why this is so. One can readily imagine the train of events following a series of enforced retentions of urine in a full bladder. Slight infection is caused by the first few efforts at retention; further infection is facilitated by the wearing of a wet and soiled undergarment; and later attempts at retention of the contents of a full and infected bladder easily lead to infection of the renal pelvis.

Conversation with other parents of young children (I have two of my own) leads me to believe that this repressive attitude is fairly common among schoolmistresses having charge of youngsters. In my view this habit is both unfeeling and dangerous to health. It may be argued that children are expected to relieve themselves conveniently at playtime. But young mites can easily forget, or may not feel the urge at the exact time. They are then afraid, if the teacher has been known to be severe on the matter, to mention their desires, and attempt an uncomfortable and possibly dangerous retention. It should, in my view, be the proper part of a teacher to invite children to run out and empty the bladder or bowel if they feel the need, or if they have missed doing so at playtime or other recess. If school authorities have not issued any instructions to teachers on this matter, it should be time that they did wherever young children of tender ages (say, up to 9 or 10 years) are concerned.—I am, etc.,

Birmingham.

C. C. GRAYSON.

Septic Hands and Fingers

SIR,—Your recent correspondents on the maltreatment of septic fingers appear to agree on one point only—they all blame the poor general practitioner for their bad results.

A small proportion of septic fingers starting as deep-seated infections—either subperiosteal (blood-borne) or deep pulpar (implanted or blood-borne)—will cause local damage and destruction of tissue with ultimate slough separation in spite of early and expert surgery.

The warning of the misuse of hot fomentations is justified. Stress should be laid on the damaging effect of using oiled silk (now supplanted by oiled paper in the N.W.F.). This is probably more responsible than any other factor in the production of the horrible soggy lifeless skin so often seen. Unfortunately home-nursing books and lecturers still appear to advocate its use.—I am, etc.,

London, S.W.16

HARRIS AVERY.

Financial Allowances in Tuberculosis

SIR.—The recently introduced Government scheme of monetary allowances for tuberculous subjects has, not unnaturally, attracted widespread interest, not only in medical but also in lay circles. The recent correspondence in the *Times*, initiated by a tuberculous patient, raises points of significance and interest to readers of both lay and medical press, concerning, as it does, all occupied with the control of tuberculosis.

Three of the prerequisites for the control of tuberculosis are: (1) early diagnosis, vastly stimulated by the recently introduced mass radiography service; (2) early treatment, which involves convincing the patient, frequently the bread-winner, of the absolute necessity for accepting prolonged treatment in a sanatorium with the minimum delay; (3) prevention of the spread of infection to family contacts. Hitherto the overriding social and economic problems confronting the patient have militated, not unreasonably, against his accepting medical advice. Those of us closely connected with chest clinics and sanatoria,

and faced with this constantly recurring dilemma of the patient, can fully appreciate the human problems and hardships involved.

The Government scheme of financial allowances seemed to indicate the fulfilment of long-cherished hopes and a great advance in the direction of alleviating such problems, but those of us who attended the recent conference of the National Association for the Prevention of Tuberculosis heard with mixed feelings the Minister of Health expounding the scheme, and many criticisms from authoritative sources were raised regarding (1) the inadequacy of the allowances, and (2) the discrimination between the early and the chronic, the pulmonary and non-pulmonary case. The purpose of the scheme is to enable men and women to undergo treatment without financial hardship to themselves or their dependants, but previously many progressive authorities, with one of which I am intimately connected in a consulting capacity, have, through public assistance and social welfare departments, made allowances not infrequently higher than the present Government ones. In addition, personal contact between tuberculosis workers and the local departments has made possible special treatment for certain individual cases of hardship. The distinction between the two categories of patients leads to the chronic—who is not necessarily incurable, even though his cure may not be sufficiently complete to enable him to return to whole-time war industry—falling into a state of despondency with a personal grudge against his tuberculosis physician and against social workers. Such an attitude, engendered perhaps by a misunderstanding of the scope of the Government scheme, renders co-operation yet more difficult, and brings to naught suggested plans of vocational guidance and rehabilitation, designed to make even the partial invalid a useful citizen.

It is therefore to be hoped that the widespread and genuine apprehension felt will be allayed by a complete review by the Minister of Health of the scale of allowances for tuberculous patients, and that these allowances will be extended not only to a wider group of sufferers from this disease but also, may one venture to hope, where similar circumstances apply to other forms of chronic invalidism, such as, for example, rheumatic, cardiac, and other pulmonary diseases. The financial burden of any such scheme will be considerably reduced, taken as a long-term policy, if the actual allowances which enable the patient, freed from economic and therefore mental anxiety, to undergo adequate treatment in a proper spirit of co-operation are followed by schemes of industrial training and subsequently protected or full employment.—I am, etc.,

London, W.1.

PHILIP ELLMAN.

Institutional Provision for Mental Defectives

SIR,—I was interested in Dr. M. Greaves's letter (Oct. 30, 1959). The position in Halifax is that we have a fairly long list of mental defective cases awaiting institutional accommodation. The general national position appears to be that there are about 17,000 imbecile and idiot children and 84,000 adult defectives in need of institutional care. The total incidence of mental deficiency is at least 320,000. It is clear that the number of defectives is so great that for many years to come it will be impossible to provide an adequate amount of institutional accommodation. I hope mental deficiency will be labelled as a "priority" on the post-war planning and reconstruction blue-prints. Although the prevention and control of the disease will never make a good political vote-catching device the matter is one of extreme social importance. —I am, etc.,

Halifax.

G. C. F. ROE,
Medical Officer of Health.

Infectious Mononucleosis

SIR,—Halcrow, Owen, and Rodger's excellent article on the subject (Oct. 9, p. 443), which will certainly widen our views on the frequency and epidemiology of the disease, draws attention to the difficulties in differential diagnosis. It may, indeed, be impossible in the early stages to differentiate the condition from German measles, especially if blood counts are done before the typical mononucleosis has developed.

In a woman aged 36 who fell ill with high temperature and developed enlargement of the lymph glands in the posterior

triangle of the neck, the total white cells were 6,800 and differential count showed no eosinophils, 60% polymorphs marked shift to the left (21 stab forms out of 60), lymphocytes, some of them atypical, and 9% monocytes. 3% Tüirk cells were also found. Pyrexia, swelling of lymph glands, and blood picture were very suggestive of rubella. However, the rash which I predicted did not appear and pyrexia continued. The differential count a week after onset had changed to 26% polymorphs (5% stab forms) and mononuclear cells, many of which were atypical and contained nucleoli. This clinched the diagnosis of infectious mononucleosis, which was then proved by a positive Paul-Bunton test.

Similar findings have not been infrequent. To complete matters, H. J. Templeton and R. T. Sutherland (*J. Amer. Med. Ass.*, 1939, 113, 1215), who observed skin eruptions in 17 of 91 cases, have stated that in 12 of the 17 cases the rash was indistinguishable from German measles.

In the case mentioned a trial was made with sulphathiazole which produced immediate fall of temperature and rapid improvement of clinical symptoms. This is in contrast to the experiences of Halcrow, Owen, and Rodger, who used sulpyridine, but Hoffman, Lees, and Comros (*Amer. J. Med.*, 1942, 203, 731) recorded prompt improvement in all the patients after sulphathiazole, while their previous experience with sulphanilamide were disappointing.—I am, etc.,

London, W.1.

H. UCKLES.

Sulphonamides in Otitis Media

SIR,—I think a warning should be given as to the use of sulphanilamide and its relatives in acute otitis media. I have used it freely myself and have seen no ill effect in these cases, but if the membrane is bulging when I see the patient I have invariably performed a myringotomy before starting treatment.

I have, however, been sent on account of deafness a number of patients, mostly children, who, having had pain in the ear for two or three days, have been put on treatment and have never discharged. When I have seen them some four weeks later the membrane has been bright but adherent in whole or part and the child very deaf. Even in older children, where I would permit catheterization of the Eustachian tube, I have usually been unable to improve the hearing. I believe that in these cases are those in which an effusion has occurred and has dried up without perforation of the membrane on administration of sulphanilamide. I believe that they can be avoided if the sulphonamide is not administered to a child with a bulging drum without a myringotomy being performed at the same time. The disaster does not seem to occur in cases seen extremely early when the membrane is only flushed and not bulging, nor in cases in which a discharge has already begun when the sulphonamide is administered.—I am, etc.,

Northampton.

E. BROUGHTON BARNES.

Precision Cephalometry and Pelvimetry

SIR,—Dr. Millington (Oct. 16, p. 495) points out that with a lateral tube-shift a knowledge of the tube-film distance is unnecessary. A useful table of correction factors for each millimetre of the shadow-shift from, say, 10 to 30 mm. with a 3-in. tube-shift may be quickly compiled, the formula being

$$\frac{T}{T+S}$$
 (T being the tube-shift and S the resulting shadow-shift), and this greatly curtails the calculations. Such a large error as half an inch in the tube-shift results in an error in the calculated result of about one-tenth of an inch, not a very large discrepancy with such a mistake, and proving the accuracy of the method if the distances be carefully adhered to.

However, if all calculations are to be avoided and the work greatly shortened, the use of a chart (as described in the *British Journal of Radiology*, April, 1942) is required. In this case a knowledge of the height of the diameter above the film is necessary, and for this the tube-film distance must be known and must be constant, a convenient distance being 30 in., which is, moreover, the optimum distance for the Potter-Bucky diaphragm. Also for the antero-posterior diameter, i.e., the conjugate and pubo-sacral—in the lateral film, the

here is no tube-shift, a knowledge of the distance is imperative, and the height of the diameters above the film has to be measured. This can be accurately determined by a measurement of the over-all width of the great trochanters with a calliper, the patient being then turned on to her side into such a position that the measurement of the cleft of the buttocks to the table is equal to half the width of the great trochanters, which with the addition of the distance of the table top from the film gives the height of the diameters above the latter. This method also ensures the superposition of the great trochanters and brings the diameters truly parallel to the film.

A point which does not seem to be generally appreciated is that, provided the diameter to be measured is parallel to the film, the position of the tube in its horizontal plane is unimportant. It may be moved to any position in the same plane and suitably tilted so as to project the diameter on to the film, and the measurement of the projection will remain unaltered the ratio of the tube-diameter distance to the diameter-film distance remaining constant, and the correction factor therefore constant. This requires to be stated, as a recent paper on this subject said that if the tube be centred over the conjugate diameter and the same correction factor be applied to the more distant pubo-sacral diameter, a false computation of the latter will be obtained. Ocular proof that this is not the case may be readily furnished by taking two films of a penny placed at a height of 5 or 6 in. on a cardboard box parallel to the film, one with the tube centred directly over the coin and the other with the tube at a considerable distance, say 12 in., in the same horizontal plane and suitably tilted, when the projection of the image of the coin in the two films will be found to be identical in all respects with no distortion.

The only measurement for which accurate centring of the tube is necessary is for the oblique diameters which are at an inclination with the film, when the tube must be accurately centred in the midline over a point midway between the plane of the anterior-superior spines of the ilia and the symphysis pubis. The calculation here is considerably more complicated, and perhaps of less importance except in special cases (*vide* the paper already cited).

The most valuable measurement is the determination of the inlet and outlet in square measure (square centimetres), which may be said generally to determine the advisability, or the reverse, of Caesarean section. The measurement of the foetal head presents more difficulty as it is seldom that the occipito-frontal or suboccipito-bregmatic or the biparietal diameters are in a plane parallel to that of the film. However, this measurement is of less importance. Gross abnormalities—as hydrocephalus—are immediately apparent; otherwise the variations are not very great, and the head is a malleable object able to adapt itself by moulding within fairly wide limits to the shape and size of the rigid pelvis.

It is to be hoped that the discussion has shown that x-ray pelvimetry has a very real value in obstetrics—a matter upon which doubt has recently been cast in some quarters.—I am, etc.,

Newport.

W. H. HASTINGS.

Epidemiology of Weil's Disease

SIR,—The article of Capt. S. Varadi (Jan. 30, p. 126) and the letter of Dr. K. Blum (Feb. 20, p. 231) on Weil's disease prompt me to draw attention to some recently emphasized knowledge concerning the epidemiology of leptospirosis, and to suggest that this knowledge might be useful when attempting to trace the source of infection in certain cases of Weil's disease.

At least two types of pathogenic leptospirae (*L. pomona* and *L. mitis*) are known to be endemic in pigs and cattle in the coastal district of South Queensland,¹ and all of our cases have had contact with one or other of these animals. In 1939–40 a serious outbreak of classic Weil's disease, with several fatalities, occurred in Western Samoa, a mandated territory of the Dominion of New Zealand. Investigations performed in Brisbane showed that the disease was heavily endemic in Samoan pigs.² Many of these patients were probably infected after contact with pigs. No work has yet been done to ascertain whether *L. heterohaemorrhagiae* exists in Australian pigs, but in view of the fairly high incidence of leptospirosis in imported rats (especially *Rattus norvegicus*) in Brisbane,³ it is possible

that the disease may be present in piggeries situated near urban areas.

These facts may not be well known to the profession in Britain. I feel, however, that they are of sufficient interest and importance to justify intrusion on your space in time of war, for it may well be that farm animals in Britain also can act as carriers of the disease.—I am, etc.,

Brisbane.

D. W. JOHNSON.

REFERENCES

- 1 Johnson, D. W. (1942). *Med. J. Austral.*, 1, 431.
- 2 Annual Report on the Health and Medical Services of the State of Queensland for the year 1940.
- 3 Johnson, D. W., Brown, H. E., and Derrick, E. H. (1937). *Med. J. Austral.*, 1, 811.

Disappearance of Breast Cancer with Stilboestrol

SIR,—The following report of the disappearance of primary and secondary breast cancer with stilboestrol seems worthy of note.

A married woman aged 62 was seen by me in January of this year with a hard lump in the left breast adherent to the skin and clinically a typical case of scirrhous carcinoma. She also complained of a lump in the left axilla which she had noticed for four months. She looked pale and had lost 3 st. in weight. I sent her to see our consulting surgeon, Mr. E. K. Martin, at the Wembley Hospital, who confirmed the diagnosis and advised operation. Her weight then was 7 st. 4 lb.; haemoglobin 76%; x-ray examination of chest showed fibrosis only; the liver was palpable.

She was operated upon by Mr. Martin on Feb. 1, a left radical mastectomy, but removal of growth in the axilla was incomplete owing to attachment to the brachial plexus. The breast and axillary tumour were sent to the Bland Sutton Institute of Middlesex Hospital for examination. The pathological report was: "Carcinoma of breast; growth is a spheroidal-celled carcinoma; there is one large deposit of similar growth in the axilla." She was in hospital for five weeks and her convalescence was slow. It was intended to send her elsewhere for deep x-ray therapy, but her condition gradually worsened and she was never fit for it.

On July 22 she was again seen by Mr. Martin, who reported extensive recurrence on skin, scapular region, and posterior triangle. It was decided to administer stilboestrol. Her weight then was 6 st. 9 lb.

Her health gradually improved, the tumours slowly disappeared. I was so gratified with the result that on Oct. 21 I sent her to see Mr. Martin again, who confirmed there was nothing to be seen or felt in the posterior triangle, skin, or scapular region. She has gained 16 lb. in weight; haemoglobin 95%. She now looks well and does her own housework. It appears to be a cure. The dose of stilboestrol has been quite small, 0.5 mg. daily for three periods of twenty-four days. She has also had iron by the mouth. The acid serum phosphatase has not been estimated but it is intended to do this.

I am grateful to Mr. E. K. Martin for his permission to publish these notes and also to the Bland Sutton Institute for doing the pathological work.

—I am, etc.,

Wembley.

R. TUDOR EDWARDS.

Treatment of Lupus Vulgaris

SIR,—The recent completion of five years' work by the three Finsen-Lomholt lamps installed by Glasgow Corporation at Baird Street Hospital, Glasgow, gives us an opportunity to review our experience of these lamps.

In that period 103 lupus patients have had treatment, the number under treatment in any particular year varying from 75 to 86. Twenty-two patients are quite free from lupus nodules at present and are probably healed. Forty-eight patients are regarded as having markedly improved, and of these about half are nearly healed, there being only odd nodules present in their scars. Twenty-two have improved to a less degree. Ten patients have had insufficient treatment to enable an estimate of the result to be made. One has died from a complicating epithelioma. In all 21,608 hours of treatment have been given, and the number of individual attendances has been 12,588.

The clinic is in operation on two days a week from 9 a.m. to 5 p.m. and on three days a week from 9 a.m. till 8 p.m. Every endeavour is made to arrange suitable times of treatment for workers, and a large proportion of our patients are in employment. One nurse is in charge of three lamps. Servicing is carried out by the corporation electricity depart-

ment. About 15% of our patients come from surrounding local authorities.

We are particularly interested in Dr. Arthur Burrows's letter (Oct. 2, p. 432), in which he implies that 20 minutes is commonly an average exposure time for one treatment. Our experience has been that nothing less than one hour is satisfactory.

As regards plastic surgery, we are endeavouring to make use of the facilities in the emergency hospitals of the Department of Health for Scotland. We are in very close co-operation with the local radium institute for treatment of patients in whom malignancy supervenes. We have tried as much as possible to reserve this method of treatment for face cases, because of the soft pliable nature of the scar which is left—a great advantage as compared with former methods of treatment.—We are, etc.,

Glasgow.

S. I. A. LAIDLAW.
A. MACLEAN.

Regional Anaesthesia

SIR,—I have just read the annotation on regional anaesthesia (June 5, p. 700), and hope to be allowed to submit this criticism.

1. Is it correct to say that "one may assume that unconsciousness during surgical operations would have been welcomed for its own sake"? One finds rather that very often the oblivion of general anaesthesia is feared as much as, or more than, the operation itself.

2. "... Those whose hands cannot be gentle and whose tongues must wag while they work should be discouraged from surgery under regional anaesthesia." Surely such exponents of what should be an art should be discouraged from its practice altogether. General anaesthesia can be no excuse for clumsiness. And if tongues must wag—as they must when the surgeon is teaching—cotton-wool in the patient's ears solves that difficulty.

3. There is no question of "forcing an unwilling patient to remain awake." Premedication, which plays so great a part in local anaesthesia yet earns no mention in the annotation, prevents psychological disturbance of the patient.

4. Should the patient choose his anaesthetic? Does one ask him if he prefers ether to chloroform? Where regional anaesthesia has proved its safety and efficacy—as in brachial and caudal blocks, intercostal block, infiltration block for herniotomy, dorsal nerve block for circumcision—he will nearly always accept the anaesthetist's advice if the question is raised at all.

5. Though the "constant search for a local anaesthetic drug which, while giving effective anaesthesia, is relatively non-toxic" still goes on and will go on, procaine, which holds the field to-day, is far from unsatisfactory or dangerous. It may, indeed, never be superseded, but regional anaesthesia will continue to progress, with British anaesthetists, one hopes, leading the way.

6. With this final quotation one must be in full agreement: "... It will be to the ultimate benefit of everyone that its study is being taken up by anaesthetists rather than as a minor side-line by surgeons." The anaesthetist must master it and its combinations with general anaesthesia. The surgeon must not displace him, but must be able to give his undivided attention to the operation, while his indispensable ally watches the interests of the patient.—I am, etc.,

Calno.

M. ARNOLD,
Capt., S.A.M.C.

Statistics of Neurotic States

SIR,—Having had some part in encouraging Dr. Collier to proceed with the labour for his article (Oct. 9, p. 461), may be permitted a few comments on Dr. Turner's letter (Oct. 30, p. 556)?

Dr. Collier's basic facts—his assessments of the patients—clearly require testing by another study on similar lines, which, it is to be hoped, may be forthcoming. I am sure that Dr. Collier hoped both for this and for criticism and discussion of his findings and interpretations, but I saw nothing in his article to warrant Dr. Turner's final sentence. There is certainly nothing worse than "figures without facts," but he presented all the necessary figures to enable the reader to draw his own conclusions, and the field is still open for the facts to be tested. He gave a clear exposition of the dimensions of his population at risk and of the method of selection of his sample; were this

not so rare in medical literature Dr. Turner might perhaps have been more able both "to understand and to check" his findings.

It is unfortunate that Dr. Collier did not mention why some of the 2,000 cases selected did not appear in his analysis as "cases of ordinary sickness"; but a reasonable inference from Table I is that he saw some of the 2,000 for other reasons. Surely Dr. Collier's data could not be expected to produce evidence on the duration of psychiatric treatment required for his cases? But the number of cases occurring in one year which might need such treatment is still of interest.

His essential findings were, surely, that in one year among those with unduly prolonged disablement there were 280 cases with, in his opinion, manifest nervous or psychiatric disorder, and that this represented a minimum incidence of 3.8 per 1,000 in the basic population at risk. It would be unfortunate if these major findings were blurred by admittedly valid criticisms of some of his minor deductions when the primary figures were fully and clearly presented.—I am, etc.,

Mill Hill, N.W.7.

RUSSELL FRASER.

SIR,—I regret that my anxiety to compress my paper (Oct. 9, p. 461) and thus to save space caused me to omit to state that some of the 2,000 cases were rejected either because the records were not sufficient to warrant inclusion or because they were seen for reasons not directly connected with "sickness." Most insurance societies have some "special rules," the interpretation of which raises issues that are not strictly medical. I rejected them because I felt that their inclusion would obscure the results. I was trying to study "unduly prolonged sickness." I feel sure that the figures in the tables can be relied on as being generally accurate.

I do not consider that my study "proves" anything whatever. More similar studies would be needed before "conclusions" would be justified. I hope my study showed what kind of information on a matter of great importance might be derived from similar sources. Any general practitioner or any officer in charge of large bodies of sick persons could carry out a similar inquiry. I hope to be able to present a further study in a few years' time if there still seems a useful purpose to be served by carrying it out.—I am, etc.,

Worcester.

HOWARD E. COLLIER.

Mosquitoes in Static Water Tanks

SIR,—This correspondence (Oct. 2, 23, 30) has largely become a discussion about the practical value of larvivorous fish. In Persia all house compounds, even the smallest, and all gardens have "static" tanks, so that, even on the high and very dry plateau, there is plenty of malaria, most of it "man-made." In the grounds of the British Legation at Teheran (extensive and many tanks) we proved that goldfish devoured the larvae, and thereafter we were not troubled except by occasional immigrants. We also provided fish for the summer Legation and the Persian village hard by. They bred fast and their colour made untrained inspection easy. Theoretically their universal use would stamp out malaria in a large city like Teheran. Whether *Carassius auratus* would appreciate the conditions in some of our static tanks is another matter. However, a very experienced observer, your correspondent J. F. Marshall of the Bureau of Mosquito Control, assures us that here it is largely a question of "non-biters" and that oil and larvicides are to be had. Authorities can therefore prepare and act promptly if necessary. Owners of garden tanks would do well, however, to keep goldfish in them. Or does war with Japan mean yet another "world shortage"?—I am, etc.,

Droitwich.

A. R. NELIGAN.

"Descriptive" Medicine in the Lay Press

SIR,—Cannot something be done to prevent the publication in the Press of ill-judged and lurid details of medical therapeutics? Under the guise of helpfulness certain papers present the general public with details of modern medical methods and discoveries. Actually they are merely making "copy" in a quite unjustified journalistic manner for their own ends. In fact they are being "sensational."

In a Sunday paper recently there appeared a description of electrical shock therapy with such sentences as, "A drastic treatment of electric shocks," "A tremendous drama,"

"The result is frightening to watch. The patient loses consciousness and jerks into convulsions like a man in an epileptic fit," and "These dramatic fits." While the purpose of this article was to show that melancholia with suicidal tendencies can now be cured, the effect will be quite the opposite..

Those of us who use this method know only too well that patients are extremely interested in what happens to them during this treatment, and that they are frequently worried lest they should say or do something which will make them appear ridiculous. Other depressives before undertaking treatment inquire anxiously what will happen during the treatments. Well, they now have their answer; it will be increasingly difficult to reassure them or their friends, and very probably many sufferers will now prefer to continue their misery rather than suffer "five or six of these dramatic fits," especially if they have seen a genuine epileptic fit!

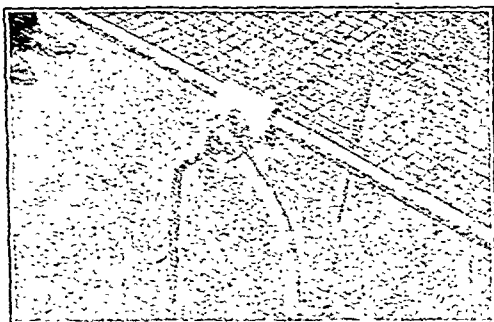
Psychiatrists and psychiatric social workers are doing everything to encourage the timid and frightened psychoneurotic and psychotic patients to seek early treatment. This sort of irresponsible journalism is not likely to make their job any easier. It is to be hoped that in future the medical profession will be given some sort of say in matters of health publicity. Perhaps a "medical corporation" will be permitted to exercise some form of censorship in these purely medical matters.—I am, etc.,

T. MARTIN CUTHBERT.

Ryhope, Sunderland.

Fixing Stretcher for Artificial Respiration

SIR.—In the recent correspondence regarding the "Eye" method of artificial respiration suggestions have been asked for a suitable and quick method of fixing the stretcher on a bar. The accompanying photograph shows a one-piece metal



"hood" which can be positioned quickly, and is prevented from sliding by two bolts with butterfly nuts. The clamp was made by Mr. W. Wardrop of this post.—I am, etc.,

J. ALLAN WHITE,

M.O., Ardrossan-Saltcotes First-aid Post.

The Human Side of Medicine.

SIR.—Without in any way questioning Dr. Stark Murray's sincerity (Nov. 6, p. 591), one must wonder how he conceivably arrives at the belief that "the change over from an individualistic system of medicine to a comprehensive national service will give us the opportunity to humanize completely the relationship between patient and doctor. . . ." One indeed questions what humane treatment means to Dr. Murray. Others beside myself no doubt saw State medicine in action in Socialist Vienna—magnificent hospitals magnificently equipped, where the patient was just "Case No. 793," and often treated in a way that would never (up to now) be tolerated anywhere in this country. This was not because the doctors and surgeons of that famous medical centre (in pre-Nazi days) were any less humane than their counterparts in London, but because the relationship between patient and doctor had been brought down to the level of that between the taxpayer and the income-tax inspector—not a person but a thing, not a personality but a body. Does Dr. Murray seriously consider that his relationship to an individual in his "official capacity" is ever more human than to that individual as an individual?—I am, etc.,

London, W.1

ALAN MABERLY.

Obituary

W. BURTON WOOD, M.D., F.R.C.P.

Dr. Wilfrid Burton Wood died on Nov. 2 at Shalford, near Braintree, aged 59. He was the son of a Manchester merchant who had long family associations with that city. Dr. Burton Wood went to the Leys School and later to Jesus College, Cambridge, and to St. Bartholomew's Hospital. He served in the Middle East during the last war, and on returning to England in 1921 started his public health career in the Tilbury Dock area as tuberculosis officer. He very quickly revealed his interest in all manifestations and aspects of tuberculosis, and never spared himself in doing the very best for every patient. The part-time medical officer of health retiring, he was asked to take over the duties of M.O.H., and thus filled one of those pioneer combined medical officer posts which have been carefully fostered in the County of Essex and since adopted throughout the country. He spent most of his spare time at week-ends and holidays in doing voluntary work at the London Chest Hospital, and on taking his M.R.C.P. he was put on the honorary staff of that hospital.

With the wide and valuable experience he had obtained he took up private practice as a consultant physician in London in 1926. He was appointed senior clinical tuberculosis officer to the County Council of Essex. He was particularly interested in the Essex County Council Hospital at Black Notley, where he attended regularly for the treatment of women and children suffering or suspected to be suffering from pulmonary tuberculosis. Later he was to carry out the same work at both the Harold Court Sanatorium and the Essex County Council Hospital, Broomfield Court. Special consultative clinics for Essex tuberculosis officers were conducted by him at the Essex County Council Hospital, Black Notley, and also the London Chest Hospital. He had the knack of attracting to himself disciples who enjoyed nothing better than one of his clinical demonstrations where cases were seen and discussed on the most equal terms.

In 1940 Dr. Burton Wood was elected F.R.C.P. His many writings on the varied aspects of chest diseases, particularly in children and adolescents, and his profound knowledge of radiographic pictures of the lungs, often provoked valuable discussion. He has undoubtedly been the spearhead of the antituberculosis campaign in Essex during the last twenty years, and his passing will leave a gap extremely difficult to fill. His command of the English language was extraordinary; he had the gift of expressing his thoughts in a telling and interesting, and often humorous, manner. As a lecturer he was outstanding, and in every utterance revealed the extent of his reading and studies. He was never afraid to express his opinions, usually in a forthright manner and always to the benefit of those with whom he came in contact. He was a most delightful colleague.

W. A. B.

F. J. POYNTON, M.D., F.R.C.P.

H.L.T. writes: The death of Frederick John Poynton could have caused no surprise to those who had seen him recently. Poynton was a character and sometimes appeared almost wishful to be an oddity. He was a countryman, and deliberately retained a countryman's characteristics with a certain scorn of personal appearance.

Short and stocky in build, he was enormously strong. He held the curious record of captaining a first-class county cricket eleven after attaining to the sober dignity of a Fellow of the College of Physicians. His outstanding cricketing feat was achieved in two hours at Hove when he and Sammy Woods scored 305 runs at top speed for Somerset against Sussex, and he loved to recall the episode. In his cricketing days he was always known as Joseph, and in the pavilion at Lords during big matches he would be affectionately greeted by many old friends. He played hockey for Middlesex and had some skill at real tennis. He had a fine tenor voice and sang for many years in the choir of St. James's Church.

Unfortunately he allowed his professional life to be clouded by what he considered to be the unsympathetic attitude of the profession towards his researches on rheumatic fever, though his resentment never extended to individuals. When speaking in public and at medical meetings he seemed to delight in speaking some illogical standpoint, and while he amused his audience he was not taken very seriously. But when he dealt with a sick child he had a knack of talking spontaneously as if they were equals, and every child felt at ease with him.

He was a delightful personal friend and a great companion on a holiday. He enjoyed every moment, even when missing a critical

short putt and backing his car by mistake on to an outraged goat, which instantly attacked him. Life was not too kind to him and some blows left their mark, but to the end he retained his power of boyish enjoyment, his sincerity and his honesty and his love of children.

Medical Notes in Parliament

"Pay-as-you-earn"

In the House of Commons on Nov. 2 Sir JOHN ANDERSON stated that since the question of "pay-as-you-earn" income tax was debated he had given very careful consideration to the possibility of extending the scheme to the whole range of Schedule E incomes. He had found, not unexpectedly, that a fresh problem emerged and gained importance as they mounted the income scale. That fresh problem arose from the possibility of an adjustment between profits, which were assessed under Schedule D, and income assessed under Schedule E. Such adjustment would be quite lawful in a variety of cases and, if no special safeguard were applied, might result in the loss of considerable revenue. He was advised that the only fully effective safeguard would be to levy a supplementary assessment on any increase of remuneration in respect of the current financial year. He gave an assurance that either in the next Finance Bill or in a special Finance Bill he would include a provision extending "pay-as-you-earn" to the whole range of Schedule E taxpayers, with the appropriate safeguards, which the House could debate. If the House passed the next Finance Bill including these provisions it would make no difference to the date on which the benefit of "pay-as-you-earn" was given to the taxpayers not included in the present Wage-earners Income-tax Bill, because it could be arranged that the charges in the cases (of over £600 a year) not now covered should take effect from the same date—the beginning of the next income-tax year.

Food and Health in India

The food situation in India was debated by the House of Commons on Nov. 4. Mr. AMERY said pressure of population against the means of subsistence was India's gravest problem. Improved health conditions had contributed to it. In the last 12 years the population of India had grown by 60,000,000. Every month over 300,000 additional mouths had to be fed in British India alone. The impact of war had jeopardized the precariously balanced structure, and a year ago widespread, possibly universal, famine had threatened India. That menace was brought within narrow limits. This year Bengal had been affected by local calamities and an all-over shortage. In the last three months every effort had been made to get food through to Bengal. The Bengal Government had taken steps to move all destitutes from Calcutta to relief camps where they could be fed and medically reconditioned. Field ambulances, clearing stations, and medical staffs were being made available for the establishment of a large number of small hospitals. We had released from this country 500 tons of dried milk and South Africa had offered a quantity of milk products.

Sir JOHN ANDERSON reported that the main paddy (rice) harvest in Bengal this winter promised to be very good. If it proved so, they should be near the end of their troubles. At the end of the year the British Government would review the situation again.

Mr. COATES said 1,000 people were dying weekly of starvation in Calcutta and 50,000 in the country districts.

Hospital Domestic Staff: Conditions of Service

In a statement to the House of Commons on Nov. 4 Mr. ERNEST BEVIN said that he had considered the proper organization and supply of domestic staff in wartime to institutions caring for the sick. He found that there was a lack of any recognized rates of pay, etc., and without these effective action on a large scale was extremely difficult. He therefore appointed at the end of July a committee, under the chairmanship of Sir Hector Hetherington, to advise on the rates of pay and other conditions of employment. The report of the committee had been received, and he proposed to accept its recommendations. Where certain conditions were fulfilled he would deal with recruitment to this work in exactly the same way as to any other form of national service, whether in industry or the Services, according to the priority allotted to it and including the use, as necessary, of powers under Defence Regulations. He was appointing a small standing committee to advise on any further steps which should be taken on such matters as training, welfare, etc. He was also concerned with the problem of the private household suffering undue hardship owing to sickness, childbirth, or other emergency. Plans for dealing with such cases were under consideration.

Our Parliamentary correspondent adds that the rates and conditions proposed in the Hetherington report will not be compulsorily imposed on all hospitals and kindred institutions. Domestic staff will only be directed by the Ministry of Labour to hospitals and other institutions which comply with Hetherington report. Existing agreements made with institutions in respect of domestic staff will be accepted as substitutes for the Hetherington scale. The Ministry aims at ensuring that hospital staff meals are as good as factory canteen meals, and will hold the governors of hospitals responsible for ensuring this. Mr. Bevin is willing to develop training cooking for women entering the domestic service of hospitals. The decisions which he announced on Nov. 4 will apply to private nursing homes and private mental hospitals.

Deaths from "Tonsillitis."—Mr. ERNEST BROWN stated on Oct. that tonsillitis was not separately identified in the International List of Causes of Death adopted as the basis of classification in this country, but deaths therefrom were included and constitute the major portion of those under the heads "Septic Sore Throat" or "Other Diseases of the Pharynx and Tonsils" in respect of which specific mention of tonsils or tonsillectomy was made in the death certificate. The numbers of such deaths registered in England and Wales in the four years 1939 to 1942 were 512, 478, 386, and respectively. The information was not available for years before 1939.

A Pensions Grievance.—Mr. QUINTIN HOGG on Oct. 21 raised the case of the widow of Mr. William Brenner Hight, a surgeon employed at the Wingfield Hospital, Oxford. Mr. ARI HENDERSON, in reply, said Mr. Hight was an orthopaedic surgeon of great ability who volunteered for service in a special appointment in South Africa at the request of the War Office. His appointment carried with it the rank of major. Mr. Hight was commissioned with the rank of lieutenant. The Secretary of Central Medical War Committee then informed the War Office that Prof. Seddon, under whom Mr. Hight worked, considered Hight should be given full specialist status with the rank of major. A reply was made on behalf of the D.G.A.M.S. saying that Hight on assuming his overseas appointment would be raised to full specialist status. This would carry the rank of major. Mr. Hight died as the result of enemy action at sea. Under the provisions of the Warrant the award was dependent on the paid rank held at the time of the casualty, and at the time of his death Mr. Hight was being paid as a lieutenant. Mr. Henderson said the War Office was here bound by the provisions of the Pay Warrant. In accordance with the regulations which operated to-day, the pension to be assessed on the pay for the rank he held at the time of death; but in view of the strong representations made in the House Mr. Henderson promised to convey to Sir James G. the feeling of the House that this case should be given special consideration.

Surgical Care of British Prisoners in Germany.—Mr. SORREN on Nov. 2, asked the Secretary of State for War the number of British prisoners of war recently returned from Germany who received surgical attention in Germany as the result of wounds received during the war; how many were fitted with artificial limbs by German authorities; and whether he had received a report regarding the general surgical and medical treatment that our soldiers received. Sir JAMES GRIGG said that detailed information was not yet available but was being collected. Very few of these men were fitted with artificial limbs by the German authorities. Most of them had reasonably effective appliances improvised in camp workshops. In general there were few complaints from the prisoners about medical treatment, much of which was, however, carried out by British medical personnel.

Diphtheria in Immunized and Unimmunized.—Mr. ERNEST BROWN has stated that returns from local authorities in England and Wales for periods between Jan. 1, 1940, and June 30, 1943, showed that among approximately 107,000 children who were notified during those periods as suffering from diphtheria approximately 9,500 in the aggregate had completed the course of immunization. The returns for the year 1942 showed that among approximately 1,530 children known by local authorities to have died from diphtheria in that period 41 had completed the course of immunization. The corresponding provisional figures for the first six months of 1943 were 600 and 21.

Antifreeze for Doctors.—The Regional Transport Commission have been asked to consider favourably applications for antifreeze made by doctors, nurses, and other persons engaged on essential to the war effort, provided that the nature of the work is such that they cannot reasonably be expected to adopt alternative measures against frost—for example, draining their radiators.

Fluorescent Lighting for Daylight.—It is the policy of the Ministry of Works to provide fluorescent lighting in rooms from which daylight is excluded and where important war work is carried on. The Ministry is not aware of any grounds for suggesting that the light is deleterious to the human eye, provided precautions are taken to prevent flicker.

Notes in Brief

Mr. BROWN announced on Nov. 4 that an offer he recently received on behalf of the Government to present to the Soviet Government two of the mass radiography units now being manufactured in this country had been accepted. They would be sent to Russia immediately. One was to go to Stalingrad and the other to Leningrad.

EPIDEMIOLOGY SECTION

Nov. 20, 1943

No. 43

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct. 30. Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	26	3	21	1	—	57	3	17	3	1
Deaths	702	39	166	5	33	895	35	273	101	22
Diphtheria	21	1	—	—	—	290	12	52	—	—
Deaths	248	54	66	2	—	—	—	—	—	—
Dysentery	—	—	—	—	—	3	—	6	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis	—	—	—	—	—	—	—	—	—	—
acute	—	—	—	—	—	—	—	—	—	—
lethargica,	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or	—	—	—	—	—	—	—	—	—	—
diarrhoea under 2	—	—	—	—	—	—	—	—	—	—
Deaths	58	4	17	5	—	47	5	12	29	2
Measles	58	49	74	27	2	6,812	288	292	24	16
Deaths	58	2	1	—	—	83	3	34	3	—
Ophthalmia neonatorum	75	6	19	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza*	576	53	21	1	10	582	43	2	1	2
Deaths (from influ-	28	4	14	3	2	11	1	2	2	—
enza)	—	—	—	—	—	—	—	—	—	—
Pneumonia, primary	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Polio-encephalitis, acute	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Polio-myelitis, acute	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	3,623	276	412	50	109	2,583	129	435	61	56
Deaths	—	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	1,693	105	205	12	16	1,015	81	38	25	3
Deaths	304	32	68	43	15	306	45	64	47	12
Deaths (0-1 year)	—	—	—	—	—	—	—	—	—	—
Infant mortality rate	—	—	—	—	—	—	—	—	—	—
(per 1,000 live births)	4,267	678	596	197	126	3,834	584	517	182	111
Deaths (excluding still-	—	—	—	—	—	—	—	—	—	—
births)	—	—	—	—	—	—	—	—	—	—
Annual death rate (per	—	—	—	—	—	—	—	—	—	—
1,000 persons living)	5,822	704	879	336	259	5,497	648	770	363	255
Live births	—	—	—	—	—	—	—	—	—	—
Annual rate per 1,000	—	—	—	—	—	—	—	—	—	—
persons living	—	—	—	—	—	—	—	—	—	—
Stillbirths	—	—	—	—	—	—	—	—	—	—
Rate per 1,000 total	—	—	—	—	—	—	—	—	—	—
births (including	—	—	—	—	—	—	—	—	—	—
stillborn)	—	—	—	—	—	—	—	—	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.
† Includes puerperal fever for England and Wales and Eire.
‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales notifications of scarlet fever rose by 306, those of whooping-cough by 234, and of measles by 39; the incidence of diphtheria fell by 23, and of cerebrospinal fever by 20 cases.

The increases in scarlet fever and whooping-cough were due mainly to the experience of the North. In whooping-cough the largest rises were in Lancashire by 62 and in Yorks West Riding by 31. The biggest increase in scarlet fever was in Yorks West Riding (50 cases more), London and the south-western counties reporting a decline. The higher incidence of measles, on the other hand, was due to a rise of 65 in the south-east. In the north there was a tendency for a decline, the biggest drop being in Lancashire (46 cases fewer). The 26 notifications of cerebrospinal fever constituted the lowest total recorded in any week since the rise following the outbreak of war.

Dysentery was as prevalent as ever, only one case fewer than in the preceding week being reported. There were two relatively large outbreaks during the week—in Dorsetshire (Sherborne U.D. 35), and in Bedfordshire (Biggleswade R.D. 29). The other large centres of infection were in London 54, Lancashire 22, Middlesex 15, Surrey 15, Northumberland 13.

In Scotland notifications of diphtheria were down by 67, and of scarlet fever by 33, while the incidence of acute primary pneumonia was up by 63 cases, of whooping-cough by 51, of measles by 27, and of dysentery by 21. The increase in the notifications rose from 5 to 29. The western area was responsible for the drop in scarlet fever and for the increase in measles. The rise in pneumonia and the fall in diphtheria were fairly general throughout the country. The chief alteration in local trends of whooping-cough was an increase in Glasgow from 85 to 115.

In Eire the chief feature of the returns was a fall in diphtheria from 187 to 101.

The Week Ending November 6

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 3,374, whooping-cough 1,755, diphtheria 770, measles 553, acute pneumonia 676, cerebrospinal fever 44, dysentery 146, paratyphoid 4, typhoid 4.

The Health of the Nation

The nation's health at the beginning of the fifth war winter was reviewed by Sir Wilson Jameson, Chief Medical Officer of the Ministry of Health, at a Press conference on Nov. 5. Deaths from respiratory tuberculosis, which rose sharply during the first two years of war, have declined. The number of deaths—5,297 during the June quarter of this year—is below the number (5,540) of the corresponding quarter of 1939. Deaths from tuberculous meningitis are above the 1939 level, but other forms of tuberculosis are now in the same position as in 1939. There were fewer deaths from all forms of tuberculosis during the second quarter of 1943 than in the same period of 1939. While this is a gratifying position, Sir Wilson gave a warning that an increase may occur in the future, as there was a 3% increase in cases last year.

The epidemic of cerebrospinal fever which broke out during the early months of the war has been gradually subsiding, and this disease now approximates to the pre-war level. During the June quarter of this year there were 198 deaths, compared with 152 in the second quarter of 1939.

Notifications of some infectious diseases have risen, and the June quarter of this year there were 198 deaths, compared with 152 in the second quarter of 1939. The slight increase is with scarlet fever, and whooping-cough are more prevalent than at the same time last year. The slight increase is with measles, scarlet fever, and whooping-cough are more prevalent than at the same time last year. The slight increase is with measles, scarlet fever, and whooping-cough are more prevalent than at the same time last year.

The low prevalence of enteric fever was "really astonishing." The decline in the cases of and deaths from diphtheria continued, and during the first half of this year 650,000 children were immunized, an average of 25,000 a week. During the eighteen months Jan., 1942, to June, 1943, and in only 62 of these had the children been immunized. The total number of deaths from diphtheria during the June quarter was the lowest ever recorded in any year.

Discussing the infant mortality, Sir Wilson said that more intensive study of this problem was required. Although the figure was declining and the rate of the September quarter was expected to be the lowest ever recorded for a third quarter, the rate for Britain compared unfavourably with some other countries. In many of the large cities of the United States the infant mortality was well below 40, and if this could be done in America it could be done here when conditions made a new campaign possible.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

N. Whittaker, M.B., B.Chir., has been approved for the degree of M.D. in absence. The degrees of M.B., B.Chir. were conferred by proxy upon J. W. Fawcett at a Congregation held on Oct. 30.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Duke of Gloucester has honoured the College by accepting its Honorary Fellowship. This forms a fitting climax to the celebration of the centenary of the F.R.C.S. and is particularly pleasing because it enables the Council to show appreciation of His Royal Highness's work for the sick and wounded in his capacity as President of the War Organization of the British Red Cross and Order of St. John, King Edward's Hospital Fund for London, and the British Empire Cancer Campaign.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At the quarterly meeting of the College held on Nov. 2, with the President, Dr. Charles McNeil, in the chair, Dr. Ian Murray (Glasgow) and Dr. Harry Stalker (Edinburgh) were introduced and took their seats as Fellows of the College.

The Hill Pattison-Struthers Bursaries in Anatomy and Physiology, and Clinical Medicine, were awarded to William Rhind Brown and Peter Douglas Kemp, respectively.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

By order of the Council, Regulation 3 for the D.R.C.O.G., relating to practitioners who have not fulfilled the requirements of Regulation 2 in respect of resident appointments, will be suspended after March 1, 1944, for the duration of the present emergency.

Medical News

The address of the National Smoke Abatement Society is now: Chandos House, Buckingham Gate, Westminster, S.W.1.

The British Institute of Philosophy announces a lecture entitled "Our Knowledge of Other Minds," to be given by Mr. D. M. Mackinnon at University Hall, 14, Gordon Square, W.C., on Friday, Nov. 26, at 3 p.m.

A conference on the causes and prevention of pre-natal and neonatal deaths will be held on Thursday, Nov. 25, at 4.30 p.m. in the Council Chamber, Paddington Town Hall, with Dr. G. de Swiet in the chair.

At its next sessional meeting in Chesterfield Town Hall on Nov. 27, at 10.30 a.m., the Royal Sanitary Institute will hold a discussion on houses of the future, with special reference to the housewife's needs. The honorary local secretary is Dr. J. A. Stirling.

A refresher course in tuberculosis for general practitioners will be held on Thursday afternoon, Dec. 16, and all day Sunday, Dec. 19, at the Medical Society of London, 11, Chandos Street, W.1. The course has been arranged by the Joint Tuberculosis Council and National Association for the Prevention of Tuberculosis Joint Committee on Education, in collaboration with the Local Medical and Panel Committee for the County of London and the London Public Medical Service. The fee is £1 11s. 6d. An applicant who is a member of the London Public Medical Service may have the fee remitted by that body and deducted from his account. Early application should be made to Dr. Harley Williams, Tavistock House North, W.C.1. Lecturers and subjects are as follows: Dr. Joseph Smart, "Modern Methods of Diagnosis"; Dr. James Maxwell, "Some Points in Home Management"; Mr. T. Holmes Sellors, "Collapse Therapy"; Dr. Peter Kerley, "Diagnosis by X Rays"; Dr. C. H. C. Toussaint, "Facilities offered by Local Authorities for the Prevention, Diagnosis, and Treatment of Tuberculosis"; Dr. W. P. H. Sheldon, "Tuberculosis in Children"; Dr. Andrew Morland, "The Peculiarities of Tuberculosis."

The Government of India has appointed a committee, with Sir Joseph Bore as chairman, to investigate all aspects of public health in India, both curative and preventive. The committee is part of the Government plan for post-war reconstruction. It will first survey the whole field, including health and medical relief services, health education and propaganda, nutrition, industrial conditions in relation to health, and nursing services, and will afterwards suggest a plan for development. Subcommittees have been set up to deal with public health, medical relief, industrial health, medical education, and medical research.

Surg. Cmdr. George A. Mason, F.R.C.S., has been appointed thoracic surgeon to the British Legion Village (Preston Hall, Maidstone, Noyland Sanatorium, near Colchester, and Devon House, Bournemouth). His appointment began on Nov. 1. Since the death on service of Mr. Laurence O'Shaughnessy in the 45 days of the war, there has been an interruption in major thoracic surgery at Preston Hall, but it is now hoped to utilize Preston Hall as a centre for surgical treatment of patients from all three institutions now under the British Legion.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on reprints. Authors over-seas should indicate on MSS. if reprints are required as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (9 a.m. to 5 p.m.). Members' subscriptions should be sent to the Secretary of the Association.

TELEPHONE NO.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES.—EDITOR, *Atiology*, Westcent, London; SE

TARY, *Medisecra* Westcent, London.

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Pernicious Anaemia and having Children

Q.—An apparently healthy woman of 30 has relatives who are from pernicious anaemia. (1) Her mother has had it for many years and is under constant liver therapy; she has a proved achlorhydria. (2) Two of her mother's brothers have died from this disease; a third suffers at present. (3) Her sister at the age of 29 had subtotal hysterectomy for fibroids and very nearly died after operation from haemorrhage of haemophilic type; she was only by numerous blood transfusions; she was later found to have a colour index over 1 and an achlorhydria. The woman refuses to undergo blood or gastric juice investigation, but insists that it will be quite safe for her to have a child. Should this woman be allowed to have a child from the point of view of (a) her own safety at parturition and (b) the child inheriting a tendency to a haemopoietic disorder?

A.—The woman's refusal to undergo investigation of the blood and gastric juice is probably based on the fear that pregnancy will be forbidden if an abnormality is found. In this connexion it should be remembered that precipitation of pernicious anaemia in disposed subjects during pregnancy is rare, and that not a few patients with known pernicious anaemia have now been safely through pregnancy. As regards the argument that the child inherits a tendency to haemopoietic disorder, surely the choice must be left to the woman. It is no more than even chances that she herself has a tendency to pernicious anaemia. Even if she has more than half her children are likely to inherit this tendency, not all with the tendency will develop the disease. Since pernicious anaemia rarely develops until late in life; and can be completely controlled by treatment, the argument for forbidding conception because of the risk of transmission of suffering is not very strong. The woman should therefore be permitted to have a child if she desires one strongly, but in return she should agree to the examination of her blood monthly during the first seven months, and nightly during the last two months of pregnancy. The blood should also be grouped. With these precautions there should be no interference with the development of an uncontrollable state of anaemia.

What is a Yawn?

Q.—What is the function, or purpose, in Nature, served by yawning? Information as to the physical mechanism effecting the phenomenon would also be welcomed.

A.—Considering the frequency of occurrence of yawning in the human subject, it is surprising to find so little reference to it in the literature. None of the standard textbooks makes any reference to it, and there does not appear to be any experimental work on the physiology of its causation. Yawning consists of a full inspiration, with wide-open mouth, which is held for a second or two and followed by a fairly rapid expiration. It is usually accompanied by extension—"stretching"—of the limbs and trunk. It usually seems to occur when a mild degree of cerebral anoxia is likely and when the respiratory centre may be depressed—e.g., after sitting for some time in a warm, close, sphere, on waking, or under conditions leading to boredom or relaxation of attention. In these cases it seems likely that there is some reduction of cerebral blood flow, and a consequent anoxia. Yawning is also reported in individuals resting at high altitudes.

d in some forms of epidemic encephalitis. There does not appear to be any record of its occurrence as a result of muscular fatigue associated with mental fatigue, or in any conditions where a full rebral flow of well-oxygenated blood is assured. In the infant it is an early form of response and has been reported as occurring within five minutes of birth.

Breathing is controlled through a central respiratory mechanism which, according to Lumsden, consists of pneumotaxic, apneustic, and gasping centres, or, more recently, according to Ranson and his workers, of inspiratory and expiratory centres. The activity of pneumotaxic and apneustic centres, or inspiratory and expiratory centres, is co-ordinated through reflexes. Interference with these reflexes affects the pattern of breathing. Although there is little experimental evidence to warrant it, a comparison may be made between yawning and the apneustic type of respiration which occurs in the upper part of the pontine portion of the respiratory regulating centre is interfered with; apart from section of the brain stem, anoxia induced by a variety of methods may induce apneustic breathing, and it is assumed in these cases that the depression of the centre by anoxia occurs from above downwards. Yawning might be regarded as due to unopposed action of the apneustic or inspiratory centre owing to anoxic depression of the pneumotaxic centre—the co-ordinating reflexes. The increased oxygenation of the blood and its more rapid circulation, caused by the deep inspiration of yawning and the associated muscular movements, will lead, at least temporarily, to the disappearance of the depression. Some observers, however, regard yawning as a form of emotional behaviour, particularly in animals. Charles Darwin in *Expression of emotion in Man and Animals* refers to yawning in baboons and one of the smaller monkeys as a sign of apprehension or anger; and, in dogs, yawning, apart from occurring in similar circumstances to those causing it in man, is often seen when the animal is apparently puzzled. It is difficult to see any connexion between these types of yawning and that which may be caused by anoxia, or does the anoxic theory explain the "infectious" yawning which may be induced in a group of people by one individual acting as a stimulator. There is some experimental evidence that this group response can be induced independently of the environment, though it is usually influenced by it.

Chlorine and Phosgene Gas Poisoning

Q.—What immediate steps should be taken in the management of chlorine and phosgene gas casualties before they are admitted to hospital? Is it, for example, necessary for them to pass through a decontaminating station? If the hospital to which they are sent has facilities for treatment but no decontaminating station attached, what is the proper course to pursue?

A.—Casualties poisoned by phosgene gas, or, rather, lung-irritant gases, or suspected of being so poisoned, should be warmly wrapped in blankets, placed on a stretcher, labelled with the symbol XX on plain luggage label, and sent as soon as possible in an ambulance on the incident direct to a hospital. Where the incident occurs at a distance from a hospital, and there is no ambulance immediately available to convey the casualties there, they should be conveyed on stretchers to a first-aid post or other suitable place under cover, where they can be kept quiet and warm and under proper supervision till they can be taken to hospital. Warmth and complete physical rest in the fully recumbent position are essential for these cases whilst they await transfer to a hospital, as the danger to be feared is the onset of pulmonary oedema. Hot sweet tea may be given at this stage.

Chlorine and phosgene gases are both non-persistent gases. No decontamination of the clothing and no cleansing of the person is therefore necessary. Indeed, any attempt to cleanse such persons will tend to accelerate the onset of the pulmonary oedema and so must be avoided. Persons exposed to the non-persistent gases are not contaminated, their clothing does not require removal, they must not be labelled with the symbol C, and they can be transported in an ambulance without contaminating it or the blankets in which they are wrapped.

The questioner would do well to read the two books, A.R.P. Handbook No. 2, 4th edition, May, 1943—*First Aid and Nursing of Gas Casualties*, price 4d.; and *The Medical Manual of Chemical Warfare*, Feb. 28, 1943, price 2s. 6d. net.

Incomplete Erection

Q.—A patient of 30, after psychotherapy for semi-impotence and diminished desire, has now almost recovered his previous full powers. Before the psychotherapy a neurologist had excluded organic disease. However, complete erection is confined to the corpora cavernosa penis. That in the corpus cavernosum urethrae and glans penis remains partial. Is this likely to be an organic or a psychogenic disability—and would any further treatment be of use?

A.—An incomplete erection of this kind is almost certainly psychogenic in origin. The fact that it has been so accurately described by the patient to his doctor suggests that the patient is

still preoccupied with the state of his organ during intercourse. Instead of his attention being on his wife and his mind filled with sexual excitement, he is noting the exact state of his penis, wondering whether it will get more rigid, anxious lest the erection should subside, etc. In other words, the higher centres in the brain are interfering with, instead of stimulating, the erection centre in the cord. If a man is preoccupied with the state of his stomach and with the sensations coming from it after a meal he will eventually bring about a disturbance of its natural activity. In the same way the mind can easily derange the equally mechanical activity of erection.

Spasmodic Torticollis

Q.—Can you help me with a case of acute torticollis in a woman of 34? This began with spasm of the right sternomastoid about three months ago. It was then painless. She has had encouragement and phenobarbitone, which did no good at all. She is now in bed; and when she is lying down the spasm, which is now painful, entirely disappears. Massage makes her worse. The spasm recurs as soon as she raises her head from the pillow. She has seen a psychologist, who did not think the condition was psychological.

A.—If a psychiatrist has excluded a hysterical cause for spasmodic torticollis with certainty, the outlook is unfavourable. More often than not the disorder has a physical basis, and indeed structural changes in the basal nuclei have been described. The story of a gradual onset and relief by lying down or by sleep is typical. Treatment is very difficult. Some patients can inhibit the involuntary movements by holding the chin lightly, but springs which have been advised for the same purpose are usually unsuccessful. Surgical treatment—section of the spinal accessory nerve, the motor roots of the upper cervical nerves on that side, or of the motor and sensory nerves—may give great relief. This is usually temporary, since, as the condition is due to a central disorder, other muscles take up the movement. Large doses of sedatives should be tried, but antispasmodics such as stramonium and atropine are disappointing. When torticollis is not hysterical in origin it is liable to persist.

Ascites in Case of Malignant Ovary

Q.—In a case of ascites due to malignant disease of the ovary it is impossible to remove much fluid because of clotting in the cannula or tubing. How can this be avoided? Would injection of 30% sodium citrate into the peritoneal cavity be of any help?

A.—The premise seems to be faulty. Ascitic fluid due to malignant disease of the ovary is usually thin and easily removed by tapping; rapid clotting is not a special feature. The cannula used may have been too small; or, more likely, it has penetrated a walled-off portion of the abdominal cavity. If the fluid is thick and jelly-like, pseudomyxoma peritonei should be suspected; in these cases it is necessary to open the abdomen in order to evacuate the tenacious secretion. If the diagnosis has not already been clinched by exploratory laparotomy, this should still be done. Injection of sodium citrate is not likely to be helpful because, even if it influenced clotting, it would be difficult to get it to mix intimately with the large quantity of intra-abdominal fluid presumably present.

Neurofibromatosis

Q.—A patient aged 50 suffers from a multiple neurofibromatosis. He has the swelling over the whole body and new ones are continually growing. As they grow they are very painful. Is there anything I can do to check or cure this distressing complaint? He has tried thyroid medication but without any real effect. (I might mention that he suffers from occasional allergic reactions to certain foods.)

A.—In generalized neurofibromatosis of this sort I do not think any specific treatment of avail. Large, painful fatty swellings or small superficial fibromata can be excised, but the condition is a neoplastic one, quite unlikely to respond to endocrine or dietary treatment. Death is often caused by the onset of malignant changes in some of the tumours; or by intracranial pressure caused by a fibroma in the acoustic nerve.

Sulphonamides for Dysentery and Colitis

Q.—Have the sulphonamides, or a variant, been used in the treatment of colitis and dysentery? A nephew of mine has been troubled, ever since his service in H.M. Forces during the last war, with colitis. To my knowledge he has not had an examination of the faeces to establish the presence or absence of a Shiga or Flexner bacillus (he has not been under any professional care). His health has been undermined by these attacks, in spite of which he insists upon taking an active part in Civil Defence. I have a vague recollection of having read in the "B.M.J." of sulphonamide medication being tried in his complaint. I should be grateful for some information on this point.

A.—Several of the many recent papers testifying to the value of sulphaquinoxaline in the treatment of acute bacillary dysentery appeared in this *Journal*. Sulphaquinoxaline is a drug of low solubility, the greater part of which is consequently retained in the bowel and acts there; other sulphonamide compounds are

completely absorbed long before the colon is reached, and therefore act only in the tissues and not in the lumen of the bowel. Succinylsulphathiazole ("sulphasuxidine") is a newer compound of the same type; even less of it is absorbed, and it may prove to be superior for intestinal treatment even to sulphaguanidine. There is less information about the treatment of ulcerative colitis, with varying results, possibly because the disease so named has various causes. In this case there should be at least a simple naked-eye and microscopical examination of the faeces to decide what type of colitis exists, and possibly a sigmoidoscopy. If there is reason to regard it as infective (pus in the stools; ulcers demonstrated), a course of sulphaguanidine might be tried—say 2 g. four times a day for a week. Larger doses of succinylsulphathiazole can be given with no danger of any toxic effects.

Sterilizing Blades and Needles

Q.—What are the best methods of sterilizing scalpel blades and suture needles for operations?

A.—The only simple rapid and certain way of sterilizing any surgical instrument is to boil it for 5 minutes in water containing 2% sodium carbonate. This proceeding, unlike boiling in plain water, can be depended on to kill all bacteria, including spores. The widespread belief that either boiling or dry heat (150° C. for 1 hour in a hot-air oven—also fully efficient) reduces the sharpness of cutting instruments has been contested; if such a change occurs its degree is slight. Sterilization by chemical means is best achieved by solutions containing formalin: Borax 1.5 g., formalin 2.5 c.cm., phenol 0.4 c.cm. aq. dest. ad 100 c.cm. The following has also been recommended recently: Borax 0.1 g.; ac. boric 1.5 g., *p*-chlor-m-cresol 0.2 g., spirit 5.0 c.cm., aq. dest. ad 100 c.cm. (The borax in these solutions prevents rusting.) Spirit, though extensively used with impunity, is an unreliable sterilizing agent. It is totally without action on spores, and may even not kill pyogenic cocci if they are protected by a layer of albuminous material, as may happen on an imperfectly cleaned instrument. For maximum effect it also requires dilution to 70% strength, in which steel instruments rust.

Phosphorus Burns

Q.—In some of the London sections of the N.F.S. a 2% solution of sulphate of copper was issued for application to phosphorus burns, which was to be applied after an initial application of an alkaline solution. Is there a good reason for the withdrawal of the copper sulphate solution?

A.—Burning phosphorus produces acids, and the penetration of these into the tissues aggravates the burn and delays healing. The object of an alkaline solution as an initial application is to neutralize such acids as quickly as possible. The object of the copper sulphate solution is to cover any adherent phosphorus with a dark and easily visible coat (probably a mixture of copper phosphide and metallic copper) so that re-ignition of the phosphorus is inhibited and an opportunity is given for the visual location of any fragments of phosphorus still adherent and their removal. So long as there is reason to suspect the presence of elemental phosphorus the application of copper sulphate remains a necessary procedure.

Moulds on Leather Cases

Q.—I have a number of leather cases—e.g., midwifery, emergency, dressings, diagnostic, etc. These were stored in a cupboard in my surgery, and after a few weeks became coated with mould. Since then I have found it difficult to keep them free from mould. I would be very glad to hear of any suggestions.

A.—Moulds are present in the air almost everywhere, ready to inoculate substances like leather the moment they become wet. An application of thymol dissolved in spirit in the proportion of 4 to 6 g. per litre is used by the leather trade to free and preserve leather from mould.

Post-herpetic Neuralgia

Q.—A patient had facial herpe three years ago. Since then there has been continuous pain in the affected side of the head, made worse by cold and windy weather. I remember reading somewhere that galvanism is of use in such cases. Can you give details of this, or any other form of treatment which might lead to a cure? I am told that various analgesic drugs have been tried without success.

A.—Treatments of post-herpetic neuralgia are legion. Physical measures include local infra-red and ultra-violet irradiation, often combined with general ultra-violet irradiation, galvanism, diathermy, and short-wave therapy. Details of application will be found in any textbook of physiotherapy. X-ray treatment has been recommended by some authors and condemned by others. Local treatment includes light cauterization with the Paquelin cautery and infiltration of the affected areas with procaine solutions. Injections of alcohol into the affected nerves or ganglia and section of nerve roots or tracts have proved of little value. General measures, such

as autohaemotherapy and injections of pituitary extract or vitamin B, have had cures in some hands and failure in others. Success has recently been claimed from the intramuscular injection of cobra venom in a dosage of 5 mouse units (1 c.cm.) daily.

Iritis

Q.—An attack of iritis in 1936 left me with two pairs of synechiae and a small corneal opacity. Otherwise the eye recovers except that it became easily strained and painful after a few hours' reading. All investigations have been made, and nothing abnormal found except septic tonsils, which have been removed. Now, in 1943, I have had another flare-up of iritis for no apparent reason. Are the synechiae in any way responsible for the recurrence? so, is it advisable to have them broken down by subconjunctival injection of mydraine; or, alternatively, what else is suggested to avoid any further recurrence? As every attack of iritis is liable to leave a little corneal opacity, what is suggested as the best treatment for a quick and certain resolution?

A.—There is no valid reason for assuming that synechiae themselves a cause of iritis. That belief prompted the now obsolete operations for surgical division of synechiae. The use of a conjunctival mydraine (atropine, adrenaline, and cocaine compound) would be harmless, but is unlikely to prevent relapses, which some tangible cause must surely be present. Knowledge of the aetiology of recurrent iritis is unfortunately rather sketchy. For the corneal opacities, these represent either an associated corneal reaction or deposits of precipitates at the back of the cornea ("K.P."), and there is no treatment for these apart from the treatment of the underlying condition.

Speculation

Q.—How electroshock therapy produces the results it does produce is still a matter of controversy. An attractive hypothesis is that there is a stimulation of the pituitary gland, which then further stimulates the endocrine orchestra. If this were so, convulsive even subconvulsive therapy should restore a case of myxoedema to normality. I should be interested to know if electroshock has been used for such cases, and to what end. Not only would such knowledge be an addition to the electroshock therapist's armamentarium, but it would also be a pointer as to whether the action is on brain cells *per se*, or on the pituitary gland.

A.—A hypothesis should be based on observed facts. To the best of my knowledge there are no observed facts to support the suggestion made in this question. A general stimulation of the pituitary would be expected to produce an increase in (1) gonadotrophic function, resulting in ovarian or testicular overactivity; (2) thyrotrophic function, resulting in thyroid overactivity; (3) adrenotrophic function, resulting in adrenal cortical overactivity (electrolyte changes, oedema and possibly a condition resembling Cushing's syndrome); (4) growth-producing gigantism in the young and acromegaly in adults; (5) diabetogenic function, producing diabetes or at any rate carbohydrate intolerance; (6) less well-defined effects on gastric secretion and blood formation; (7) high blood pressure, hyperchromic anaemia, achlorhydria, diabetes, and oliguria (the posterior pituitary syndrome of Idris Jones). None of these effects is, in fact, observed.

LETTERS, NOTES, ETC.

Epidermolysis Bullosa

Dr. HUGH S. STANNUS (London, W.1) writes: In your issue of Nov. 6 (p. 597) there is a question re epidermolysis bullosa. In answer no mention is made of the paper by Schwartzman, J., et al (*Amer. J. Dis. Child.*, 1941, 62, 352) on Ritter's disease, and treatment which appeared to be followed by satisfactory response. My child was 1 month old. The treatment was 2 mg. riboflavin 4 times daily, cod-liver oil, and a syrup containing the vitamin complex.

Shortened Puerperium

Dr. G. F. BARNHAM (Gorran, Cornwall) writes: May I add my personal experience of shortened puerperium. My wife had her confinement in 1920 at the Maternité Clinic, Lausanne (3 previous confinements in England with the usual 2-3 weeks lying in). She allowed up on the 3rd day, left the clinic about the 6th day, I recall that we went to the theatre on the 14th day and returned to England, with 4 children, on the 21st day. We have never had reason to regret this. My purpose in quoting this experience is to draw attention to the fact that at this admirable clinic this procedure was, 23 years ago, the normal practice in uncomplicated cases and to put in a plea that, in consideration of the enormous economic advantage of the shortened puerperium, both to the patient and to maternity accommodation, inquiry might be made at Lausanne and other similar foreign institutions as to whether their experience and statistical results have caused them to modify their practice.

THREE SKIN DISEASES IN WARTIME*

BY

HENRY MacCORMAC, C.B.E., M.D., F.R.C.P.

Physician for Diseases of the Skin, Middlesex Hospital

Dermatologists are supposed to be fortunate because they are not called out of bed at night, and because their patients never get well and never die. I have deliberately prefaced my observations with this cynicism since it embodies the germ of a widespread belief in the chronicity and rebellious nature of skin diseases—a belief I desire at once to challenge and to traverse by saying, first, that the majority of skin diseases are characterized by their satisfactory response to treatment provided the established therapeutic principles are followed; and, secondly, that although patients rarely die, the disability—for example, from eczema—has a formidable economic significance: the afflicted individual cannot work, and becomes a liability rather than an asset to the community, and this is particularly true of industrial dermatitis under the present condition of intensive endeavour. In the last war, as Prof. McNee pointed out, 90% of all the sickness in one army resulted from the effects of skin diseases, especially scabies and pediculosis. History repeats itself. It is therefore an important part of our national service to set up a programme with the object of preventing or limiting, so far as we can, a similar wastage of man-power in civil as well as in military life.

I can here only profitably review a very limited cross-section of a large subject, but this will represent the hard core, leaving out the less important, perhaps even ornamental, framework. I have ventured to choose scabies, impetigo, and eczema as a representative group. Scabies and impetigo, as I fully realize, have recently been very widely discussed. The present occasion may nevertheless, and for that reason, be a suitable one to sum up.

Scabies

Note that in scabies the incubation period may be as long as two months; this explains the apparent freedom of the sleeping partner even six or seven weeks after intimate contact. The eruption on the anterior axillary folds and the abdomen consists of scratched papules; on the fingers and wrists occasional vesicles with the characteristic burrow, from which, with practice, the mite can be extracted. In the adult male, papules and impetiginous lesions on the penis provide invaluable confirmatory signs—the means of settling at once the diagnosis in many doubtful cases. The presence of grouped impetigo on the lower buttocks is equally reliable as positive evidence of scabies, especially where the characteristic scabietic eruption is insufficiently or irregularly developed elsewhere. The diagnosis of scabies may be very easy or very difficult. Recognition of its prevalence with a sharp look-out for its presence, even in the most unexpected quarters, will best serve as a means of detection. The deceptive qualities of the disease were well illustrated recently in an in-patient who had typical and almost universal eczema. The routine examination revealed one

burrow on the web between the fingers, from which a living acarus was removed. Here treatment had of necessity to be tempered to the superimposed eczema: this case is mentioned not for this reason, but because it illustrates the importance of a detailed examination even where the diagnosis appears established beyond doubt upon a more superficial survey.

Treatment.—The treatment of scabies as a war measure has been standardized as follows: A hot bath, with soaping, is followed by the application of 25% benzyl benzoate emulsion all over below the neck; the benzyl benzoate is applied again—that is, two applications in all—either on the next day or one week later. To obtain uniformly good results it is important to follow this procedure and this method exactly, no more and no less, and to use the agreed concentration of benzyl benzoate, thus avoiding the pitfalls of over-treatment or under-treatment by one of the many alternative procedures, which, except sulphur ointment, have proved under careful testing to be incompetent in varying degrees. On the question of disinfection of contact garments and bedding I shall find myself at variance with the view that this is unnecessary. Reinfection, I submit, may occur either from other persons in the household, especially the sleeping partner, or from garments and bedding: any complete scheme should therefore exclude reinfection from both these sources, and in this belief I am fortified by, as it seems to me, the minor epidemic occurring among fire-watching parties through communal blankets.

Impetigo

As in the case of scabies, war conditions have revived in epidemic form another parasitic disease—impetigo contagiosa. I am confident that the clinical manifestations of this complaint have become considerably modified during the last two or three decades, the eruption having changed from the delicate circinate blisters and very superficial crusted patches to a much more polymorphic and refractory reaction. Earlier observations seemed to establish a streptococcal invasion of the skin as the causal agency, but it has recently been shown that a staphylococcus may also, and equally, be the causal organism, and there are even some who profess to be able to recognize differences in the clinical picture resulting from each type of infection. Be that as it may, it is at least possible that this alternative parasitology accounts for the greater variation in the clinical appearance. For some curious reason this seems to apply only to impetigo of the facial region. The secondary impetigo of the body and limbs, such as that met with in association with scabies, still breeds true to form.

Treatment.—If impetigo has thus become complicated, its treatment has undergone a remarkable simplification since the introduction and use of sulphathiazole gr. 25 in zinc paste 1 oz.: by some a water-miscible cream as a vehicle is considered superior. The remedy should not be applied for more than six days—first, because by then it has either proved or disproved its suitability; and, secondly, because by prolonged use or inadequate dosage a drug-resistant species of the micro-organism may be created. The alternative treatment relies on ammoniated mercury gr. 10 in zinc paste 1 oz., which should

* A-British Medical Association Lecture given to the Exeter Division at the Royal Devon and Exeter Hospital.

in any case be prescribed for impetigo on the body and limbs. Where the impetigo develops on the face in rings or circles with a superficial raw surface or "stuck-on" crust, diagnosis is easy and straightforward. An infected or impetiginized seborrhoeic eczema also attacks the face, and it is then very difficult to distinguish it from the variety of impetigo with multiple small lesions. An infected eczema is much more symmetrical, the eyebrows may be simultaneously involved, and as a rule the eruption tends to be confluent, in contrast to the areas of healthy skin between the infected regions which are observed in impetigo. When in doubt treatment by dabbing the face with 1 in 2,000 perchloride of mercury lotion, followed by oily calamine lotion, is usually an efficient compromise.

Eczema

For my third and last subject I have chosen eczema because it is always with us, because it has become increasingly prevalent during the war, and because it provides a major problem in the recognition and treatment of industrial dermatitis. Thrice armed indeed is he who is, familiar with the diagnosis, prognosis, and treatment of this, the commonest and most troublesome skin disorder. I have deliberately used the word "disorder" instead of "disease," as this glosses over the differences of opinion of those who on the one hand regard eczema as a specific entity and on the other as a cutaneous reaction provoked by a variety of different internal and external agents. In eczema the minute changes in the skin determine the objective phenomena and also show us how the different clinical varieties are connected. The earliest changes occur in the dermis in the form of dilatation of the papillary and subpapillary blood vessels with exudation of serum. This results in a congestive erythema seen as redness of the skin, most pronounced in eczema rubrum. The serous exudation accounts for the swelling observed in certain acute types of the disease, especially the form affecting the face and genitals. The exudate has further and important effects; for the fluid invades the epidermis separating the prickle cells, and at a certain point the pressure of this fluid ruptures the intercellular filaments, producing tiny cavities filled with serum, constituting the vesicles—the most important and characteristic element of the multiform eruption. If the discharge of serum is considerable a weeping surface is observed; or the coagulated serum may form crusts; or secondary infection may occur; or where an imperfect attempt is made to reproduce the horny surface, squamæ or scales develop. All these changes occur in every case of eczema, but in different degrees, thus constituting the different clinical varieties. To attempt to explain these complicated dermo-epidermic reactions would require a chapter in humoral and cellular pathology far beyond the scope of this address and my own competence. We are, however, entitled to assume as a working hypothesis that in every eczematous eruption both an endogenous and an exogenous factor exist, but in such disproportionate degrees as to require us to classify some cases as examples of endogenous and others as examples of exogenous dermatitis. Or, in the descriptive terms of the patient, either the blood or the skin is at fault, or both. This hypothesis does not require confirmation by laboratory methods; observation of the patient and his reactions provides all the evidence necessary for proof. This leads me to suggest that the modern tendency relies too much on the guinea-pig and the test-tube and too little on that rich and still unworked field of clinical observation.

The first clinical assumption relates eczema to certain age periods. The age incidence of 648 male and 489 female patients taken from my case-books shows a special liability in infancy and early childhood, then a fall, followed by a pronounced increase in the liability to eczema as age advances, reaching a peak at 50 to 60 years. The assumption is that there is an endogenous or constitutional factor in eczema which in certain predisposed people and at certain predisposing ages induces an eczematous eruption. In endeavouring to explain this internal or constitutional factor we are bound to touch upon the theory of a hypothetical allergic mechanism. There is a well-known but rare form of so-called eczema affecting the flexures, developing in early life and persisting for years, which is classified as allergic because of an association with asthma or hay-fever. But an allergic background such as this is very rarely observed in common eczema. Clinical

experience thus entitles us to do no more than concede the existence of a hypothetical internal factor without further qualification. This does not prevent us from recognizing occasional contributory factor, such as focal infection or allergy. Lawyers have a maxim that hard cases make bad law. Those clinical curiosities in which eczema clears after the extraction of a decayed tooth, or the parallel example of the appearance and disappearance of an eruption following the taking or withholding of an article of food, impress, although they may be, are, like the hard cases of the law, very insecure foundations upon which to base practice. The theoretical considerations lead to the following conclusion: Where re-education of the skin is called for in endogenous eczema we are compelled, because of our ignorance of nature of the endogenous factor, to rely on a form of desensitization based upon a non-specific model, such as whole blood injections, peptone, or methods which aim at exciting a febrile reaction. These procedures are based upon constructive clinical observations—for example, the obliteration of eczema during the febrile period of pneumonia: their scientific explanation is still outside the range of pathological or chemical attainment. They hint at the existence of a mechanism for rehabilitation, the shadow factories of Nature, which operate only under conditions of duress.

Some Methods of Desensitization

In 1925 in a communication to the *British Medical Journal* I described the mode and application of some of these relatively unknown methods of desensitization. A ripe experience has confirmed my belief in their value, and I desire to reassert their importance when used under suitable conditions, which I shall summarize as follows.

In the acute phases of eczema, especially those associated with heat and swelling, intravenous injections of thiosulphate of sodium are especially valuable. Five c.c.m. of a 10% solution—that is, a gramme of the pure salt—constitutes a dose; this intravenous injection should be repeated every other day on from 3 to 6 occasions. Whole-blood injections have a wider range of usefulness and may be required in the subacute and chronic stages of eczema. The withdrawal from a vein and the intramuscular reinjection of 5 c.c.m. of the patient's blood every 5 to 7 days for a course of 10 injections provides a suitable routine procedure which can be modified where circumstances seem so to dictate. Intramuscular injections of peptone offer an additional therapeutic resource in rebellious and refractory eruptions.

Procedures such as the above are described as safe, inasmuch as they rarely upset the patient or aggravate the disease. They can therefore be employed freely and with confidence. Methods which seek to induce febrile reactions, such as intravenous injections of typhoid vaccine, cannot be similarly classified because they are capable of converting a simple and local eczema into a generalized and acute variety. Such therapeutic devices are forms of protein shock and should only be used if used at all, in the treatment of, for example, established lichenized eruptions when methods of appeasement have been discarded at the proper time. Although this form of treatment is not without disadvantage and even risk, I am bound to say it has given results where other methods have failed.

Varicose Eczema

Every practitioner is familiar with the combination of eczema and varicose veins, a half-way house linking the endogenous and exogenous conception of the eczema process, as the following clinical phenomena clearly reveal. First, varicose veins are common, but only a few of those who suffer from them develop a complementary eczema. Therefore the presence of both varicose veins and eczema points to an endogenous eczema factor in that individual. Secondly, it is also constantly observed that if the varicose veins are successfully treated the eczema disappears. And, thirdly, it is possible to treat the varicose eczema successfully by suitable applications without interfering with the varix either by surgery or by injections. The interpretation of these facts seems to be as follows: the varix produces a *locus minoris resistentie* upon which, but only in a potentially eczematous subject, an eruption develops; but there is also a local or cellular dysfunction which can be overcome and set right by local treatment alone, despite the endogenous factor.

Eczematous Reactions

We can now pass under review certain paradoxical reactions observed in the more extensive forms of eczema. We are all familiar with the type which, beginning symmetrically on the legs, subsides or even clears up notwithstanding an extension into an acute form to other regions—the arms, for example. In these cases a process of autosensitization may be presumed whereby the skin has become sensitized to the products of its own damaged cells set free because the original eruption has been scratched or otherwise irritated. To satisfy the facts, and other hypotheses must in such cases concede the existence of a circulating agent which is carried to the skin and there provokes the eczema eruption. But under these circumstances all the skin areas should react in the same way at the same time, which does not happen. Therefore as certain portions of the skin recover as the result of treatment or spontaneously, while elsewhere the eruption extends or develops, we are entitled to infer that the skin is in a sense self-governing and can restore its integrity despite the continued action of the internal or humoral factor. Exogenous dermatitis, now to be considered, is that form of eczema in which the eruption is brought out by contact with one or several skin hazards—that is to say, certain external agents which are known to be capable of provoking an eczematous reaction by contact. The distribution will therefore usually be on the backs of the hands, fingers, and forearms. To this rule there are necessarily many exceptions, depending upon the kind of occupation and the nature of the skin hazard, of which a formidable list could easily be prepared from those in common use in the various industrial processes to-day. Nor do the circumstances of home life confer freedom from exogenous dermatitis, as witnessed by the housewife's hands, chapped and excoriated by contact with soap and water or other agents used for cleansing and similar purposes; or from the use of chemical fertilizers in the garden. In these cases there is some degree of the internal factor, otherwise all workmen and all housewives would become similarly affected. Nevertheless, as in this class of eruption the cause is clearly external, it is properly described as an exogenous or contact eczema.

Sometimes the skin is specifically sensitized to one agent, as in primula dermatitis. In such cases, because of an idiosyncrasy, the individual is permanently sensitized to the skin hazard.

Treatment of Eczema

From this it follows that the topical treatment of eczema is in all cases essential, and will usually take precedence over the general—which is logical, because we can see and treat the faulty skin and can directly observe its reactions. While there is no standard treatment for eczema as such, there are certain guiding principles, which may be summarized as follows. The eruption presents itself in an acute, subacute, or chronic phase, each calling for a different kind of local application. Thus in the acute phase decongestion of the inflamed skin by an evaporating lotion is required, whereas an ointment is usually contraindicated by reason of the heating effect of an occlusive dressing. In the middle or subacute period a paste is suitable, the powder incorporated in this paste rendering it permeable and allowing the passage through it of exudate. Finally, a stimulating ointment or small doses of x rays are employed in the chronic phase. From this it follows that where eczema is widely distributed, different regions may require different forms of topical treatment to accord with the various forms of local reaction. This design of treatment can be represented in the following framework.

Acute:—Lead-glycerin, or calamine lotion
↓
Oily calamine lotion
↓
Subacute:—Zinc paste
↓
Chronic:—Zinc paste with either tar solution or crude coal tar, 6% or x rays

The formula for the lead-glycerin lotion is as follows: glycerin of subacetate of lead, 1 oz.; glycerin, 1 oz.; and water to the pint. It is unfortunate that glycerin is in short supply, because we are thereby deprived of an invaluable remedy for which

there is no real substitute. Lead-glycerin lotion is applied as a moist dressing on white lint, which must be kept constantly wet. A word may be added concerning the form of superficial x-ray therapy prescribed for chronic rebellious eczema. This should be reserved for localized patches of refractory eruption, and especially for occupational dermatitis affecting the backs of the hands. One-half of a full dose—that is, one-half of the amount required to cause the hair to fall out—is given, and is repeated if necessary in four weeks' time. This treatment should, nevertheless, be entrusted only to those experienced in this very highly specialized branch of radiotherapy.

This is the positive approach to topical therapy. There is also the equally important negative—that is, the avoidance of those things which delay recovery or provoke a relapse. Scratching, the injudicious use of soap and water, the effects of sun and wind, which includes therapeutic ultra-violet irradiation, are all to be reduced or excluded so far as possible. In some cases small doses of a sedative may be called for to reduce the over-sensitive reaction to simple external stimuli. Rehabilitation has now become an integral part of modern treatment: the re-education of the skin is an essential to recovery, and this applies in particular to exogenous dermatitis. To resume work before all traces of the eruption have disappeared is to court further trouble; a period of convalescence adds considerably to the prospect of permanent recovery except where there is an idiosyncrasy which precludes any future contact with the specific injurious agent. This is no more than the application of those general principles of treatment which are fundamentally the same throughout all the branches of medicine.

VISUAL PHYSIOLOGY OF THE CINEMA*

BY

GEORGE H. BELL, B.Sc., M.D.

(From the Institute of Physiology, University of Glasgow)

The moving picture has in the past been used to a certain extent for educational purposes both in schools and in universities, and when photographic materials become available once more it is certain that there will be a very great exploitation of this teaching medium. The fighting Services and propaganda authorities have no doubt of the value of this dynamic method of illustration. It is axiomatic that the best way to learn about a thing is to study the thing itself; the next best is to study a motion picture, particularly a slow-motion picture, of it. The other available methods—hearing and reading, which have been so long our only alternatives—are certainly inferior. Since the cinema is likely to play an even larger part in our general environment than it does at present, it is important that medical people should have some elementary knowledge of the physiological problems of moving pictures.

Design of the Cinema

The student comes to the class-room to learn, and no unnecessary difficulties or distractions should be put in his way. The quality of the projection should therefore be better, if possible, than that attained in the commercial cinema. Fortunately a committee of the Society of Motion Picture Engineers (1941) has issued a series of recommendations regarding the proper use of 16-mm. equipment, as this size has been generally accepted as the standard for educational purposes. These recommendations are the basis of the present account of the technical design of the cinema.

The details of the picture can be clearly seen if the observer is seated not more than six screen-widths from the screen. A position too near the screen is not to be recommended, because, as a result of the great magnification of the photographic image, the picture on the screen—even when properly focused—lacks sharpness. It has been stated that efforts of accommodation made in attempts to improve the definition may fatigue the ciliary muscles. Flicker also tends to be prominent when too near the screen, but disappears when the observer moves back (Masterton and Kellogg, 1942). At the front of the class-room, where the screen appears largest, the roving movements of the eyes necessary to follow the action may

* Abstract of a lecture delivered in the Tennant Institute of Ophthalmology, Western Infirmary, Glasgow.

be excessive and are apt to produce fatigue. These excessive movements may, moreover, reveal flicker not seen when the gaze is steadily maintained. Flicker may be manifest on entering a theatre, but as a rule in a few minutes the sensation diminishes or disappears.

The screen should be filled by moving about the projector, which, with the usual 2-in. lens, will be $5\frac{1}{2}$ screen-widths from the screen. There will be one position in the room where the perspective of the projected picture is correct: since most 16-mm. pictures are taken with a 1-in. lens (or are reduced from 35 mm., which amounts to the same thing) this position is half-way between the projector and the screen. Other positions may give rise to error in the estimation of relative sizes of objects, but this does not seem to be important; the camera-man may use lenses of different focal lengths, and obviously the observer cannot be in the correct position for every one. It is important, however, not to sit too much to the side; at 40 degrees from the line at right angles to the screen the screen appears square, and this is not a tolerable amount of distortion (Tuttle, 1933). For school projection the viewing angle should not be more than 30 degrees.

The committee therefore recommends (a) that a picture-width equal to one-sixth of the distance from the farthest row of seats to the screen position should be adopted for class-room projection; (b) that no pupils should be seated closer to the screen than twice the picture-width; and (c) that no row of seats should be longer than its distance from the screen (Fig. 1).

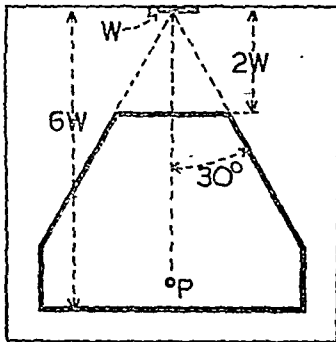


FIG. 1

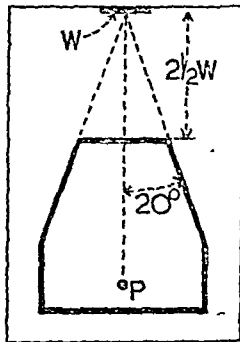


FIG. 2

FIG. 1.—Diagram of seating arrangement of class-room with mat screen of width W . The projector is situated at P . The thick line indicates the limit of the seating area.

FIG. 2.—Diagram of seating arrangement for a narrow room with a beaded screen.

(Modified from diagrams in the *Journal of the Society of Motion Picture Engineers*.)

The screen has an important influence on the seating arrangements. A screen with a mat surface—e.g., flat white paint—is 90% as bright at 30 degrees from the perpendicular as at 0 degree; no modification of the recommendations is necessary. Some screens have their surfaces coated with small glass beads. In this case most of the light is thrown back towards the projector even when it is at an angle to the screen. An observer on the centre line of the class-room sees a picture about four times as bright as that obtained with a mat screen, but the brightness falls off rapidly as he moves to the side: the maximum viewing angle should be 20 degrees. When an evenly illuminated beaded screen is observed from the front of the room one part of the screen may be very much brighter than the other parts; to reduce the variation of brightness to a tolerable degree no seat should be less than $2\frac{1}{2}$ screen-widths from such a screen (Fig. 2). Screens coated with fine particles of aluminium, with either a smooth or a rough finish, should never be used for class-room projection as they show a pronounced bright area, and, being colour-selective, they are not suitable for colour films.

In a square room (Fig. 1) the mat screen is undoubtedly the best, and is certainly the kind to use. The beaded type may be used in a long room, with the precautions mentioned (Fig. 2). It is necessary to point out what is so often forgotten—screens need to be kept clean. A screen which has deteriorated may waste up to half the light falling on it, as well as cause distraction when the image appears to move across mottled areas (Falge, 1931). Wandering of the attention of the spectators is diminished if the area around the screen is dull and featureless; the border of the screen is probably better grey than black.

It remains to decide the brightness of the projected picture which will allow the eyes to work at full efficiency (Projection Screen Brightness Committee, 1936). If the light is too weak picture quality suffers, contrast diminishes, high lights are weak and detail cannot be seen from the back row of seats. If there is too much light, graininess may become evident, high lights dazzle, and flicker become apparent. It has been found by trial that the desirable brightness corresponds to 10 foot-lamberts* with the projector running but with no film in the machine. Under these conditions, at a speed of 24 frames per second with a two-bladed shutter there will be an objectionable 48-cycle flicker. Under normal conditions, however, flicker is not noticeable, because the brightness-range of the picture is usually from 8 to 28% of that of the blank screen. The brightness may be increased by using two-bladed shutter in place of the three-bladed one often supplied whether flicker becomes obvious depends partly on the illuminance and partly on the projector design. Flicker and also film wear would be greatly reduced if a continuous instead of the present intermittent projection method were available; the optical difficulties are, however, considerable.

The required light output in lumens equals—

$$\frac{\text{Desired brightness}}{\text{Screen ref.}}$$

For example, a mat screen 3 ft. by 4 ft. with a reflection coefficient

$$\text{of } 0.75 \text{ needs a projector output of } \frac{10 \times 12}{0.75} = 160 \text{ lumens. It}$$

is expected that manufacturers will soon give values for their projectors. For ordinary class-rooms there will be no difficulty in obtaining adequate brightness with incandescent lamps, but when the screen size exceeds 8 or 9 ft. arc lighting may have to be used.

The quality of the picture suffers if the projection-room is not adequately darkened, but complete blackness is neither necessary nor advisable; a general room-light of 1/10 foot-candle (with which it is just possible to read newsprint) is not harmful, and may be appreciated for reasons of safety or of discipline.

The Illusion of Reality

Having dealt with some of the features in the design of the cinema, I should like to describe a few of the reactions on the spectators of what is presented to them on the screen. It is fair to say that most of the advances in film technique have been introduced to give the audience a greater feeling of reality. Mechanical improvements in cameras and projectors have made movement less jerky and have eliminated shake and flicker; development of radio technique has given us a sound accompaniment; photographic advances have improved tonal quality and have recently given us colour—surely a great step towards reality. We might well ask what will be missing from the complete illusion when stereoscopy is added, as it must be before very long.

The answer is that many things will be missing, the absence of which is not appreciated, because of the accommodating and uncritical qualities of the human mind. The silent films seem very strange to us now and would not stir our emotions to any degree though many of us can still recall how we were shocked when the films began to talk. We are accustomed to seeing pictures in black-and-white and we accept without question the absence of colour. To avoid undue mental shock colour has to be introduced gradually in the middle of a monochrome film. Disney's *Fantasia* was surely a riot of colour, but it began with rather severe shades of the orchestra in black and orange. Stranger still, when we see coloured films of natural scenery we are apt to describe them as unnatural when in fact the colour rendering is extremely good. The book *Film*, by Rudolf Arnheim (1933), is a most interesting example of this conservative attitude. Arnheim actually welcomes the photographic and physiological restrictions of the medium: the film cannot represent Nature accurately, and the more attempts to do so the less likely it is to be artistic; and, further, colour and stereoscopy are considered to be dangers to artistic presentations because they make the moving picture too natural.

* A lumen is the amount of light falling in one second on unit area placed at right angles to the direction of the light at unit distance from an international candle. The foot-candle is the unit of illumination equivalent to one lumen per square foot. The foot-lambert is the brightness of a surface emitting or reflecting one lumen per square foot.

The camera is single-eyed and therefore true vision of depth is possible, but the image projected on the flat screen gives us a lying of depth by variations in size and intensity, by perspective and parallax: a man walking away from the camera becomes smaller, less well-defined, and moves across the background. Occasionally I have noticed that viewing the screen with two eyes gives a smaller feeling of depth than does monocular vision—perhaps because both retinal images are the same. In the absence of stereoscopic perspectival excisions are sometimes rather obvious at the corner of a newspaper in front of a man's face may cut a little off. There is no doubt that stereoscopy is the most important factor in perception of depth (Washburn and Wright, 1938) and if it were added to cinematography a great step towards the complete illusion of reality would have been achieved. There is a short cut to stereoscopic vision: each eye must be given a slightly different view. A few stereoscopic moving pictures have been made and shown publicly. A number of methods are possible (Norling, 1941; Langlands, 1943), some of which do not even require the spectators to wear special apparatus over the eyes—rely on an amazing example of human ingenuity.

Although the eye and the camera are constructed on similar principles, and although the images on the retina and on the film are, so far as we know, very much the same, yet we do not see exactly what is projected on the retina. If I stretch out my hand it does not seem to grow bigger, in spite of the increase in the size of your retinal image. This peculiarity of vision which gives constancy of size and form has been called by Thouless (1931a, 1931b, 1932) phenomenal regression to the real object. A square card lying on a table in front of us is always seen as a compromise (a phenomenal shape) between the shape calculated from the laws of perspective (the stimulus shape) and the actual square (the real shape). The camera images and the projected images are faithful renderings of the stimulus shape, and may thus give rise to distortion. In cartoons it may be important to draw the shapes according to formal perspective but so that the resulting sensation is the same as that evoked by the actual objects. Regression depends on clues of depth; if, therefore, the illusion of depth is complete, as in stereoscopic cinematography, the image thrown on the screen should obey the laws of perspective. Since at present the illusion is not complete a compromise between the phenomenal and stimulus shapes would probably give the best results.

The eye readily rejects images that are obviously inappropriate—e.g., the image of a squinting eye. The eye, like the camera, can be focused accurately for only a small range (depth of focus) at any one time. Out-of-focus images are not normally seen; continuous adjustment of accommodation ensures that each plane is examined while in focus, so that the subjective impression is that the whole depth of the scene is in accurate focus. The disadvantage of camera vision has been overcome by multiplane photography in which successive planes are focused in turn and recorded without blurring of detail.

It is curious how soon after entering a cinema we forget the severe restriction of the visual field—at two screen-widths distant it is 28 degrees, at six widths only about 9 degrees. Attempts have been made to increase the size of the film and of the screen, but these have not been successful. The small field of vision makes it difficult to replace clues normally provided by the proprioceptive nerve endings. In a street scene we may be shown barrows being pushed uphill with obvious effort to give us a second-hand notion of the appropriate muscular sensation denied to us lounging in our seats. Sometimes the camera is made to look round (pan) so that we may be given a wider view; when the picture is projected we get the impression that the scenery is floating past. If the eye is fixed, movement of an external object from right to left causes movement of the retinal image from left to right, and we are aware that the object has moved. When the eye glances from left to right the retinal image again moves from left to right, but the external object does not appear to move and may not even be seen. The failure of reciprocity can be clearly seen if a neon lamp on a.c. mains is used as the test object (Bell, 1943, unpublished). It seems reasonable to deduce that proprioceptive impulses arising in the external eye muscles are responsible for the reduction of visual sensation during eye movements. Normally we take in a scene in a series of glances, but if the camera made glancing movements the projected picture would be very unsatisfactory, since our proprioceptors would be unaffected. In the present state of physiology it is hardly possible to imagine how artificial but

appropriate proprioceptive stimulation could be supplied to an audience.

We are thus a considerable distance on the road to the complete illusion of reality, but there are many problems yet to be solved. It seems to me that a great bar to improvement of film presentation lies in the multiplicity and complexity of the techniques employed in one moving picture. It may even be that if the technique for the perfect illusion were available it would be an impossible medium. The main difficulty would be to find a superhuman creative worker who would be first an artist and then a technical expert in matters tactile, olfactory, proprioceptive, and auditory, as well as in three-dimensional colour.

REFERENCES

- Arnheim, R. (1933). *Film*, Faber and Faber, London.
 Falge, F. M. (1931). *J. Soc. Motion Pict. Engrs.*, 17, 342.
 Langlands, T. F. (1943). *British Journal Photographic Almanac*, p. 107, Henry Greenwood and Co., London.
 Masterton, E. E., and Kellog, E. W. (1942). *J. Soc. Motion Pict. Engrs.*, 33, 232.
 Norling, J. A. (1941). *Ibid.*, 37, 316.
 Problem of the Projection Screen (Brightest Committee (1936). *Ibid.*, 28, 459.
 Society of Motion Picture Engineers Report (1941). *Ibid.*, 37, 22.
 Thouless, R. H. (1931a). *Brit. J. Psychol.*, 21, 339.
 — (1931b). *Ibid.*, 22, 1.
 — (1932). *Ibid.*, 22, 216.
 Tuttle, C. M. (1933). *J. Soc. Motion Pict. Engrs.*, 21, 204.
 Washburn, M. F., and Wright, C. (1938). *Amer. J. Psychol.*, 51, 151.

ENCEPHALOMYELITIS FOLLOWING VACCINATION IN FIFE

BY

G. MATTHEW FYFE, M.B., Ch.B., D.P.H.

Medical Officer of Health, Fife County

AND

J. B. FLEMING, M.D.

Medical Superintendent, Thornton Infectious Diseases Hospital

The three outbreaks of smallpox which occurred in Scotland during 1942—in Glasgow in May (32 cases), Methilhill, Fife, in August (29 cases), and in Edinburgh in October (36 cases)—were each followed in Fife by a public demand for vaccination. The vaccinal state of the public was low. It was estimated that in Methilhill only 20 to 30% of the population had been previously vaccinated; while at Cowdenbeath, a town in which one case of smallpox occurred at a late stage in the outbreak, between 40 and 50% had been vaccinated. The percentage of vaccinated infants in the county as a whole is normally 30.7. The number of people at all ages who received primary vaccination following upon the outbreaks was therefore in excess.

During the Glasgow outbreak free vaccination was offered in Fife through general medical practitioners, and no specific instructions were issued as to any method of insertion; but when cases at Methilhill were found to be suffering from an infection of high potency, and when one of them who had been vaccinated by the single-stroke method sickened with smallpox ten days later, instructions were given that three insertions be made 3/8 in. long and 1/8 in. apart. For the most part this method was followed, but it is known that some practitioners continued to employ the single-stroke method or undertook multiple scarification. It was not possible to collect accurate information regarding the sequelae of the methods used, but it was ascertained that severe local reactions and prostration more often followed the three-stroke method. This method was largely employed in the affected area, and absenteeism at the local coal-mines, which continued for an average of two days, rose from a normal level of 5% to 15%, and at a local emporium employing about 200 people from 0.5% to 6%.

In all, 54,698 doses of lymph were issued by the county public health department to private practitioners and to public clinics. Of these, 7,151 were obtained from a private firm immediately the presence of smallpox became known. The remainder came from the Government lymph establishment. Orders for lymph were placed daily, so that fresh material was always in use. Stocks were kept in refrigerators overnight.

On the whole, post-vaccinal disorders were of comparatively brief duration, and, although no reliable evidence was forthcoming that vaccination had in general a deleterious effect on health, the occurrence of 9 cases of encephalomyelitis following on vaccination gave rise to disquietude. Two had been vaccinated with lymph from the private firm and seven with Government lymph. The following table shows the relation of the cases to the number of vaccinations performed:

	Glasgow Outbreak	Methilhill Outbreak	Edinburgh Outbreak (Cowdenbeath)	Total
Public vaccination centres .. Docks, factories, collieries, hospitals, L.A. staffs, etc. ..	—	21,232	10,961	32,193
Medical practitioners, non- panel patients	—	3,466	431	3,897
Ditto, Panel patients (esti- mated)	1,360	19,081	5,657	26,098
Total	997	8,993	3,148	13,138
Cases of encephalomyelitis ..	2,357	52,772	20,197	75,326

All of the 9 patients were children of ages varying from 3 years to 17 years, and in each the vaccination had been a primary one. All were reported to have been in good health before vaccination, except one child who was suffering from whooping-cough, on account of which fact encephalitis following on whooping-cough could not be entirely discounted. The vaccination lesion was a single vesicle in each case, and was pursuing an apparently normal course. No information was obtained regarding the method of vaccination employed. Nervous symptoms occurred ten to twelve days after vaccination, at a time when the usual constitutional upset of vaccinia begins to subside.

In six cases the clinical findings pointed to a diagnosis of encephalitis, with headache, vomiting, and drowsiness or coma as the predominant features; four of these patients died. In two cases the symptoms and signs, localized to the spine, indicated a diagnosis of myelitis; both recovered rapidly. In one case the nervous complication took the form of an acute lymphocytic meningitis; recovery was rapid and complete.

The main features of the cases are summarized in the table opposite, but a clearer clinical picture will be conveyed by a brief summary of the case histories of the patients under our care.

Case I

A boy aged 3½. Primary vaccination on 11/10/42, before which he had had a slight cough. He sickened on 21/10/42, and on 22/10/42 he became drowsy. On admission (23/10/42): Temperature 98.4° F.; pulse 142; respirations 30. A poorly nourished, ill-looking child, listless, limp, and drowsy. When roused he was irritable, but was apparently clear mentally. There was flaccid paralysis of lower limbs with strongly extensor plantar reflexes; trismus present; pupils equal and reacted to light; squint present; follicular tonsillitis present and also cough of whooping-cough type. The child's condition gradually deteriorated, with rising temperature and pulse rate, drowsiness deepening to coma, and onset of spasticity of limbs, particularly noticeable in the flexor muscles of the arms. He died 48 hours after admission. Permission for necropsy was refused. Although the diagnosis of whooping-cough was reasonably certain on clinical grounds, *H. pertussis* was not grown on cough plate cultures exposed on the day before death.

Treatment.—From the time of admission he had 0.5 g. of sulphapyridine four-hourly. Twenty-four hours after admission he was given 20 c.cm. of antivaccinal horse serum (Lister Institute) intramuscularly.

Case II

A boy aged 10. Was vaccinated on 11/10/42 and became ill on 22/10/42 with headache and sleepiness. On 23/10/42 he was feverish, with headache, vomiting, and drowsiness. On 24/10/42 he became delirious and was admitted to hospital. On admission: T. 102.4° F., P. 124, R. 22. A sparely built boy, unconscious, restless, and emitting short high-pitched cries at intervals, especially when disturbed; incontinence of urine. Examination was difficult on account of restlessness; eyes normal; no spinal rigidity; plantar reflex flexor on right and doubtful on left; abdominal reflexes absent; tache cérébrale present; throat acutely inflamed. 25/10/42: Still drowsy, but much less irritable; trismus present; could be made to drink with difficulty; temperature normal. 26/10/42: Simple questions answered for first time since admission; left plantar reflex flexor; pulse rate 56. 29/10/42: Plantar reflexes flexor. 1/11/42: Both legs stiff. 2/11/42: Well in all respects.

Treatment.—A few hours after admission he was given 30 cc. of antivaccinal horse serum (Lister Institute)—23 c.cm. intravenously and 7 c.cm. intramuscularly. His mother, who had been vaccinated in infancy, revaccinated in 1927, and again on 11/10/42 gave a quantity of her blood on 25/10/42. The boy received 140 c.cm. of his mother's serum intramuscularly—60 c.cm. on 25/10/42 and 80 c.cm. on 26/10/42. The only drug used was a soneryl suppository as a sedative during the first night.

Case III

Boy aged 8. Was vaccinated on 12/10/42 and had fairly severe vaccinia from 19/10/42 to 21/10/42. From then he was in normal health until the evening of 24/10/42, when he became listless and drowsy. On 25/10/42 he was acutely ill with severe headache and drowsiness, temperature 104° F. On 26/10/42 he became delirious and had difficulty in speaking and drinking owing to trismus.

On admission (26/10/42): T. 100° F., P. 96, R. 20. A well-nourished boy, listless and drowsy; mentally clear when eyes normal; tendon reflexes normal; no rigidity of spine; abdominal reflexes diminished on left side; plantar reflexes flexor on right, extensor on left; throat mildly inflamed. 27/10/42: Coma had developed during the night; by midday he could be roused only with great difficulty; trismus present; abdominal reflexes absent on left side, diminished on right side; plantar reflexes extensor on left, doubtful extensor response on right. 29/10/42: Brighter mentally; severe spasticity of legs and left arm; tendon reflexes exaggerated; spastic tremor of left leg; extensor plantar reflexes both sides. 30/10/42: Less spasticity of legs; plantar reflexes flexor. 31/10/42: Temporary return of severe spasticity of legs. 1/11/42: Mentally alert; well, apart from stiffness of left leg.

Treatment.—On 27/10/42 blood was taken from his mother, who had been revaccinated on 12/10/42. The boy was given 180 c.cm. of his mother's serum—20 c.cm. intravenously and 80 c.cm. intramuscularly on 27/10/42, and 80 c.cm. intramuscularly on 28/10/42.

The salient features of Cases VII, VIII, and IX are given in the accompanying table. These three fatal cases were observed by us, but from the histories obtained there is no doubt regarding the diagnosis.

In all of the six cases described the picture is one of encephalitis, with headache, vomiting, and drowsiness or coma producing paralyzes, at first flaccid and later spastic. In two of the cases the upper motor neurones affected were not those related to the limbs, especially the lower limbs. In five cases positive Babinski signs were recorded at some time during the illness—in the sixth no mention is made of the being carried out. In the three cases seen by us trismus was a feature of the early stages of the disease, causing difficulty in drinking and speaking. In the two cases which recovered there was no evidence of residual weakness at the time of discharge from hospital, and five months later there was suggestion of mental or nervous disturbance.

We regard Cases IV and V as examples of post-vaccinal nervous complication in which the inflammation of the central nervous system is localized to the spinal cord. Encephalomyelitis is often referred to in the literature, but we can only find three references to post-vaccinal myelitis as a clinical entity (Zappert, quoted by Rolleston in *Acute Infectious Diseases*, 1940, p. 420; and McKenzie, *Proc. roy. Soc. State Med.*, 1936, 235. Inconclusive reference is made to a case in Report of the Committee on Vaccination, 1930).

Case IV

A healthy boy aged 10. Was vaccinated on 14/10/42 and became acutely ill on 26/10/42, with severe backache in the lower thoracic region and pain radiating round his side to the right subcostal region. He had slight headache and sickness on 28/10/42, and was admitted to hospital. On admission: T. 98° F., P. 112, R. 24. A strong, well-nourished boy, alert and bright mentally; no spinal rigidity with obvious "tripod" sign present; Kernig's sign positive; no nuchal rigidity, but any attempt to flex the neck even the cervical spine, produced acute pain in the lower thoracic region and sharp pain in the right subcostal area; abdominal reflexes absent; plantar reflexes flexor on right side and extensor on left side; tendon reflexes normal. The spinal rigidity gradually passed off during the next three days, and he was discharged on 4/11/42. He had had no drugs or immune serum.

Case V

A girl aged 6. Was vaccinated on 13/10/42, and became ill on the evening of 24/10/42 with nausea, listlessness, and later delirium. On admission (27/10/42): T. 97° F., P. 100, R. 20. A well-nourished, bright, and alert child; extreme stiffness and pain

movement of lower half of spine; no nuchal rigidity or stiffness of legs; plantar reflexes flexor on left and extensor on right. 8/10/42: Lumbar puncture; cerebrospinal fluid clear; 35 mononuclear cells per c.mm.; spine still stiff and painful in the lumbar region. 30/10/42: No stiffness of spine; left plantar reflex extensor. 1/11/42: Well in all respects; no weakness of legs. She was given no drugs or immune serum.

Acute myelitis of this type is unlikely to endanger life, and is therefore neither the gravity nor the importance of encephalitis. Severe backache is a common feature of severe vaccinia, and it seems probable that post-vaccinal myelitis occurs more frequently than is generally realized. Thus Dr. J. Veitch, Cowdenbeath, in a private communication informs us that in his practice during the vaccination campaign "several cases (males) previously unvaccinated complained of pain and

leg. 6/11/42: Child improving, but still severe stiffness of neck and spine; still very irritable; there was difficulty in inducing her to drink. 7/11/42: Much brighter and less stiffness of spine; stiffness of the left leg. 9/11/42: Well in all respects excepting marked stiffness of both legs; reflexes normal. 14/11/42: Discharged well.

Treatment.—On 4/11/42 blood was taken from the child's father, who had been revaccinated on 22/10/42. 140 c.cm. of the father's serum was given intramuscularly—40 c.cm. on 4/11/42, 80 c.cm. on 5/11/42, and 20 c.cm. early on 6/11/42. Starting at noon 5/11/42 with 1 g. and continuing with 0.5 g. four-hourly, 15 g. of sulphapyridine was given.

Case VI appears to be an example of post-vaccinal meningitis or meningo-encephalitis. An alternative diagnosis is benign lymphocytic choriomeningitis, a virus infection giving a

Table showing Principal Features of the Cases

Case	Age (yrs.) and Sex	Date of Vaccination (Primary)	Onset of Illness	Admission to Hospital	Leading Symptoms and Signs	Cerebrospinal Fluid	Final Diagnosis	Evidence of Concurrent Infection	Treatment	Result
I Methilhill	3½ M	11/10/42	21/10/42	23/10/42	Drowsiness; vomiting; paralysis of legs	Clear; pressure increased; Pandey's test pos.; 8 mononuclear cells per c.mm.	Encephalitis	Whooping-cough and follicular tonsillitis	Sulphapyridine 0.5 g. 4-hourly; 20 c.cm. antivaccinal horse serum on 24/10/42	Died 25/10/42
II Methilhill	10 M	11/10/42	22/10/42	24/10/42	Headache; drowsiness; delirium	Clear; pressure slightly increased; Pandey's test pos.; 60 mononuclears per c.mm.	"	Follicular tonsillitis	30 c.cm. antivaccinal horse serum; 140 c.cm. maternal serum	Recovered. Discharged 5/11/42
III Coal town of Balgonie	8 M	12/10/42	24/10/42	26/10/42	Headache; drowsiness; trismus	Clear; pressure slightly increased; Pandey's test neg.; 50 mononuclears per c.mm.	"	Mild tonsillitis and pharyngitis	180 c.cm. maternal serum	Recovered. Discharged 5/11/42
IV Markinch	10 M	14/10/42	26/10/42	28/10/42	Backache; neuritis; stiffness of spine	Clear; pressure slightly increased; Pandey's test neg.; 15 mononuclears per c.mm. Wassermann neg.	Myelitis	Nil	Lumbar puncture only	Recovered. Discharged 4/11/42
V Methilhill	6 F	13/10/42	24/10/42	27/10/42	Backache; stiffness of spine	Clear; pressure normal; Pandey's test neg.; 35 mononuclears per c.mm.	"	"	" " "	Recovered. Discharged 3/11/42
VI Coal town of Wemyss	5 F	22/10/42	3/11/42	4/11/42	Drowsiness; headache; spinal rigidity	Clear; pressure increased; 300 mononuclears per c.mm.	Lymphocytic meningitis	Tonsillitis and pharyngitis	140 c.cm. paternal serum; 15 g. sulphapyridine	Recovered. Discharged 14/11/42
VII Buckhaven	4½ F	11/10/42	22/10/42	—	Drowsiness; coma; flaccid paralysis of legs; Babinski's	Clear; pressure increased	Encephalitis	Rales all over chest	15 c.cm. paternal serum on 25/10/42	Died 26/10/42
VIII Buckhaven	3 M	11/10/42	22/10/42	—	Vomiting; drowsiness; coma	—	"	History of laryngitis at onset	—	Died 23/10/42
IX Cowdenbeath	17 F	18/11/42	30/11/42	1/12/42	Headache; vomiting; drowsiness; coma; spinal rigidity; Babinski's; hyperpyrexia; incontinence	Clear; pressure normal; sterile	"	Nil	Lumbar puncture only	Died 3/12/42

rigidity in the cervical spine on the tenth to twelfth day after vaccination." Discussing the various types of nervous sequelae of vaccinia, Rolleston (*loc. cit.*) refers to Zappert's description of a meningeal form simulating tuberculous meningitis. Case VI in our series falls into this category.

Case VI

A girl aged 5. Was vaccinated on 22/10/42, and was taken ill on 3/11/42 with drowsiness, headache, and backache. On admission (4/11/42): T. 98.6° F., P. 128, R. 26. A well-nourished child of spare build, rather pale and acutely ill. There was a tendency to drowsiness, but she was cross and irritable when disturbed; throat acutely inflamed; severe nuchal rigidity; Kernig's sign strongly positive. Abdominal plantar and tendon reflexes normal; eyes normal. Cerebrospinal fluid clear; pressure increased; 300 cells, mainly mononuclear, per c.mm. Bacteriologist's report: "Protein, 40 to 50 mg. per 100 c.cm.; sugar present but markedly reduced; Lange reaction, 1112110000; Wassermann reaction negative; no acid-fast bacilli or other organisms demonstrated." 5/11/42: Still acutely ill; severe spinal rigidity; tremor of left arm and

clinical picture similar to that of Case VI. This child, however, was much more seriously ill than any of the cases of benign lymphocytic choriomeningitis seen by us, and the chance of this relatively rare disease occurring within the usual period for post-vaccinal nervous complications is very remote. It is reasonable to assume that, occurring as it did twelve days after primary vaccination and being accompanied by tremor and spasticity of the limbs, the meningitis was produced by the same cause as that of post-vaccinal encephalitis. It is of interest to note that the fatal Cases I and VIII were those of second cousins.

Commentary

Immune serum was used in the treatment of the serious cases seen by us. Cases I and II had antivaccinal horse serum (Lister Institute), but there was not enough evidence to make any decision regarding its value. It produced no serum reaction in Case II, although 23 c.cm. was given intravenously. In Case I the horse serum was probably used too late to be

effective, and in any case the fatal issue was undoubtedly hastened, and possibly caused in part, by the whooping-cough.

It was fortunate that the parents had been revaccinated about the same time as their children, since a source of human immune serum was then readily available. Parental immune serum proved to be of great value when given in large doses—e.g., 140 c.cm. The procedure can be followed without serious risk of serum reaction. It appears to us that in Case VII the dosage of parental immune serum was inadequate and, as in Case I, given too late to be effective. The rapidity of the illness seems to indicate that immune serum must be given early and in large quantity to be successful. Thus, when Case III was admitted, the patient did not appear to be ill enough to justify serum treatment, and in several hours he became comatose. We were convinced at the time that his life had been endangered by the delay of 24 hours in starting serum therapy.

The success of immune serum in the treatment of post-vaccinal encephalitis suggests that it is the virus of the vaccinia which is the causal agent. There is no method of ascertaining the virus content of lymph, and vaccinia may produce all degrees of severity of constitutional upset, and, as shown in our cases, the nervous complications may vary widely. Why should occasional cases develop serious involvement of the nervous system? Are these infections arising from the unsterile nature of calf lymph? Another possible explanation is that the susceptibility of the nervous system to the vaccinia virus may be increased by the presence of concurrent infection. In support of this theory it appears to us to be significant that most of our cases showed evidence of acute upper respiratory infection. Thus Case I had clinical whooping-cough and follicular tonsillitis; Cases II, III, and VI had acute pharyngitis; Case VII had "rales in chest"; and Case VIII had a history of laryngitis. The findings at least suggest that the hazard of encephalitis during vaccinia is much greater when there is concomitant infection in the upper respiratory tract.

Post-vaccinal encephalitis is extremely rare in infancy. Therefore, so long as the danger of smallpox exists, vaccination should be urged in infancy. With modern speed and facility in travel there is nothing to indicate that this danger is likely to disappear.

When primary vaccination of children becomes unavoidable—e.g., during an epidemic of smallpox—it would be a wise precaution to insist on vaccinating or revaccinating the parents at the same time. By so doing a source of safe immune serum would be made readily available if required, and this could be given in large doses—e.g., as a transfusion of plasma on the first indication of cerebral involvement.

Summary

In the Fife outbreak of smallpox in 1942, 8 cases of vaccinal encephalomyelitis occurred among a group of 52,772 recently vaccinated persons and 1 case among a group of 20,197 persons. The incidence in both groups is high, particularly in the first—1 in 6,600.

The case mortality was 44%.

In six of the cases symptoms were entirely of cerebral origin and in two they were of spinal origin—apparently an uncommon manifestation. In one the symptoms were predominantly meningeal.

Much benefit was obtained through the prompt use of parental immune serum in large doses.

It is suggested that there may be a liability to onset of encephalomyelitis in unvaccinated persons suffering from acute infections of the upper respiratory tract.

Vaccination is urged in infancy in view of the risk of involvement of the nervous system in later years.

If primary vaccination of children becomes unavoidable steps should be taken to secure a source of immune serum as a precaution.

Speaking at the twentieth meeting of the German Dermatological Society last year, Conti (*Disch. med. Wschr.*, 1942, 68, 1230) said that it was hoped in the future to have a uniform specialist service attached to the health offices. The obligation to obtain treatment must be enforced more strictly. Thus, in the case of syphilis, the accepted salvarsan treatment was obligatory, but a patient was not forced to accept some therapeutic measures, such as cystoscopy, catheterization, dilatation of the urethra, and lumbar puncture. The duty of secrecy still existed, and it was laid down that a patient who had not refused treatment must not be notified by name.

PHENIODOL: A NEW CONTRAST MEDIUM FOR CHOLECYSTOGRAPHY

BY

F. H. KEMP, M.B., Ch.B., M.R.C.P., D.M.R.
(The Radcliffe Infirmary, Oxford)

The object of this communication is to introduce a contrast medium for cholecystography which is claimed to be better than tetraiodophenolphthalein.

Literature of the Phthaleins

Graham and Cole, in 1924, first succeeded in visualizing gall-bladder by means of a radiopaque substance excreted through the liver. They were influenced by the pharmacological studies of Abel and Rowntree (1909-10), who showed that phthaleins and some of their derivatives were mainly excreted in the bile. The first experiments were made with the acid and sodium salt of tetraiodophenolphthalein, but unfortunately the preparations proved toxic and some of their subjects died. Ultimately they achieved success with the calcium salt of tetrabromophenolphthalein. The drug was injected venously in doses of 5 to 5.5 g. in 40 c.cm. of distilled water and films were taken 7, 8, 24, and 32 hours afterwards. A second report (Graham, Cole, and Copher, 1924) showed that the sodium salt was better.

The possibilities of the new test aroused the keenest interest. Within a year other American workers—notably Carmichael and Counsellor (1924)—had confirmed its value. It was shown that the most common and most reliable sign of disease is dilatation of the gall-bladder to fill with the drug. However, patients experienced severe toxic reactions after the test, and as the dose had too small a margin of safety.

Meanwhile, Graham and his associates (1925) had continued their researches. They reported that the toxic effects of iodophenolphthalein were due to impurities, and they advocated this compound for clinical use owing to the difficulties of obtaining pure preparations. Shortly afterwards Whitaker and Milliken (1925) showed that a pure preparation of tetraiodophenolphthalein had definite advantages. There was little difference in the comparative toxicity of iodine and bromine compounds, the former was considered superior because in a dose of only about half the size necessary with the latter it gave a denser and more solid shadow. These findings were confirmed as a preparation of tetraiodophenolphthalein became available.

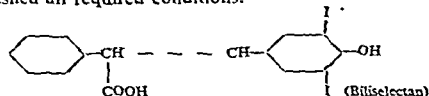
At first tetraiodophenolphthalein was given intravenously, some of the early workers were not entirely satisfied with the procedure and persisted with other methods. Stewart and his associates (1925) stated that a considerable number of persons experienced unpleasant reactions when it was given intravenously, much so, that in hospitals with which we are connected it was not deemed advisable to continue intravenous injections when all other methods of diagnosis had failed. For these purposes they preferred oral administration, and were supported by no less authorities than Carmichael and Moore (1925). Their view gradually gained support as the quality of the preparation improved, and nowadays oral administration is the method of choice.

With the oral method the majority of patients experienced unpleasant reactions. Some of them complained of its disagreeable taste, many have nausea, a few are sick, and many have diarrhoea. There seem to be differences in the severity of the reactions with various preparations in different localities. Meneses and Robinson (1938) tried to find a better preparation. They examined calcium, lithium, potassium, and magnesium salts of tetraiodophenolphthalein, but for various reasons were rejected except the magnesium salt. They found that a 5-g. dose of this salt gives a shadow of the same density as a 3.5 g. dose of the sodium salt of tetraiodophenolphthalein. More palatable and was less apt to produce reactions. In the use of the magnesium salt, 76% were symptom-free, only 12% had no symptoms after the sodium salt. This report was favourable to the manufacture of the magnesium salt was not taken up in this country.

Other Contrast Media

Attempts to produce other more suitable compounds have been recorded by Pribram (1927), who put forward iodized tophan as a contrast medium. It was sold in Germany under the name of biloptin. This substance gave good reliable contrast pictures; but though it was at first thought to be well tolerated, subsequent work showed that a large dose caused damage to the liver, and even with the necessary dose it was not unusual to find casts in the urine. Later, Pribram (1936) tested a derivative of quinoline containing iodine. This gave excellent pictures, rich in contrast, but on technical grounds it was not introduced commercially.

Dohrn and Diedrich (1940), working in the laboratory of Schering A.G., Berlin, tried to make a substance suitable for peroral administration which would be better tolerated than tetraiodophenolphthalein. They reported that they had tested a large number of synthetic compounds by estimating the iodine content of bile flowing from a biliary fistula in animals. One drug— β -(4-hydroxy-3:5-diiodophenyl)- α -phenyl-propionic acid—satisfied all required conditions.



The substance was given clinical trial by Kleiber (1940), who reported that it is an excellent, entirely harmless, well-tolerated peroral contrast medium which gives shadows superior to those obtainable by intravenous injection of tetraiodophenolphthalein. It is sold by Schering A.G. under the name biliselectan. Each dose of 3 g. of the active substance is put up in the form of sugar-coated granules.

Kleiber reported his findings after 55 cholecystographies. In 25 cases in which no gall-bladder shadow was found the examinations were controlled by means of intravenous tetraiodophenolphthalein, but a negative picture resulted in all. Of these 25 cases 24 were operated upon, and in each case a diagnosis of obstruction of the cystic duct was confirmed.

The British Preparation Pheniodol

Papers giving the chemical structure and some facts about the properties and clinical application of biliselectan reached this country in 1941, and Dr. W. Baker, working in the Dyson Perrin's Laboratory in Oxford, devised a method of preparing the substance, a certain quantity of which was available for preliminary experiments.

The free acid is a white crystalline powder which is insoluble in water. It is readily soluble in weak alkali, but in this form is extremely unpleasant to take. Prof. J. H. Burn of the University Department of Pharmacology reported that it was well tolerated by animals, with no signs of ill effects. In one experiment a bitch of 7 kg. weight received 3 g. of the drug by mouth. She was observed for 24 hours, during which time she displayed no symptoms. She was then killed and portions of the stomach, intestine, liver, and kidney were submitted for histological section. These tissues were all well preserved and showed no abnormality that could be detected by ordinary histological methods (Dr. A. H. T. Robb-Smith).

The first clinical trials were made with a small quantity of the preparation supplied by Dr. Baker. Three adults were each given a dose of 4.2 g. suspended in water or milk. They made no complaints other than a slight sensation of burning in the mouth, like the flavour of a radish. Films were taken in the usual manner at 10 o'clock on the morning after administration—i.e., 16 hours later. The drug seemed to have been completely absorbed in one case, as none was visible in the bowel, and only small amounts were unabsorbed in the other two. All three showed a dense shadow of the gall-bladder similar in appearance to that usually given with 4 g. of tetraiodophenolphthalein. Three other subjects were given doses of 5, 6, and 7.5 g. respectively. All three had diarrhoea and slight abdominal discomfort in the night. The shadows of the gall-bladder were no better than those given with 4.2 g.

As the results of these trials were satisfactory Dr. Baker sent in his report to the Medical Research Council, whose Therapeutic Trials Committee later asked me to undertake further

tests with preparations supplied by different firms. In the meantime it was decided that the drug should be known officially as pheniodol.

Pheniodol under Test

The preparations were submitted in powder form. With each dose of 4.2 g. instructions were sent to the wards that the powder was to be mixed and stirred into a glass of milk and to be taken instead of the usual preparation of tetraiodophenolphthalein on the evening before the examination. The results were most disappointing. Almost all the patients complained of an unpleasant taste and discomfort in the throat. Some had noticed that the preparation was lumpy and that the lumps tended to stick in the mouth and cause burning. Radiographs showed masses of unabsorbed drug in the bowel. It was clear that in the majority of cases the drug had not been properly mixed, but it seemed advisable to consider alternative methods of dispensing.

The symptoms can be easily explained. The drug is insoluble in water and soluble in weak alkali. In the soluble form it is very bitter to the taste, and when swallowed causes burning in the mouth and throat. When given as a suspension in milk or water there is a tendency for the powder to form lumps unless it is properly mixed. These small lumps tend to stick in the crevices of the mouth, pharynx, or oesophagus, where they are dissolved in the natural alkaline secretions. If the drug is carefully mixed into a paste and then stirred into milk there is seldom any complaint, very slight burning being readily relieved by a drink of water. If not given properly the patient may experience discomfort for hours, and is often sick.

In a second series of cases each dose was dispensed in 1 oz. of mucilage prepared by hand in the hospital dispensary. On the day before the examination the patient was given breakfast and lunch as usual, but no special fatty foods to empty the gall-bladder as some authorities advise. At 4 p.m. the patient had tea and toast or bread-and-jam without butter or margarine. He was encouraged to take sugar in his tea. The drug was given at 6 p.m. in a glass of milk. Films were taken 16 hours later.

The findings with three different preparations are summarized in the accompanying table. So far as could be ascertained all the preparations of different manufacture were similar.

	B.D.H.	Glaxo	Boots	Total
No. of tests	31	16	30	77
Unpleasant taste	16	6	21	43
Nausea	10	7	15	32
Vomiting	2	1	1	4
Diarrhoea:				
Slight	3	4	7	14
Moderate	1	3	2	5
Pain on micturition	5	2	2	9
Dense filling	24	12	23	59
Faint	3	1	—	4
No	4	3	7	14

Of those showing "No filling" the findings of a pathological lesion were verified at operation in ten cases, all being associated with stone. The others were not operated upon. Three of the cases showing a faint filling were associated with stone.

Analysis of Reactions

The patients' symptoms were analysed, with the following results: **Taste.**—Many patients noticed a slight burning sensation in the mouth and throat. A few complained of a horrid taste and others disliked the mucilage. It was clear that the method of dispensing was still at fault.

Nausea and Vomiting.—Nausea was associated with persistent burning in the throat. Only four patients vomited, and of these two were subsequently found to have gastric or duodenal ulceration with gastric stasis, and another was in the habit of vomiting frequently. In one case there was no explanation other than the taking of the drug. All four patients had slight abdominal discomfort. The drug must be a mild gastric irritant, especially when there is delay in emptying the stomach, and for this reason it is suggested that the patient should always drink a glass of water after taking the drug, which will tend to wash it towards the bottom of the stomach and so hasten its elimination.

Diarrhoea.—About a quarter of the patients had diarrhoea. In many cases this was only slight, but in others it was sufficient to interfere with sleep. In most instances the diarrhoea was probably related to variations in individual susceptibility to the drug as an intestinal irritant. Bigger doses are more liable to produce

diarrhoea, without significant improvement in the contrast of the radiographic image.

Pain on Micturition.—A small number of patients complained of slight burning on passing urine on the morning after administration. Two had slight suprapubic discomfort, which suggested irritation of the bladder. None of these showed any sign of renal damage.

The manufacturers interested in pheniodol have since carried out further research into the dispensing of the drug. One firm (Glaxo Laboratories Ltd.) submitted samples of the drug in the form of sugar-coated granules. I carried out further tests, and found that the preparation was very satisfactory providing that the patient was asked not to chew or suck them. The granules readily dissolve in the intestinal juices.

Another firm (British Drug Houses Ltd.) has prepared the drug in the form of a fine powder which is readily suspended in water or milk. This preparation is also very satisfactory, though sometimes the patient mentions some slight burning in the mouth and throat; but this is readily relieved by a drink of water.

Comment

Since the introduction of cholecystography we have learnt a great deal about the behaviour of the gall-bladder in health and disease. Though numerous reports testify to its value many doctors still do not realize that reliable results can be obtained only by careful attention to technique and interpretation. Before giving any opaque material a preliminary radiograph should be taken, for failure to do so may result in faulty diagnosis. Unless definite gall-stones are revealed the examination should always be completed.

The most reliable results are obtained by the intravenous method of administration, but this is seldom employed to-day on account of the liability of tetraiodophenolphthalein to cause unpleasant reactions, venous thrombosis, or sloughing of the tissues if any escapes from the vein. The oral method is simpler and the results are reliable in a large proportion of cases, but on account of the tendency of the sodium salt of tetraiodophenolphthalein to cause vomiting or diarrhoea the radiologist sometimes has difficulty in assessing whether enough of the drug has been absorbed. Rowden (1933) tried to avoid these difficulties by administering the drug in No. 3 gelatin capsules, which he himself filled so that the drug might be fresh. His procedure gives excellent results; but few people take the trouble to prepare the gelatin capsules, and most workers prefer to give the drug in fluid form. I hope that pheniodol will prove less troublesome and therefore more reliable, as I have tried to show in this paper.

Normal Cholecystography.—A dense well-filled gall-bladder shadow which is normal in size and shape and of uniform opacity and which contracts after a fatty meal to a much smaller size is almost always normal. Very occasionally gall-stones may be obscured by the density of the shadow and are revealed only by a film taken with the patient standing erect or by serial films of the emptying of the gall-bladder. More frequently, mistakes are made because the observer does not appreciate that the gall-bladder is seldom completely filled with the opaque medium, and so fails to realize that it is possible to report normal findings when a stone may be held in the ampulla of the gall-bladder or in Hartmann's pouch. Likewise it is generally assumed that stones in the cystic duct always cause no filling, whereas there may be several stones in the duct without impairment of filling, concentration, or emptying.

Faint Filling.—Even when technical standards are fully satisfied I doubt whether the opinion given by Graham and his associates (1925) can be upheld. They state that "the sensitiveness of cholecystography in revealing abnormalities of the gall-bladder is one of its most striking assets in the diagnosis of slight degrees of chronic cholecystitis"; or, in other words, slight degrees of chronic cholecystitis cause impairment of the ability of the gall-bladder to concentrate the drug. I believe that this view is incorrect, for I have seen two cases of chronic cholecystitis with gross inflammatory thickening of the walls of the gall-bladder which had shown no impairment of concentration of the drug. With the oral method, too many factors influence the absorption of the drug for us to state whether variations in its concentration in the gall-bladder are of functional significance, so that a faint filling should be

classified as normal unless it is shown to be constant at repeated examinations.

No Filling.—The most reliable sign of disease is no filling of the gall-bladder. In most cases this signifies either that the cystic duct is blocked by stone or mucus or that the gall-bladder is grossly diseased or full of stones. To be sure that there is no mistake the radiologist should check all factors influencing the absorption and elimination of the drug and should make certain that the films are properly centred and exposed. The test should never be conducted when the patient is jaundiced or when there are other clinical signs of hepatic insufficiency, for the medium is likely to induce further hepatic injury and the gall-bladder rarely fills. In less severe cases of liver disorder a satisfactory shadow is given if the gall-bladder is normal. There may be no filling if the patient is unable to absorb fats or if he has been on a fat-free diet for a long time.

In every case cholecystography should be followed by barium meal to show whether the stomach empties naturally and to exclude any organic disorder which may affect the significance of the findings.

Conclusions and Summary

Pheniodol is a reliable peroral cholecystographic medium. Suitable preparations in doses of 3 to 6 g. give a shadow of the gall-bladder similar in density and filling to the one obtained with 4 g. of tetraiodophenolphthalein. It is less objectionable to take, and seldom causes vomiting. Diarrhoea occurs in some cases, but not more often than with tetraiodophenolphthalein.

An account is given of the interpretation of oral cholecystography in the light of present-day knowledge.

I wish to thank the Medical Research Council for allowing me to carry out this investigation. I am indebted to Prof. L. J. Williams for his help with the clinical work and to Mr. F. H. Robinson of Glaxo Laboratories for his invaluable criticisms. Messrs. Glaxo Laboratories, the British Drug Houses, and Boots of Nottingham have supplied me with the different preparations of pheniodol. I gratefully acknowledge the help of Dr. J. F. Brailsford, who has taught me the principles of cholecystography.

REFERENCES

- Abel, J. J., and Rowntree, L. G. (1909-10). *J. Pharmacol.*, 1, 231.
Carmen, R. D., and Counsellor, V. S. (1924). *Amer. J. Roentgen.*, 12, 403.
— and Moore, A. B. (1925). *Ibid.*, 14, 511.
Dohrn, M., and Diederich, P. (1940). *Disch. med. Wschr.*, 66, 1133.
Graham, E. A., and Cole, W. H. (1924). *J. Amer. med. Ass.*, 82, 613.
— and Copher, G. H. (1924). *Ibid.*, 82, 1777.
— (1925). *Ibid.*, 84, 14.
Kleiber, N. (1940). *Disch. med. Wschr.*, 66, 1134.
Menees, T. O., and Robinson, H. C. (1938). *Amer. J. Roentgen.*, 39, 373.
Pribram, B. O. (1927). Quoted by Kleiber (1940).
— (1936). *Munch. med. Wschr.*, 83, 1838.
Rowden, L. A. (1933). A. E. Barclay's *The Digestive Tract*, p. 294. Cambridge University Press, London.
Stewart, W. H., and Ryan, E. J. (1925). *Amer. J. Roentgen.*, 14, 504.
Whitaker, L. R., and Milliken, G. (1925). *Surg. Gynec. Obstet.*, 40, 17.

A CASE OF CONVERSION HYSTERIA

BY

RANYARD WEST, M.D., M.R.C.P., D.Phil.
(Department of Psychology, University of Edinburgh)

We seldom see a case summary that shows in outline the actual course of a short and successful psycho-analytical treatment: a lot is said about psychotherapy in general, but very little about its methods and techniques. Here is such a case. I hope the technique explains itself. The actual conversational symptoms are unusual.

A. B., an insurance clerk aged 30, complained of increasing difficulty in drinking. He could drink water in the morning, though not easily. Later in the day fluid always "went the wrong way" and in consequence he dared not try to swallow. His trouble started four or five years previously, when he thoughtlessly bought some iced lemonade at a dance and choked himself so severely that he was in a panic and waiters had to rush to his assistance. Four days later, and after describing this incident to some friends, he was for the first time unable to swallow readily. The disability then steadily worsened. His medical student fiancée had recently expressed the opinion that he was suffering from a spasm of the throat from an inferiority complex.

A. B. was a very tall, gracious, and immaculate young man with a fresh fair complexion, rather anxious blue eyes, and a

minent and large lower jaw. His test swallowing of air involved no movement, but he performed it without difficulty. He pointed, quite truthfully, that his palate was anaesthetic to a normally quite stimulus. When he was given a glass of water he held it in his mouth, tilted it a lot, made much play with lip movements, got in the face, and swallowed small quantities with much apparent effort.

True to type, there were other symptoms behind the presenting case. The patient readily volunteered that he "wanted to confess fear": he had struggled against it since the age of 11. Before it time he had been fearless, especially in fighting, which he used to enjoy. From kindergarten days he had always fought upon the assumption that he would win. But at 11 he was involved in a fierce fight in the school wash-house. In the first the other boy did not wish to fight but A. B. did. The enemy fought very recklessly, but A. B. worked himself into a "tremendous fury" and at the end the other boy was "a nasty sight." In the second fight A. B. early received a glancing blow on the face near the jaw. Suddenly he felt he must run away or he would be "knocked to the ground." He acted on the impulse, and since then had never been able to hurt anyone or to stand anything approaching a row. Later, as an adult, unreasonable fear had become attached to carving, cliff-climbing, and other adventures in which he forced himself to accompany an "utterly fearless" fiancée. Above all, he feared the occurrence of a situation where honour demanded that he should fight—e.g., an insult offered to his young lady.

A. B.'s interests were connected with refined city life. He was capable, friendly, and humorous, and a Sunday-school superintendent. He described himself as likely to be a "perfect curate," and this occupation he has since adopted. But into his developing life about people there had crept an observant but peculiar interest in physiognomy. In his own mind he classified people into two types according to the shape of their jaws. Men or women of one, which he called the "aggressive" (meaning successfully aggressive) or "leader" type, had vertical ascending ramus to their mandibles and receding lower jaws with the upper front teeth more prominent than the lower. He held that, in contrast, a backward-sloping vertical ramus, prominent lower jaw, and protruding lower teeth, together with a small mouth, "caused" a recessive weakness of character. This "non-leader" type, into which the patient himself exactly fitted, also had thin lips and a small and quiet swallow, as opposed to the large mouth, full lips, large and noisy swallow of "leaders, children, and natural people." His fiancée was in this avowed category.

School associations were taken first. They led A. B. to remember an earlier incident in the school wash-house. The school bully had been publicly ducked in front of a yelling crowd, and "nearly drowned." He had been frightened by the sight itself and by the "lynching atmosphere." By free association from this sight A. B. next recaptured early fears of asphyxia—e.g., when a cushion was held over his face as a child and in an attack of whooping-cough. He was an only child. His mother (of "leader" type) had clouted him, his father (a "non-leader") grumbled and drank, and there were constant difficulties between the parents throughout his upbringing. Some alarming fantasies of drunken men hitting women, while he stood by terrified and powerless to intervene, led him to the recollection of actual attacks of fury with his father for upsetting his mother and making her cry. He had wanted to hit him.

A return to considering his contemporary fears, and especially the question, "Why could he never attack?" led him suddenly to the conviction that he had always felt that a blow on his jaw would be fatal. "They'd catch me there. And my jaw is so thin!" The discovery that his cowardice was due to an imagined inferiority increased his assurance; and A. B. now began to develop the themes, "If Father had only trained me I'd have been able to take care of myself," and, "Fighting is not bad fun if you're built that way." With some difficulty he managed to face in imagination the possibility of "administering physical correction in an extreme case on behalf of a lady." Then, partly freed from fear of disaster and spurred to a just cause, he imagined himself weighing in more heavily. With increasing gusto he went through the motions of buffeting a foe, to the accompaniment of appropriate remarks from an imagined audience: "Bravo, sir! Nice uppercut!" In the midst of this exercise he suddenly became very excited and exclaimed that something was broken. He had hit his opponent right on the point of the jaw. Immediately he saw a conservatory in which his father sat with his mother upon his knee. It was a well-remembered photograph from the family album, with Mummy in her long skirts that he used to peep under and a blouse with bones in the neck, and Daddy tired and retiring, "like an undeveloped twig, with his kindness and temper, lack of discipline with me and heavy-handedness with her." He was surprised they were so intimate.

At this point in his treatment there was a considerable change in his contemporary attitudes. With awkward colleagues he now required prayer to maintain his calm. He spat out aggressive remarks and then prayed for humility. He was no longer afraid

of physical consequences: the issue now was between passion and restraining principle. In the following session he disposed of an imaginary aggressor against his fiancée with mixed feelings of hatred and liking of the undertaking. To his intense satisfaction a return blow on his own "Achilles heel," the jaw, did not seem to hurt him. Then came a second crucial analytic hour. Feeling that "honour would attach to it," and with some reassurance from me about the physical effects, he first slapped in the face a man who was insulting his fiancée, and then—"Oh! I hate doing this!"—went for a burglar who was hitting his mother, smashed his head with a poker, and throttled him. While he was trying in vain to see "the real cause" of his anger, his mother's assailant changed into a drunken man. He struck at him wildly, pulled his hair, sobbed, and then hit him crash on the jaw, nose, and mouth. Asked to see the face of his adversary, he found he could not, because it had a "Guy Fawkes mask on." The scene was repeated by request, and this time the "blinding rage" was absent "unless he does something extreme, such as jump on her." Then, "Oh! I can get it against Father! Oh! don't make me do that! I hit him, smash him to pulp, there, where Mother had phlebitis when I was 24." He lay on the couch and sparred away in mid-air, while his exclamations reached a climax of excitement and tears.

The case did not require to be taken much further into "deep" analysis. At succeeding sessions A. B. discovered, behind his own aggressiveness, fears that his father would in his turn attack him. He imagined himself a baby and his father lurching against him "as if in a sudden impulse of anger." Again, as quite a young child he had got a fish-bone stuck in his throat, and his father had apparently held his head under the tap as a remedy ("He might go on and I'd be powerless to stop him"). In reliving the incident he felt frustrated, hopeless, then acquiescent. Besides thus being at once an object and a source of aggressiveness, his father was associated with the forbidding of all pleasure. He had emphasized every risk in life, deliberately those of hitting and drinking (e.g., from public fountains), and by unintentional implication all those attendant upon personal desires. Oral pleasures had always been valued highly by this patient. Beneath his resentments against his father was much love for him, with many happy memories. But his father had been inferior in character to his mother, and A. B., with his weak character, deceptive jaw, and erring mouth, resembled his father.

The first beneficial effects of recapturing his "death wish" against his father was that A. B. developed a new efficiency at squash rackets. But after tracing all his fears to his complicated relations with his father—resentment, jealousy, identification in type, and underlying love—he felt that he could swallow as well as hit, and that, at least in the latter pleasure, there were few restrictions to the indulgence of his adult desires. He thereupon drank water without difficulty; and shortly afterwards he drank beer readily enough at his pre-marital bachelor celebrations.

A short review of the differences between adult and childhood aims closed the analysis at the 40th session. A. B. threw off the legacy with which the inability of his real father to lead him and to forgive and discipline his passions had left him. He was able to meet his adult requirements through a revaluation of aim and a reliance upon that "something more than Father" which chimed with his religious convictions.

Medical Memoranda

An Unusual Diphtheria Infection

Diphtheria infection of the mouth, anus, and genitals is not common, and its occurrence as a complication of childbirth and the puerperium must be rare. Faucial diphtheria in the newborn appears to be even more unusual. Rolleston (1939) was able to collect 12 cases (including only one personal case) of faucial diphtheria in the first two months of life. A clinical sequence of those two rarities is herewith recorded.

CASE HISTORY

Mrs. A., aged 24, was admitted to Thornton Isolation Hospital at 1.30 a.m. on July 29, 1941; temperature 101° F., pulse 144, respirations 28. She was extremely exhausted and pale, and looked gravely ill. She had been in poor health for some time. About July 26 she began to have discomfort in the mouth, followed by difficulty in swallowing and discomfort at the anus on the 27th. She was confined on July 28. Examination revealed an extensive thick grey membrane firmly adherent to the floor of the mouth, extending from the root of the tongue forward to the edentulous lower gum and also lining the sulcus between the gum and lower lip. The throat was acutely inflamed but showed no membrane. The submaxillary and submental glands were severely swollen. The anus and an area within a 2-in. radius were acutely inflamed and covered with thin grey slough or membrane. The membrane could be easily removed with a swab, leaving a raw wound similar to a burn a few days old. On each side of the vulva in the sulcus between the labium majus

and labium minus there were raised indurated areas of inflammation about 1 in. by 1½ in. covered with thin grey adherent membrane. Smears taken from the mouth showed no evidence of Vincent's angina. Swabs and pieces of membrane were later reported to reveal the presence of the true diphtheria bacillus.

At the time of admission 48,000 units of diphtheria antitoxin were given intravenously. On July 31 she was still dangerously ill. The buccal membrane was loosening. There was an area of deep inflammation in the right buttock. The vulvar membrane had now extended into the vagina and over the urethral meatus. There was retention of urine. Sulphanilamide 0.5 g. was given four-hourly and one pint of glucose and saline intravenously. On Aug. 5 she was still desperately ill, though the membrane in mouth and vulva had now cleared. She was given a transfusion of 18 oz. of citrated blood. Henceforth she improved steadily. The vulva did not heal until Aug. 18; the urine was not free from albumin until the 28th; her temperature did not settle until Sept. 9, and her pulse rate did not remain below 100 per minute until Sept. 15. There were no nervous complications. She was allowed up on Sept. 19 and was discharged on Sept. 22. Large doses of vitamins B and C and ferrous sulphate were given from the first week.

Mrs. A.'s baby, aged 7 days, male, was admitted on Aug. 4, 1941, with a history of nasal discharge since Aug. 3. On admission at 5 p.m. the baby's general health was fairly good; temperature 98° F. There was a napkin rash on the buttocks. The baby had a purulent nasal discharge and both tonsils were covered by white membrane. The cervical glands were slightly enlarged. 8,000 units of diphtheria antitoxin were given intramuscularly. A throat swab and a nasal swab each gave a culture of the true diphtheria bacillus of intermediate type. The throat was not clear of membrane till Aug. 6, and throat swabs were negative during the third week. In spite of the absence of nasal discharge from the second week, negative swabs from the nose were not obtained till Sept. 14. Apart from an intercurrent bronchiolitis on Aug. 30, which cleared in three days with sulphapyridine, the baby thrived, and was discharged on Sept. 16, having gained 2 lb. while in hospital.

A few days after the baby was admitted its aunt, aged 30, was also admitted suffering from faucial diphtheria. She gave a history of direct contact with the baby, and her infection also was of the intermediate type. She made an uneventful recovery.

Thornion, Fife.

JAMES B. FLEMING, M.D.

REFERENCE

Rolleston, J. D., and Ronaldson, D. W. (1940). *Acute Infectious Diseases*, 3rd ed., London.

Mastoiditis without Middle-ear Signs

The following case may be thought interesting enough to merit publication:

A girl aged 6 came to hospital on May 18, 1943, with a letter from her family doctor stating that she had had her tonsils and adenoids removed six weeks before, had had an attack of measles two weeks before, and that there was now a slight swelling behind the left ear.

Examination of the tympanic membrane showed that it was white and that the malleus was not even injected. A slight swelling was present behind the ear. Her temperature was 99.8° F. On May 19 I made an incision over the mastoid process and found the subcutaneous tissue much increased in thickness. I then performed a mastoid operation, dealing only with the mastoid and not touching the middle ear, but removing the bridge of bone over the external semicircular canal. On removing the bone over the antrum thick yellow pus flowed out in profusion. The bone over the dura in the upper and posterior angle of the wound was absent, and the dura itself was covered with granulation tissue. Further removal of bone showed that the cells of the mastoid down to the tip were full of thick pus. The bone over the lateral sinus was removed, and the lateral sinus was found to be normal; there was no pus in the middle ear. I treated the cavity with 1 in 20 carbolic acid followed by industrial alcohol, and then filled the wound with sulphacetamide (albicid) cream. Undermining the skin so that the thick subcutaneous tissue could fall into the wound, I sutured the skin completely except for a small aperture at the lower angle, into which I inserted a long and a short drainage tube.

The after-treatment consisted of the injection of 2 c.cm. of mercurochrome 5% in 20% alcohol four-hourly for three days, and acriviolet 1% in 20% alcohol four-hourly for one day, the tubes being removed on the fifth day. Sulphanilamide was given four-hourly every day till June 1, with one Benerva vitamin B₁ tablet, and half a teaspoonful of sodium bicarbonate, on account of the absence of bone over the dura, which was covered with granulations. After the tubes were removed the fistula was dressed with sulphacetamide paste and the wound was strapped once a day, and the patient was given six ascorbic acid tablets daily.

The evening temperature after the operation was the same as on admission (99.8°). On the second and third evenings it was 99° F., and during the rest of her stay in hospital was normal. She made an uneventful recovery, and was discharged on June 15, the twenty-seventh day after the operation.

The only explanation I can give of the normal tympanic membrane and middle ear is the presence of a tympanic dam, which Heath (1919) describes.

W. S. THACKER NEVILLE, M.D. Dub., F.R.C.S. Ed.

REFERENCE

Heath, C.-I. (1919). *Diagnosis and Treatment in Cases of Otitis Media*, p. 21. London.

Reviews

LECTURES TO THE LAITY

The March of Medicine. The New York Academy of Medicine Lectures to the Laity, 1942. (Pp. 217. 16s. 6d.) New York: Columbia University Press; London: Oxford University Press. 1943.

The March of Medicine is the title of the seventh series lectures given to non-medical audiences at the New York Academy of Medicine. The selected subjects—tuberculosis, medical psychology, and nutrition—are precisely those of topical interest to the educated public, and each of them admirably handled. Dr. J. A. Miller shows clearly how there has been the advance in knowledge of the pathology and clinical course of tuberculosis, and how intermittent has been the progress in control of the disease. Tuberculin, over-feeding, gold therapy, and various other methods have had their ups and failed; solid advance has chiefly been in the environmental factor and the intervention of the surgeon. X rays have greatly aided diagnosis, but have also revealed fresh difficulties in the way of its achievement. Despite all these drawbacks mortality was steadily falling until the outbreak of this war. That it should be rising again now proves the prime importance of environmental conditions. Yet "tuberculosis still confronts us as a major challenge."

Dr. Tracy Putnam's lecture on the brain and the mind is an interesting criticism by a neurosurgeon of T. H. Huxley's conception of man as a "conscious automaton." He shows that behaviourism yields meagre data compared with those of psychological procedures. Even the naive impressions and judgments of any untrained man are better able to predict what a given normal individual will do in a given circumstance than are the formulas at present deducible from what is known of the physiology and pathology of the brain. And Dr. Putnam points out, the exploration of the unconscious has still further widened the gap. This is followed by a lecture on the Freudian epoch by Dr. A. A. Brill, himself the product of that epoch in the United States. We all know how Freud's methods started from the study of hysteria; it is less well known how deeply he was influenced by the philosophy of Descartes. As a historical review of Freud's progress his lecture is excellent. Dr. Gesell makes a gallant if unsuccessful attempt to explain the genesis of genius, though he has some entertaining comments to make by the way on mental growth in childhood. Dr. Norman Jolliffe has an easier theme in the history of the B vitamins. We are glad to see that he gives the correct date—1906—for the first contribution from Gow Hopkins on "accessory food factors," as this is so often overlooked in the attention given to his later papers; also due recognition is given to Casimir Funk's crystallization and conception of deficiency diseases. Because Funk regarded vitamins as amine bodies, the importance of his generalization is often forgotten.

Dr. A. I. Carlson concludes the series by a talk entitled "The Newer Knowledge of Nutrition," and asks, "How much of it is knowledge?" He vigorously sifts the grain from the chaff. Like every scientific advance with a popular appeal the subject of vitamins has been clogged by a good deal of pseudo-science; endocrinology has only recently been able to purge itself of most of such encumbrances. His trenchant criticism of humbug and overstatement, which are apparently more rife in the U.S.A. than in this country, is salutary reading.

QUEEN CHARLOTTE'S TEXTBOOK OF OBSTETRICS

The Queen Charlotte's Textbook of Obstetrics. Sixth edition. By Members of the Clinical Staff of the Hospital. (Pp. 577; illustrated.) London: J. and A. Churchill. 1943.

With each new edition this book goes from strength to strength. The authors and publishers are to be congratulated on the excellence of the new and sixth edition, which ranks as one of the best textbooks on midwifery available in English. The teaching is direct, concise, and reasoned. The authors state what they believe and practise and why they believe so, and for the most part they teach sound orthodox obstetric principles and methods. The newly established diagnostic department at Queen Charlotte's is directed by Dr. E. R. Williams, who has rewritten the radiological section so

new edition. With the material at his disposal and the close co-operation of the clinical staff it is to be hoped and expected that important contributions will be made from this new department, especially on the subject of x-ray pelvimetry. Sections of the book which are exceptionally good deal with abortion, hyperemesis, sepsis, disproportion, abdominal pain, and the baby. There is one minor criticism. When methods practised at Queen Charlotte's are described they could well be supported by reference to results obtained at that institution. Results obtained elsewhere are irrelevant except as a basis for comparison. For example, in describing eclampsia and its prognosis reference is made to the report of the London Committee, 1922, in which the maternal mortality was recorded at the appalling figure of 22%, but no idea was given of how effective is the treatment the authors advise and practise. On the other hand, in discussing breech deliveries the hospital results are given. They are not good, and the section would have its value enhanced rather than weakened if this fact were freely admitted and methods by which results could be improved were discussed. It is not enough to assume and declare that "a relatively high proportion of stillbirths is unavoidable in cases of breech presentation." This is not the way of progress.

The posterior position is not well handled. As all who practise obstetrics are well aware, it is a common source of trouble to both the general practitioner and the consultant. Failed forceps, foetal deaths, foetal injuries, maternal morbidity and on occasions mortality, are so frequently due to the undiagnosed or even the diagnosed posterior position. For this reason one would expect a thorough discussion on the handling of such cases. The authors have taken the easy way out by dealing only with those cases in which full dilatation is present. They constitute a minority of those which cause trouble, and a fuller discussion of the subject is essential.

Apart from these minor points for criticism the book is a splendid one.

BIOCHEMISTRY

Laboratory Directions in Biochemistry. By Victor C. Myers, Ph.D., D.Sc. (Pp. 258, 18s.) London: Henry Kimpton.

The Dynamic State of Body Constituents. By Rudolf Schoenheimer, M.D. (10s.) Oxford University Press.

Laboratory Directions in Biochemistry is a collection of class sheets of the author's practical class in loose-leaf plastic binding. Approximately half of the 288 pages are left blank for the student's notes. There is no index, explanation of the directions is rarely given, and attendance at the author's lectures and demonstrations is assumed. The book is therefore of little value outside the author's school. There are illustrations of apparatus found in every laboratory however ill equipped—e.g., a basin and burette arranged for titration; and yet in a detailed description of the use of the du Noüy torsion balance, with references to the various parts by letter, the reader is directed to Morse's *Applied Biochemistry* for the illustration! The course is an extensive one, too long for medical students in this country and too medical for science students. The actual directions are clear, but usually they are just orders without explanation. This book is probably invaluable for the author's own students, but the reviewer cannot recommend it for use in this country.

The three Dunham Lectures incorporated in Dr. Schoenheimer's book give a clear and stimulating account of the recent employment of isotopes in the study of metabolic processes. The theme throughout the three lectures is, "All constituents of living matter, whether functional or structural, are in a steady state of rapid flux." The evidence is impressive. With the bibliography and index provided the book makes an excellent survey which can be confidently recommended to all interested in this topic.

A PERENNIAL

The Medical Annual, 1943. Edited by Sir Henry Tidy, K.B.E., M.D., F.R.C.P., and A. Rendle Short, M.D., R.S., F.R.C.S. (Pp. 432; illustrated, 25s. net.) Bristol: John Wright and Sons; London: Simpkin Marshall.

The *Medical Annual* for 1943 appeared in the second half of this year, and it is probable that the faithful many have already got their copies of this excellent yearly publication, edited jointly by Sir Henry Tidy and Prof. Rendle Short, supported by a first-class team of contributors.

Problems of war medicine and surgery are given full consideration. The subject of burns is dealt with in two full and excellently illustrated articles by Cecil P. G. Wakeley and by Sir Harold Gillies and J. B. Cuthbert. The former includes an instructive whole-page plate illustrating a section of the skin and the various levels of burn destruction. Gillies and Cuthbert show some remarkable pictures of "pollicization" of the index finger in a case in which a burn had destroyed the thumb. A well-documented article (there are 113 references) under the title of "Chemotherapy of Bacterial Invasion" is contributed by R. St. A. Heathcote, who gives a useful review of antibacterial products of fungi and of bacteria and of the sulphonamides. Major-Gen. L. T. Poole and Lieut.-Col. H. J. Bensted contribute excellent accounts of typhus and of yellow fever. These are but a few of the good things among much that is excellent. There are one or two points that might call for comment. We could not find any reference to sandfly fever or infective hepatitis, and perhaps space could be given every year to an article under the heading of "vital statistics." The very well written survey of "legal decisions" seems to us to be too long in these days of paper shortage. Another encroachment on paper is made by the list of appointments under the contributors' names at the beginning of the volume. Some of them, so to say, go all "Who's Who"; several modestly occupy two lines only with name and appointments; the longest is eleven lines, occupying just on 1½ in.

As all its readers know, the *Medical Annual* gives a fair amount of space to advertisements, thus affording useful information to the practising doctor, who possibly looks upon the inclusion of an advertisement in the *Annual* as carrying with it some mark of approval: if this is the case, we should like to see a little more sifting of the bad from the good.

Notes on Books

Dr. MYRTLE B. MCGRAW has usefully collected her studies of the past few years into one volume, and in *The Neuromuscular Maturation of the Human Infant* she tells in some detail the fascinating story of normal child development with reference to structural development of the controlling mechanism. Some of her work has already been noted in these columns, and it should be made clear that the present volume is a new book and not merely a collection of reprints, though it is obvious that the author has drawn widely on her previously published papers. Studies of neonatal behaviour, the development of neuromotor activities, and some aspects of early sensory development occupy the bulk of the book. The opening chapter on structural foundations of behaviour, based largely on the work of the late Dr. F. Tilney and of Dr. J. LeRoy Conel, is too compressed for readers unfamiliar with modern work on intimate brain structure. The final section, on maturation and learning, is full of interest for all concerned in educational theory and practice—of the pre-school child more particularly. The book concludes: "Neurologists tell us that man does not begin to use all the cells in the cerebral cortex. An optimum educational system may be able to tap some of these reserve neural potentials." Altogether this is a valuable contribution to the field of educational psychology in the early stages of life. It is published in this country by the Oxford University Press at 13s. 6d.

The Natural Development of the Child, by AGATHA H. BOWLEY, Ph.D., of the Leicester School Psychological Service, was noticed in these columns soon after it appeared in May, 1942, with particular commendation of the final chapter on children's reactions to the war. This chapter has been expanded in the second edition by some further material illustrating the spontaneous opinions of school children about certain aspects of the present war. The publishers are E. and S. Livingstone of Teviot Place, Edinburgh, and the price is 8s. 6d., plus 5d. for postage.

Oliver and Boyd Ltd. have published at 2s., on behalf of the Imperial Bureau of Animal Breeding and Genetics, a pamphlet, *Gestation Periods: A Table and Bibliography*, compiled by J. H. KENNETH. The table gives the average gestation period in days for each of the animals listed in alphabetical order, with minimum and maximum for some of the animals, and with each item there is a reference number to the corresponding entry in the bibliography. This compilation does not include any comments.

The Famine Relief Committee, 67, Brook Street, W.1, has published a pamphlet, price 2d., entitled *A Year's Work*, giving an account of efforts to obtain permission for controlled and limited food relief in German-occupied countries. The committee also issues a leaflet on the present food situation in Belgium by its Advisory Medical Council, of which Lord Horder is chairman.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY NOVEMBER 27 1943

EPIDEMIC INFECTIVE HEPATITIS

Among infections that have given rise to special interest during this war, epidemic hepatitis stands out. Various called "epidemic hepatitis," "common infective jaundice," "epidemic catarrhal jaundice," "epidemic jaundice," "acute infective hepatitis," the disease was attracting the attention of numerous investigators in the immediate pre-war period. In an article in this *Journal* in 1937¹ Hugh Barber observed that in recent years sporadic cases of what he called "infective hepatic jaundice" had been common in South Derbyshire. Before the last war Cockayne² had differentiated the milder type of epidemic jaundice from the severer form found in 1914 to be due to infection with the *Leptospira icterohaemorrhagiae*. Differentiation was carried further by Hurst and Simpson,³ who separated catarrhal jaundice from infective hepatic jaundice; but their view has since been challenged. From evidence that was summarized in an annotation three years ago⁴ it appears that the condition discussed is an acute hepatitis, is infective, and often appears in epidemic form. Perhaps, therefore, the most comprehensive descriptive term would be "epidemic infective hepatitis," the word "jaundice" being dropped, as it is but a variable symptom of the disease. At present the infective agent is believed to be a virus.

In his interesting description of an outbreak in the Lavant valley in Sussex J. L. Newman⁵ observed that unless the disease was known to be prevalent the diagnosis might offer difficulty. One of his patients, for example, began the illness with rigors, was delirious, vomited, and had a temperature of 100° F.; pneumonia was suspected, the patient becoming jaundiced on the fourth day. In other cases the early clinical picture may resemble that of meningitis. The onset may be gradual or acute, with fever, nausea, vomiting, abdominal pain, and leucopenia. According to Barber jaundice usually appears the day after the onset. In the cases recorded by Newman⁵ and by Evans⁶ jaundice appeared at any time from the first to the twenty-eighth day after onset, a not uncommon time being 7 to 9 days after. In a series of patients (about 180) described by Hallgren⁷ the pre-icteric period averaged about 6 days, with a range from 1 to 14 days. It is noteworthy that over 8% of his cases had rigors, and pains in the head and limbs were common symptoms. The icteric stage lasted about three weeks, and it was about three weeks from the onset before the temperature was normal. In some cases the serum bilirubin had not returned completely to normal by the end of three months. The higher

the serum bilirubin in the early stages, the longer the illness was likely to last. Loss of weight, which averaged about 2 kilos, was at its height in the third week, and it was some 7 weeks before weight was regained. Owing to the fact that these patients had tuberculosis it was difficult to determine the mortality, but it is estimated at less than 1%. As Evans⁶ points out, acute infective hepatitis often entails several weeks of invalidism, and he also noted that the red-cell sedimentation rate may remain elevated for some weeks after an attack—even a mild one. Cameron⁸ stresses the importance of treating the condition as a serious disease of the liver. In necropsies of four cases (not in his own series) he found microscopical changes of subacute necrosis in the liver, but no macroscopic or microscopical changes in the biliary tract of two of them. Most of these recent descriptions of the disease confirm the accurate observations made thirteen years ago by W. N. Pickles,⁹ who gave an account of 250 cases of "epidemic jaundice" in Wensleydale in the North Riding of Yorkshire. Pickles described a pre-icteric stage lasting from 4 to 10 days, with loss of weight, nausea, vomiting, and pains in the back and limbs as symptoms. In his cases the icteric stage usually lasted 14 days, but occasionally longer. In this paper Pickles refers to the surprise he felt when, as a newly qualified assistant, he encountered an epidemic of jaundice in 1910—a condition not referred to in his medical school or textbooks. His principal, however, informed him that frequent epidemics had occurred in his 30 years of practice, which shows that the disease has been with us for at least 60 years.

Among the points about which exact information is wanted are the incubation period, the duration of infectivity, the infecting agent, the method of spread, and measures of prevention. In his paper of 1930 Pickles concluded that the incubation period varied from 26 to 35 days, that the period of infectivity was probably short, and that the method of spread was respiratory from case to case. Apart from Glover and Wilson,¹⁰ who, as the result of their observations of an explosive outbreak in a small country town, gave the incubation period as 3 to 4 days, most observers agree that the period is a long one. Newman's⁵ instances of the schoolmaster, "Mr. Raven," who went to school while feeling ill and left the same day, infecting four children at school as well as his wife, made it fairly certain that incubation periods in these cases were 24, 29, 30, and 31 days respectively. An incubation period of from 3 to 5 weeks was given by McFarlan.¹¹ In the institutional outbreaks recorded by Hallgren the statistical range of the incubation period was 34 to 52 days, although periods as short as 28 days were actually observed. The duration of infectivity is uncertain. According to Lisney¹² patients are infective during the incubation period; Pickles believes that the infective period is usually short and that isolation of the sick person for a fortnight is long enough.

The observations of numerous careful workers show that infection spreads mainly as a result of contact. That cases appear in crops argues against water-borne or milk-borne infection. But only "the most casual contact" was noted

¹ *British Medical Journal*, 1937, 1, 67.² *Quart. J. Med.*, 1912, 6, 1.³ *Guy's Hosp. Rep.*, 1934, 84, 173.⁴ *British Medical Journal*, 1940, 2, 197.⁵ *Ibid.*, 1942, 1, 61.⁶ *Ibid.*, 1942, 2, 446.⁷ *Acta med. scand.*, 1942, Supplement 140.⁸ *Quart. J. Med.*, 1943, 12, 139.⁹ *British Medical Journal*, 1930, 1, 944.¹⁰ *Lancet*, 1931, 1, 722.¹¹ *Publ. Hlth.*, 1941, 65, 56.¹² *British Medical Journal*, 1937, 1, 703.

by Bashford,¹³ and Newman² points out the difficulty of explaining serial infection in families on the basis of droplet or air-borne infection. Evans,⁶ noticing the frequency with which nurses became infected by looking after patients, suggested that the virus may be present in faeces or urine. In this connexion Hallgren⁷ gives evidence of the spread of infection by contaminated water. Here the characteristic of the epidemic in a sanatorium with a population of about 550 was its explosive nature. When the local water supply was investigated it was found to be contaminated by a leak from the main sewer. When this contamination was brought under control the epidemic ceased. No case of jaundice or hepatitis was found among the pigs raised on the offal from the sanatorium kitchen, and indeed there is little evidence to support Andersen's suggestion¹⁴ that the pig may act as the animal host for an epidemic of infective jaundice. It may be recalled that in the water-borne epidemic of "catarrhal" jaundice described by R. Fraser¹⁵ the jaundice outbreak was preceded by an outbreak of gastroenteritis 2 or 3 weeks before, affecting practically all of 520 students. Hallgren also mentions that epidemics of jaundice in diabetic clinics may have been caused by inoculation with infected instruments in the laboratory. Bigger¹⁶ has suggested that epidemics of jaundice in V.D. clinics may be due to the transmission of the virus from patient to patient in the syringes used for injecting arsenic preparations. Nevertheless it should be remembered that patients in clinics come into close contact with each other, and that both diabetics and syphilitics have vulnerable livers. It seems, therefore, that infective hepatitis usually spreads from case to case, and also that occasionally the virus may find its way into the water supply, giving rise to explosive outbreaks of infection. In this connexion the efficacy of methods of water purification in controlling virus infections may well be reviewed.¹⁷

ANTIDOTES TO ARSENIC

There has lately been an increase in the number of patients suffering from symptoms of arsenical intoxication as a result of antisyphilitic treatment. The first published work which indicated the mechanism of arsenical poisoning was that of Voegtlin, Dyer, and Leonard¹⁸ in 1923; they showed that the action of arsenic on protoplasm was due to organic sulphur compounds containing the sulphur in the mercaptan or sulphhydryl form ($-SH$). Neoarsphenamine is probably converted in the body into the arsenoxide form, $RAs=O$, and Voegtlin and his colleagues showed that the action of arsenoxide on trypanosomes, both in the test-tube and in the living rat, was inhibited by adding sulphhydryl compounds such as cysteine or glutathione. Later the same workers¹⁹ demonstrated that the toxic action of arsenoxide for the rat itself was inhibited by the intravenous injection of glutathione in the reduced form. The toxic action was also lessened by feeding rats on a mixture of glutaminic acid and cystine, which are the

constituents of glutathione. The conclusion from these observations is that when compounds containing sulphhydryl groups are administered, arsenic which is present in the body combines with these sulphhydryl groups rather than with the sulphhydryl groups of protoplasm.

These observations are probably related to the demonstration by Messinger and Hawkins²⁰ in 1940 that a meat diet is very effective in protecting dogs against the toxic action of arsenic on the liver, and that a fat diet, on the other hand, conduces to toxic effects. For example, one dog eating a high fat diet became toxic and inactive with a high icteric index after the injection of 0.04 g. per kg. arsphenamine. When a protein diet was substituted the icteric index fell and the dog became active. Three more arsphenamine injections were then given, but in spite of these the bilirubinaemia fell and the dog remained well. It was then put back on the fat diet, when the icteric index rose from 2 to 21 units without more arsphenamine. A protein diet has similarly been shown to protect the liver of a dog against chloroform, and it is the sulphur-containing amino-acids in the protein which give the protection²¹; it may be these amino-acids which protect against arsenic. It should be remembered that casein contains relatively much cystine.

A new approach has recently been made by Sandground and Hamilton,²² who were stimulated by the observation of Woods²³ that *p*-aminobenzoic acid inhibits the action of sulphonamides on bacteria. Sandground and Hamilton wondered whether *p*-aminobenzoic acid would inhibit the action of pentavalent arsenicals such as tryparsamide on trypanosomes. They looked for this action, failed to find it, but discovered that *p*-aminobenzoic acid greatly reduced the toxicity of large doses of tryparsamide, carbarsone, acetarsone, and other pentavalent arsenic compounds. For example, 1.5 g. per kg. carbarsone killed all rats; but if this dose was followed by oral administration of 0.75 g. per kg. *p*-aminobenzoic acid, repeated twice on successive days, all rats survived. Some protective action could be demonstrated with doses so low as 15 mg. per kg. The protection afforded by *p*-aminobenzoic acid was greatest when it was administered either together with carbarsone or one hour previously; the protection was less if *p*-aminobenzoic acid was given after the carbarsone. Similarly, *p*-aminobenzoic acid gave good protection against arsanic acid if it was given three hours before. Sandground considers that the protective action is due to *p*-aminobenzoic acid interfering with the reduction of the pentavalent arsenicals to the arsenoxide form, inasmuch as *p*-aminobenzoic acid has very little protective action against the trivalent arsenical compounds like neoarsphenamine, or against arsenoxides like mapharsen. Mapharsen, it is interesting to note, is rapidly replacing neoarsphenamine as an antisyphilitic remedy in the United States; probably more than half the cases in the U.S. Army are treated with mapharsen.

Still further work from another source has now been published. Goldstein, Stolman, and Goldfarb²⁴ state that

¹³ *Lancet*, 1934, 2, 1008.

¹⁴ *Acta med. scand.*, 1942, Supplement 140.

¹⁵ *Canad. Publ. Hlth. J.*, 1931, 22, 396.

¹⁶ *Lancet*, 1943, 1, 457.

¹⁷ See Annotation, *British Medical Journal*, 1943, 1, 545.

¹⁸ *Publ. Hlth. Rep.*, Wash., 1923, 35, 1882.

¹⁹ *J. Pharmacol. exp. Therap.*, 1925, 25, 297.

²⁰ *Arser. J. med. Sci.*, 1940, 189, 216.

²¹ *Ibid.*, 1942, 203, 477.

²² *J. Pharmacol. exp. Therap.*, 1943, 78, 109, 203, 209.

²³ *Brit. J. exp. Path.*, 1940, 21, 74.

²⁴ *Science*, 1943, 88, 245.

methyl chalcone of hesperidin reduces the toxicity of mapharsen for rabbits. These workers were concerned to find a remedy for the encephalopathy which has occurred in 1.3% of patients treated for syphilis with mapharsen by the rapid 5-day method. Goldstein and Stevenson observed that mapharsen in large doses damaged the brain capillaries of rabbits, and Goldfarb proposed the use of an aqueous extract of whole lemon to prevent arsenical encephalopathy. Lemon was believed to contain the factor diminishing capillary permeability known as vitamin P. Later a chalcone of hesperidin (a vegetable dye having vitamin P activity) was isolated from lemon peel, from which was prepared a methyl chalcone. Goldstein and his colleagues have now used this methyl chalcone in conjunction with mapharsen, and state that it gives some protection against the toxic effect of large doses of mapharsen. Mapharsen in doses of 8 mg. per kg. twice daily for 4 days killed 13 out of 30 rabbits. If, however, the methyl chalcone was given intravenously daily for 7 days before and for 4 days during the mapharsen injections, in doses of from 10 to 30 mg. per kg., then only 3 rabbits out of 30 died. These experiments are, however, still in the preliminary stage.

Of the three lines of work described, the first seems the one most likely to have a clinical application, though the second might also be tried. Both compounds, like cystein, containing sulphhydryl groups and *p*-aminobenzoic acid are fairly easy to obtain, and both might be tried as remedies for arsenical dermatitis or for arsenical jaundice. Let us hope that this is being done.

MEDICAL HISTORY OF THE WAR

Sir Arthur MacNalty's paper on the Official Medical History of the War,¹ like all his writings, is both scholarly in substance and literary in form. That he should be editor-in-chief of the projected History is one good omen of success in an undertaking all the prognostic signs of which are not equally encouraging. The scale of the plan is vast: the medical history of the last war, which was mainly a history of the R.A.M.C., ran to 12 volumes:

History of this war is to cover not only the three fighting Services but the medical civilian services as well. There are few human activities of medical interest in which a state of "total" war does not affect, the programme envisages a virtually complete medical history of the civilian population of Great Britain and Northern Ireland as well as of the fighting Services in all parts of the world through a period inevitably longer than 1914-18. This suggests a series of volumes in comparison with which the 12 volumes edited by Sir William Macpherson will seem curt. The youthful Macaulay said of a voluminous author: "Such a book might, before the deluge, have been considered as light reading by Hilpa and Shallum. But unhappily the life of man is now three-score years and ten; and we cannot but think it somewhat unfair in Dr. Nares to demand from us so large a portion of so short an existence." But nobody expects that any individual will read the whole series; the object is, presumably, to lighten the labours of specialists who must otherwise consult original documents, some of which will

be inaccessible and others destroyed. It might therefore be suggested that many items of the programme ought to be treated by the official writers rather in the spirit of guides than of formal historians. For instance, the history of civilian mortality rates during the war must be written by the expert staff of the General Register Office. Now, reasons of alleged security have restricted the literary output of the General Register Office; but, sooner or later, all the facts must be set out and commented on in the regular serial publications. No doubt a competent person could use this material to compile a volume of the History, but that would mean not only great repetition but a presentation of the facts out of the appropriate setting. A fascicule, rather than a solid volume, consisting of an annotated bibliography (including manuscripts as well as printed sources), would in our view be the appropriate method. This is probably true of other parts of the programme. It is easy to make the better enemy of the good. One recalls Mr. Casaubon of *Middlemarch*. We have no doubt at all that the editorial committee are as learned as and much more intelligent than George Eliot's character, but it is possible that by 1956 (the last volume of the medical history of 1914-18 appeared in 1931) interest in the details of the present war will have waned; it might even be that they did not seem to have much relevance to future wars. If so, general readers would only be attracted by the merit of the writing. The song is always of arms and the man. Let us at least hope that the editor-in-chief, or some colleague with a comparable literary gift, will write one volume which will convey a general impression. Experts have decided that J. F. Green's little book contained various errors and did not give a wholly correct account of forces and tendencies. Macaulay has been convicted of still graver faults. But most of us feel more grateful to Green and Macaulay than to the learned contributors to accurate but much longer and far duller works by specialists.

TRICRESYL PHOSPHATE POISONING

In a small popular handbook of to-day¹ there is a description of the "Plastic Man" in the future "Plastic Age" from his nursery full of bright unbreakable objects, through a dustless, rustless world, to his final hygienic enclosure in his inexpensive moulded coffin. Already the "plastics" and "plasticizers" used in modern industry are legion. They enter into the manufacture of such diverse articles as gun turrets and babies' rattles; machine housings and lipstick cases; aircraft dopes and microscope mounting materials. Their smooth clearness reveals no hint of danger to those who either make or use them. Yet the raw materials of many plastics are dissolved in solvents of known and unknown toxicity, and added to them are complex lubricants, or plasticizers, of similar potential capacity for injury. One such plasticizer—tricresyl phosphate—has recently been incriminated as both a system poison and an external irritant.

Tricresyl phosphate and the closely allied compound triphenyl phosphate belong to the chemical families known as the aliphatic and aromatic esters. They are of low volatility, and their function as plasticizers is that of increasing the stretch and decreasing the brittleness of plastic materials. One of the first intimations of the toxic action of tricresyl phosphate arose from its use as a denaturant in a cheap alcoholic extract of Jamaica ginger—the "jake beverage" of prohibition days. An outbreak of "griping paralysis" in Cincinnati in 1930 affected more than 200

¹ J. R.A.M.C., 1943, 81, 51.

² *Plastics*, by V. E. Yarsley and E. G. Couzens, Pelican Books, 1941.

people within six months. A similar outbreak in Durban in 1937 was traced to the use of cooking oil transported in drums which were believed to have been used for storing commercial plastics: the oil was found to contain 0.2 to 0.3% of tricresyl phosphate. Yet another source of poisoning by ingestion of tricresyl phosphate has been found in "apiol pills" containing 28 to 50%. In 1942 the occurrence of a few cases showing similar symptoms in workers employed in the manufacture of tricresyl phosphate led to an Order under Section 43 (3) of the Workmen's Compensation Act adding poisoning by tricresyl and triphenyl phosphate to the Schedule of Industrial Diseases.

The symptoms of systemic tricresyl phosphate poisoning closely resemble those of infantile paralysis, but are in fact due to severe polyneuritis with disability especially in the motor functions. An initial few days of gastro-intestinal disturbance, which represents the accumulation of a final paralyzing dose, is followed by a latent period of eight to twelve days, during which there is believed to develop a hyperplastic fibrosis of the smaller arteries and capillaries, and finally paresis, affecting first the calf muscles and later the intrinsic muscles of the hands. The gait has a typical "slapping" character, and there are numbness and tingling of the feet and hands. Recovery is slow. Often there is little change up to eighteen months, and residual paralysis after three years is not uncommon.

Even more recently suspicion has fallen on tricresyl phosphate as the causal agent in a form of dermatitis associated with the wearing of synthetic tortoiseshell spectacles. This takes the form of itching and serous discharge behind the ears, with slighter reactions over the bridge of the nose and at points of contact with the side-pieces. In similar cases reported by Berkhoff² in 1938 it was believed that the irritant was tricresyl phosphate used as a plasticizer in the synthetic tortoiseshell. Some amateur medical detective might perform a service to humanity by following the trail of the spectacle frames from patient to supplier, from supplier to manufacturer, back to the original plastic and plasticizer. The final tracing and enumeration of all articles made by this particular process might lead to the elucidation of many mysterious cases of sensitization dermatitis of unknown origin.

PATULIN AND THE COMMON COLD

The great therapeutic success of penicillin has led to the examination of hundreds of mould species for their capacity to produce similar antibacterial agents. A large number, particularly of the genera *Penicillium* and *Aspergillus*, have been found to produce such agents. But without exception they fall short of penicillin both in bacteriostatic power and in freedom from toxicity. They belong to two main classes: those which, like penicillin, act almost exclusively on Gram-positive bacteria, and those which act equally on Gram-positive and Gram-negative. H. Raistrick has identified a large number of these substances, and has chemically identified and even synthesized some of them. They are readily produced, since the yield from mould cultures is large and stable: these are advantages over penicillin which would facilitate therapeutic use should any such scope be found for their employment. It is such a mould product which is now acclaimed for a totally unexpected purpose—the cure of the common cold. The circumstances in which this discovery was made are strongly reminiscent of those which, originally led to the identification of penicillin itself, both involving a large element of chance which might have gone for nothing without the

vision and capacity to seize it. A supply of patulin, the antibacterial derivative of *Penicillium patulum* Bairier, had been sent to the laboratories of the Imperial Cancer Research Fund for therapeutic tests in cancer. We are not told the results of any such tests, but W. E. Gye was suffering from a severe cold when the material was received, and tried a solution of it as a nasal douche with marked relief. Some of his colleagues having confirmed this effect in their own persons, a large-scale clinical trial was carried out by W. A. Hopkins at a Naval establishment. Here sufferers from colds were treated either with a solution of patulin in phosphate buffer or with phosphate buffer solution alone, the subjects in no case knowing that any control material was being used, while in some experiments not even those in direct charge of the treatment knew which solutions were active and which not. It was found best to classify results simply into "cured within 48 hours" or "not cured": they varied somewhat during the three months covered by the study, but the mean figures for the whole period were 58% of recoveries in treated cases, and 9.4% in controls. These clinical observations, together with an account of patulin from the chemical point of view by Raistrick and his colleagues, and information about its other biological properties, have now been published (*Lancet*, Nov. 20, 1943, p. 625) in a symposium which has naturally produced loud echoes in the lay press.

The main impression which these disclosures produce is one of astonishment that a substance with these properties should have any such action. Patulin is toxic: 0.5 mg./20 g. intravenously kills 65% of mice, and a concentration of 1 in 2,000 inhibits phagocytosis. The concentrations inhibiting the growth of various bacteria, Gram-negative as well as Gram-positive, are mostly between 1 in 33,000 and 1 in 100,000. The concentrations recommended for therapeutic use are 1 in 5,000 or 1 in 10,000. It is true that this strength leaves a favourable margin from both points of view—toxicity and bacteriostasis—but it is a very narrow margin. It has also to be remembered that the majority of colds are believed to be due to a virus, and that there is no evidence whatever that any mould product has an inhibitory action on the growth of viruses. That the effect on the cold is directly antimicrobial is therefore perhaps improbable; it is certainly unproved. A merely vasoconstrictor or antisecretory effect seems unlikely in view of its duration: six hours of complete relief from symptoms is a common experience after one application, and four-hourly repetition is all that has been found necessary. Nevertheless patulin clearly calls for investigation from the purely pharmacological point of view. What other type of action it may have is simply an interesting field for sheer speculation. While welcoming what is evidently a great advance, offering the prospect at least of some relief from discomfort on an enormous scale, we would suggest that, besides the further clinical trials envisaged, serious attempts should be set on foot to elucidate the process involved. With better understanding it may prove to have even wider implications.

The authorities of the Royal Infirmary, Worcester, have set up a Hastings Memorial to mark the bicentenary of the hospital. The Council of the B.M.A. at its meeting on July 28 recorded its high appreciation of the proposal. The memorial takes the form of an overmantel in oak for the board room in which are incorporated the existing portrait of Sir Charles Hastings and the reproduction of his address delivered to the first meeting of the Provincial Medical and Surgical Association, which became the British Medical Association in 1856.

² *Arch. Derm. Syph.*, 1938, 33, 746.

RESPIRATORY TUBERCULOSIS

EFFECT OF THE WAR ON THE LENGTH OF THE INTERVAL BETWEEN NOTIFICATION AND DEATH

BY

E. LEWIS-FANING, B.Sc.Econ., Ph.D.

Of the Statistical Staff of the Medical Research Council

Among many factors that have been suggested as influencing the increase in tuberculosis mortality which accompanied the outbreak of the war is that of lowered resistance to the disease by those already infected. It is argued that if resistance were lowered to the point at which the average duration of the disease was shortened, this would tend to produce the higher mortality rates that were a feature of the 1940 and 1941 statistics.

Method of Investigation

The medical service of the Middlesex County Council, realizing the desirability of answering this question, offered for statistical analysis their records of fatal cases terminating in the years 1937 to 1941. The method of approach to the problem has been to compare the interval between notification

Analysis of the deaths in the pre-war period shows that the missing data were not distributed by age in the same proportions as the deaths officially recorded. According to official figures, 43% of the male deaths were at ages over 45, yet 72% of the male leakage occurred at these ages. Again, 20% of the recorded female deaths were at ages above 45, yet the female leakage was 41% in the same group.

Returns were submitted by each of the seven chest clinic or dispensary areas into which, during the period under review, the county was divided for the purpose of administering the tuberculosis service. The information supplied in each fatal case was: Sex, age at death, date first seen by the tuberculosis officer, whether diagnosis was of pulmonary tuberculosis or tuberculosis of other organs, and date of death. The analysis was restricted to deaths due to pulmonary tuberculosis, since there was not sufficient material from which to make satisfactory deductions in regard to the other forms. Two dispensaries supplied the date of notification instead of the date first seen; but exhaustive comparisons between the results given by these two areas as compared with the remainder showed no differences which could be ascribed to the distinction made.

The data were carded and the durations calculated to the nearest month. The frequency distributions in broad duration

TABLE I.—*Pulmonary Tuberculosis: Middlesex County Council's Data. Distribution of Fatal Cases according to Age and Duration.* Fatal Cases terminating in 1937-9 compared with those terminating in 1940-1*

Durations in Years	MALES											
	Age Groups (Age at Death)											
	Under 25		25-		35-		45-		55+		All Ages	
	1937-9	1940-1	1937-9	1940-1	1937-9	1940-1	1937-9	1940-1	1937-9	1940-1	1937-9	1940-1
Under 1	109 [%] (41)	78 [%] (41)	111 [%] (37)	77 [%] (39)	117 [%] (43)	78 [%] (40)	111 [%] (46)	87 [%] (45)	93 [%] (49)	78 [%] (47)	541 [%] (43)	393 [%] (44)
1-	124 (47)	85 (45)	153 (51)	90 (45)	111 (41)	81 (42)	100 (42)	69 (35)	73 (38)	65 (39)	561 (44)	390 (41)
5+	32 (12)	26 (14)	39 (13)	33 (17)	46 (17)	36 (19)	28 (12)	39 (20)	24 (13)	22 (12-6)	169 (13)	156 (17)
All durations ..	265	189	303	200	274	195	239	195	190	165	1,271	944
Percentage age distribution	20.8	20.0	23.8	21.2	21.6	20.7	18.8	20.7	14.9	17.5	99.9	100.1

Durations in Years	FEMALES									
	Age Groups (Age at Death)									
	Under 25		25-		35-		45+		All Ages	
	1937-9	1940-1	1937-9	1940-1	1937-9	1940-1	1937-9	1940-1	1937-9	1940-1
Under 1	161 (45)	128 (48)	119 (38)	90 (41)	47 (35)	44 (45)	57 (47)	41 (50)	384 (41)	303 (45)
1-	152 (43)	113 (43)	155 (49)	99 (45)	68 (50)	40 (41)	51 (42)	23 (28)	426 (46)	275 (41)
5+	44 (12)	25 (9)	42 (13)	32 (15)	21 (15)	13 (13)	13 (11)	18 (22)	120 (13)	83 (13)
All durations	357	266	316	221	136	97	121	82	930	666
Percentage age distribution	38.4	39.9	34.0	33.2	14.6	14.6	13.0	12.3	100.0	100.0

* Duration is defined throughout this paper as the period elapsing between notification (registration as a tuberculous person) and death.

and death for two periods in which death occurred: (1) the pre-war years 1937-9, and (2) the war years 1940 and 1941. Shorter average duration should appear in the second period if the postulate of the preceding paragraph is correct. The term "duration of disease" as used in this analysis is defined as the time elapsing between notification (or registration as an infected person) and death.

The data are not complete; only about 75% of the deaths recorded in the County of Middlesex by the Registrar-General during these five years appear to have come under the county council's scheme for the treatment of tuberculosis.* Of the remainder a number of persons escape notification as suffering from tuberculosis until after death; and a further proportion, who were notified, were treated privately and not under the county service. It can be shown that the proportion who escaped the net was constant in both periods, and hence the comparison is not invalidated even though the accuracy of the figures as measures of the absolute duration of the disease is somewhat reduced.

groupings, in both absolute and percentage form and distinguishing age and sex, are shown in Table 1; also the percentage age distribution at death of these fatal cases.

Findings

Age Distribution.—Statistical tests showed no significant difference between the age distributions in the two periods.

Duration Distribution (All Ages).—Considering first all ages combined, Table I shows that in the three years 1937 to 1939 1,271 deaths of males occurred from pulmonary tuberculosis among patients under observation by the Middlesex Tuberculosis Service, as against 944 in the two-year period 1940-1. In the pre-war period the duration was of less than one year in 43% of the deaths, as compared with 42% in the war period. Those with durations of more than one year but less than five years accounted for 44% in the pre-war and 41% in the war years; while there were 13% in the pre-war and 17% in the war years with durations ranging from five to twenty-six years. Similarly for females, 41% of the 930 deaths in 1937-9 and 46% of the 666 deaths in 1940-1 were of less than one year's duration; 46% as against 41% were of more than one but less than five years; and 13% in both periods.

* A similar test could be applied by all tuberculosis centres to furnish a rough guide as to the extent to which tuberculosis cases in any administrative area were seen by the official medical service.

recorded durations of more than five years. For neither sex were the distributions in the two periods different in the statistical sense; or, in other words, the changes which occurred in the percentages were not greater than one would expect to arise merely by chance.

Durations within the Age Groups.—Statistical tests* applied to the frequency distributions of the durations within the age groups showed that only at ages 45–54 for males and at ages 45 and upwards for females were they really dissimilar in the two periods. In both cases the proportion of patients with a duration of over five years increased in 1940–1. Certain features of the table were suggestive, but when tested statistically were found to be inconclusive.† These were: (a) an increase in 1940–1 in the proportion of male deaths with durations longer than five years, the amount of increase being small but persisting at every age group; and (b) a similar small but consistent increase in the proportion of female patients with durations of less than one year, accompanied by a decrease, except at ages under 25, in the proportion with durations of one to five years.

One other point is perhaps noteworthy even though it is hardly relevant to the present problem. The proportion of cases in which death occurred less than a year after notification showed for males the same relationship with age in both periods—namely, that it was lowest at age group 25–34 and thereafter increased with age. This was also true of the female patients

greater than could arise by chance. Neither instance is, however, evidence that average duration decreased with the outbreak of war, but suggests the contrary. Four significant differences occurred among the 12 pairs of means for the females, and they all arose in the duration group in which death occurred within one year after notification. But while three showed the average duration in 1940–1 to be less than in 1937–9, the fourth recorded an increase, and statistical tests indicated that no definite deductions could be drawn from these results.

Conclusions

The analysis has produced no conclusive evidence of any appreciable decrease in the average length of time between notification and death from pulmonary tuberculosis in the two years following the outbreak of war. Nor do the results, presented in three groups according to whether death occurred within one, five, or more years after notification, show the existence of any movement to indicate that during the war years a higher proportion of the deaths occurred at a relatively shorter interval after notification.

There is perhaps a suggestion, which statistically is unproved, that among female patients in the more acute group—those dying within a year of notification—the average duration was a few weeks less in 1940–1 than in 1937–9.

The conclusion must be, therefore, that there is no evidence, from the experience of the tuberculosis service of the County

TABLE II.—Deaths from Pulmonary Tuberculosis in the County of Middlesex. Average Duration, from Notification (or Date first seen by T.O.) until Death (in Months)

MALES												
Duration Group (in years)	Under 25			25-			35-			45-		
	1937-9	1940-1	Diff. S.E.	1937-9	1940-1	Diff. S.E.	1937-9	1940-1	Diff. S.E.	1937-9	1940-1	Diff. S.E.
Under 1 ..	5.2±0.30	5.3±0.37	+0.13	5.6±0.31	5.1±0.38	-0.96	4.8±0.29	4.5±0.35	-0.49	4.3±0.30	3.9±0.32	-0.98
1- ..	30.5±1.16	29.1±1.30	-0.86	29.6±0.99	33.1±1.32	+2.15*	30.8±1.27	31.2±1.45	+0.23	29.6±1.38	28.4±1.38	-0.61
5+ ..	80.8±4.24	111.5±10.91	+2.62*	101.0±6.76	92.6±6.69	-0.88	106.2±7.05	109.5±8.28	+0.31	102.4±6.96	111.2±7.26	+0.87
Duration Group (in years)										55+		
Under 1 ..	..	..	..	..	..	..	..	..	..	4.2±0.33	4.1±0.36	-0.25
1- ..	..	..	..	..	..	..	..	..	..	26.7±1.60	30.5±1.63	+1.68
5+ ..	..	..	..	..	..	..	..	..	..	110.5±9.35	128.5±13.63	+1.09
FEMALES												
Duration Group (in years)	Under 25			25-			35-			45-		
	1937-9	1940-1	Diff. S.E.	1937-9	1940-1	Diff. S.E.	1937-9	1940-1	Diff. S.E.	1937-9	1940-1	Diff. S.E.
Under 1 ..	5.8±0.23	5.0±0.28	-2.14*	6.5±0.31	5.3±0.34	-2.65*	4.6±0.46	6.0±0.51	+2.01*	5.3±0.45	3.8±0.43	-2.38*
1- ..	26.6±0.89	27.2±1.14	+0.41	29.3±1.00	29.6±1.32	+0.17	29.1±1.52	30.0±2.10	+0.35	26.4±1.74	28.3±2.50	+0.62
5+ ..	87.7±4.41	82.0±3.51	-1.02	88.6±3.57	91.1±4.34	+0.45	103.6±11.31	93.9±9.34	-0.66	114.2±19.12	106.0±10.36	-0.38

* = Significant difference.

in the more recent period, but in 1937–9 the smallest proportion occurred in age group 35–44.

Average Length of Duration.—A comparison between the pre-war and war years as regards average length of duration, in age groups, is shown in Table II. Separate indices are given for the duration groups used in Table I, since the mean for all durations combined appeared to be unduly influenced by a few long-drawn-out cases. The difference between each pair of means was tested for statistical significance, and the table shows the ratio of each difference to its standard error—15 values for males and 12 for females. Of the former, in only two instances was the ratio greater than 2, and only in those two instances could it be concluded that the difference was

of Middlesex, of a lowered resistance to the disease to the point at which duration was shortened, and hence no evidence that lowered resistance was a causative factor in the increase of tuberculous mortality which occurred in 1940–1.

My acknowledgments are due to the staff of the Middlesex County Medical Service for the assistance they have given in connexion with the preparation of this paper.

* The results of the statistical tests applied may be summarized:

Age Group	Males			Females		
	χ^2	Degrees of Freedom	P	χ^2	Degrees of Freedom	P
Under 25 ..	0.34	2	0.87	1.50	2	0.49
25– ..	1.93	2	0.37	0.93	2	0.62
35– ..	0.42	2	0.84	2.75	2	0.26
45– ..	6.00	2	0.05	6.81	2	0.03
55+ ..	0.10	2	0.96			
† Additive χ^2	5.84	10	approx. 0.60	11.99	8	approx. 0.20

Reports of Societies

CANCER AND THE YOUNG GYNAECOLOGIST

In his presidential address to the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on Oct. 15 Dr. MALCOLM DONALDSON addressed himself to the subject of malignant disease, more particularly from the standpoint of the younger generation of gynaecologists. He reminded them that cancer was a research subject calling for team work. In order to take his or her place in the team the young gynaecologist not only must be good in this special branch of practice and an expert surgeon but must have a considerable knowledge of radiotherapy, and be able to take an intelligent interest in advances in the histology, pathology, and aetiology of the disease.

After pointing out that all treatment of cancer, whether for private or hospital patients, should be carried out in a well-equipped and properly staffed institution, Dr. Donaldson dwelt upon the importance of early diagnosis and the value of educational lectures to the laity. Again and again it was said, "If only this patient had sought medical advice earlier we should have had a chance," but very little had been done to remedy this state of affairs. It was complained that the lectures organized by the British Empire Cancer Campaign were likely to turn people into neurasthenics; he was convinced that the exact opposite was true. As soon as people began to talk freely about cancer in the same way as they talked about other diseases it would be possible to do away with the fear and ignorance which were so largely responsible for the late diagnosis of cancer even in accessible sites. Unfortunately, even when early diagnosis was obtained, the good was often nullified by the fact that the patient's name was put on a waiting list, and, if the gynaecologist was not interested in cancer, the name would remain on the list for weeks before the patient was admitted. Cancer should be regarded as an acute disease, and waiting lists as a blot on civilization.

Dr. Donaldson went on to discuss the difficulties of treatment, in particular the assessment of the effect that treatment had on a growth. He drew attention to the criterion suggested by Spear and Glücksmann which would make it possible within a few weeks of the start of treatment to assess the effect on the primary growth. This method consisted in counting the entire cell population of an area of tissue taken from the growing edge of the growth before and after irradiation, and then determining the number of cells in each of four categories—namely, dividing, degenerating, resting, and differentiating cells. By plotting the results as percentages against time on a graph, it had been found that the curves showed certain characteristics by which the effectiveness of the irradiation could be judged.

The manner in which radiotherapy brought about certain results had been studied for many years. At one time it was thought that radium or x rays acted as a kind of cautery—"a red-hot poker," as one surgeon expressed it—but it was soon realized that cancer and other quickly growing tissues were more sensitive to radiotherapy than normal ones. The outstanding fact was that large growths were usually more difficult to eradicate than smaller ones, in spite of the fact that each individual cell in both classes of tumour received the same amount of irradiation; thus an indirect action was suggested, and this indirect action, in his view, was the more important factor. The young gynaecologist must search for an optimum dose of irradiation which would encourage differentiation. Possibly a large dose might have the opposite effect.

Treatment by radiotherapy had improved during the last few years, but some practitioners still used radium or radon with very little knowledge of the subject. The bad results of treatment, so often due to ignorance; did not appear at once, and mistakes in technique were therefore not so obvious to the practitioner as bad surgery would be.

The Cancer Act

After stressing the need for more research work on the subject of pain in advanced cases of cancer, Dr. Donaldson spoke finally of the future organization in which the young

gynaecologist was likely to play his or her part. He believed that the Cancer Act of 1939 would prove to be one of the very greatest benefits in helping to solve the cancer problem. The Act itself was short and rather unimpressive, but everything would depend on the way it was carried out. It compelled certain of the local authorities to submit schemes to the Ministry of Health which would provide efficient diagnosis and treatment for cancer patients within their areas. It did not require each local authority to have a separate scheme; on the contrary, powers were provided to compel the setting up of joint schemes where these were desirable. The Act also compelled local authorities to consult with the voluntary hospitals and other medical bodies within their boundary. Most of the treatment of cancer had been, and was being carried out in the voluntary hospitals, the Act provided a golden opportunity for the voluntary hospitals to get together and draw up schemes which would also embrace municipal hospitals and their services, and provide a first-class cancer organization. He believed that any large hospital which decided to adopt an isolationist policy would eventually lose all its cancer patients. Such schemes would provide for diagnostic and consultative centres, treatment after consultation between surgeon and radiotherapist, efficient follow-up departments, statistical departments, educational lectures to the public, and a number of other services in connexion with cancer. In a word, they would offer far more efficient routine treatment than was obtained at present by most patients, and an ever-increasing opportunity for planned research.

EPIDEMIOLOGY OF POLIOMYELITIS

At a meeting of the Section of Neurology of the Royal Society of Medicine on Oct. 21, with Brig. HUGH CAIRNS in the chair, the subject for discussion was the present position with regard to the epidemiology of poliomyelitis.

Prof. S. P. BEDSON said that up to a few years ago it was accepted that the primary focus of infection of poliomyelitis was in the nasopharynx. The virus of poliomyelitis was confirmed neurotropic—that was to say, it developed only in nerve cells. It was found in the central nervous system, the nasopharynx, in the stools, and nowhere else. Of the less artificial means of producing infection in the monkey the application of the virus to the olfactory mucosa was most likely to succeed. It had also been found that if the olfactory mucosa had been prepared by chemical treatment such as zinc sulphate, then the monkey became insusceptible to infection by the nasal route. No one to-day contested the accuracy of those observations, and it had to be admitted that the conclusions drawn from them were neither unreasonable nor illogical. Even the occasional spread of poliomyelitis by milk for which there was some evidence, was not out of keeping with the conception of this disease being spread by infective droplets, since in a condition like scarlet fever, which was droplet-spread disease, milk-borne outbreaks occurred. One feature of the epidemiology of poliomyelitis which did not fit in with this conception was the seasonal incidence. Poliomyelitis was a disease of late summer and early autumn, unlike droplet-spread infections, which were diseases of winter and early spring. In support of the alimentary tract hypothesis some experimental evidence that the monkey could be infected by injecting the virus into the intestinal submucosa, though some critics had held that the method was too artificial, gave indications of value in the aetiology of the natural occurring disease. Further work in recent years, however, had gone far to establish the view that infection entered by the alimentary tract. In the Toronto epidemic of 1937 a 1 per cent sulphate spray was given a thorough trial and was found to have no preventive value. Recent studies in America had shown that, with an adequate technique, the virus of poliomyelitis could be demonstrated in the stools in human cases with remarkable regularity. Moreover, the virus had been isolated from the sewage in communities in which poliomyelitis was epidemic. Five out of 19 specimens collected from sewage in the neighbourhood of hospitals where poliomyelitis cases were being nursed showed positive results. Samples collected beyond a certain distance from the hospital or after the epidemic had ceased, or samples examined more than 24 hours after collection, gave negative results, suggesting that the vir

destroyed fairly rapidly. The recognition of the importance of the alimentary tract as a portal of entry of infection necessitated a recasting of views on the epidemiology and on control measures.

Poliomyelitis in Malta

Prof. H. J. SEDDON gave a description of the poliomyelitis outbreak in Malta during the bombing and siege of the island. The people of Malta during this period had lived in cellars and rock tunnels under very overcrowded conditions in a state of poor nutrition; but the epidemic spread to the neighbouring island of Gozo, where there was no bombing and where there was plenty of food. The epidemic, which started just after the relief of Malta, affected about 400 children and about 60 men in the Services. The children affected were mostly in the 0-5 age group (368 cases); in the 6-10 age group there were only 23 cases, and in higher age groups it was negligible. The Services epidemic affected only British and Dominion troops; none of the Maltese troops were affected, and the epidemic began rather later than the Italian one.

The outbreak threw a great strain upon the hospitals; another difficulty was the fatalistic attitude of the parents, who would not bring their children up for examination, so that it was necessary to tour the island and examine the children in their own homes, which were often no more than holes in the rock. In these circumstances accurate muscle-charting was not possible. Through the co-operation of the Royal Air Force some dried duralumin was obtained, also some spongy rubber salvaged from German aircraft, and in that way a sufficiency of splints was provided. A severe outbreak of scabies complicated the picture, and it often took a long time to get the children clean enough for ordinary massage. About one-third of the children made a good recovery within four months. The incidence of serious crippling was between 25 and 33%. There were 27 cases of abdominal paralysis, and a 10% incidence of facial palsy. Unless the children were watched very carefully they were liable to develop scoliosis. The mortality due to poliomyelitis alone among the children was 3.52%, and due to poliomyelitis associated with other conditions 2.77%.

As for epidemiological factors, the epidemic occurred at a time when the worst of the overcrowding was past. Overcrowding did not appear to be a serious factor in causation. The families in which the cases arose were investigated from the point of view of overcrowding. In some cases there might be seven or even ten people together in one room at night, but the number of poliomyelitis cases occurring in these overcrowded families was quite small—almost invariably only one child per family. Sometimes three, four, or more persons had slept in the same bed as the patient. Therefore the overcrowding factor could not have been very important; otherwise there would have been a pandemic. It was also difficult to assess the factor of poverty. Fourteen of the families in the outbreak were in comfortable circumstances. The civilians, if they were lucky, were receiving 1,500 calories a day; the men in the Services, 2,300 calories. The incidence among the civilians was 1.48 per thousand of population, and the incidence among the men in the Services almost exactly the same, while the incidence on the island of Gozo, where there was plenty of food, the incidence was 1.31. Nutrition, so far as could be estimated, did not play an important part in the incidence of the disease. During the first three months of life there seemed to be passive immunity conferred by the mother; there was a higher incidence at six months, a still higher incidence at nine months, slight decrease at twelve months, a lower incidence in the second year, and a progressive diminution down to the age of 5, after which there were practically no cases at all. The youngest child in the family was most frequently affected, and the second youngest came next.

In the course of the discussion Prof. Seddon's remarks were supplemented by Dr. T. AGUS-FERRANTI, who said that the most constant clinical feature found in the histories of these affected children was periodic flushing. He was impressed by the number of mothers who told him that the children were flushed at one time and at another were deadly pale. Rigidity of the spine, which in the textbooks was said to be a common feature, was not observed. One of the most frequent complaints was of abdominal colic associated with uneasy micturition.

Correspondence

Sergei Sergevitch Yudin

SIR.—The publication of Prof. Sergei Yudin's paper in your issue of Nov. 6 prompts me to write a few lines about this dynamic personality. I trust that the fact that this communication on the treatment of gunshot fractures of the femur comes from the pen of a general surgeon will not induce my good friends who are masters of the orthopaedic art to pass on with averted eye, since Yudin's experience with fractures produced by enemy missiles is really immense. Until I recently made contact with him in Moscow I had in fact regarded this great surgeon as one whose special interest lay in gastric surgery; the orbit of his surgical activities is, however, wide and most catholic in its range. In peacetime he is served by 18 assistants in his great emergency hospital.

During the period of 14 years that he has been head of the Surgical Service of the Sklifassovski Hospital he and his assistants have extracted almost 5,500 foreign bodies from the oesophagus and bronchi with a mortality of just over 1%. Yudin had completed three months ago 89 operations of oesophagoplasty for severe simple stricture of the gullet; he and his assistants have performed nearly 5,500 operations on the stomach; there have been 100 operations of total gastrectomy for cancer with a mortality of only 30%. He has performed three hind-quarter amputations for sarcoma of the hip or upper femur; he has completed a number of plastic operations for congenital absence or atresia of the vagina, employing a segment of the intestinal tract for the purpose. The ulcers of the stomach and duodenum which the recent Anglo-American-Canadian Mission saw operated upon in this hospital possessed the most fearsome dimensions and an almost prohibitive fixity, yet resection was successfully carried out. The organization of "femur brigades," to which allusion is made in the article in your *Journal*, is due to him, and dates from the time that he became one of the consulting surgeons to the Red Army. The stupendous character and magnitude of the surgical work for which Yudin has been responsible are all the more wonderful when it is remembered that a gunshot wound of the spine in the last war confined him to bed for 9 months with paraplegia. An illness in the beginning of 1942 again restricted his activities, and his fervent patriotism chafed at his inability for a time to serve with the famous Red Army. Fortunately for the Russian wounded his health and his indomitable spirit and energy have been restored. The Royal College of Surgeons of England and the American College of Surgeons conferred an Honorary Fellowship upon this master-surgeon in Moscow; he is indubitably one of the greatest surgeons in the world to-day.—I am, etc.,

London, W.1

GORDON GORDON-TAYLOR.

Spinal Anaesthesia

SIR.—I feel attention should be drawn to the possible results which may attend the use of the spinal solution mentioned in Prof. Yudin's article on gunshot fractures of the limbs in your issue of Nov. 6. He advocates 1 c.cm. of 1% nupercaine (Russian synonym: sovkaïn). For spinal anaesthesia the strongest concentration of this drug available in this country is 1/2% (1:200). 1 c.cm. of this concentration produces anaesthesia of the lower limbs. If more extensive anaesthesia is needed I would prefer to increase the volume rather than the concentration until I have further proof that a 1% solution of this potent anaesthetic does not carry with it the possibility of permanent damage to nerve roots.—I am, etc.,

Oxford.

WILLIAM W. MUSHIN.

Anxiety and Hysteria

SIR.—In their admirable paper on "Anxiety States in the Navy" (Nov. 13, p. 603) the authors say: "We attach great importance to the necessity for regarding hysterical manifestations as but symptoms of the fundamental anxiety, and no attempt has been made to separate those cases which showed hysterical phenomena from the general mass of anxiety states." This is a welcome change from the statistical evaluations of

anxiety and hysteria which have poured out since the war—and before. These have always appeared to me somewhat light-hearted, if not entirely worthless, because they are compiled on the assumption that all psychoneurotics are either anxiety cases or hysterics. In point of fact the largest class is that of the anxiety-hysterics. These are the cases which predominate both in peace and in war because partially transferred anxiety is commoner than either pure anxiety or pure hysteria.

I submit, therefore, that we are obliged to adopt an elastic conception of the psychoneuroses rather than any rigid classification based upon psychopathological dogma. This is all the more necessary in that the evaluation of psychoneurotic symptoms is bound to be to some extent subjective. I submit, therefore, the following four points:

1. The pure anxiety case is devoid of dramatization and is relatively rare.
2. The pure hysteric dramatizes all her anxiety in its nascent state. She is also rare.
3. The predominant group is rightly described as anxiety-hysteria in that the anxiety is partially dramatized.
4. The symptomatology of the psychoneuroses partakes therefore of the nature of a spectrum, and any classification in terms of pure cases tends to be confusing.

And if we take this view we may get a clue to the question that Sir H. H. Bashford puts in his letter (p. 619). If peptic ulcer is closely associated with pure anxiety it follows that it is least likely to occur in hysterical patients. The ratio of pure hysteria in women as opposed to men may not be capable of objective demonstration, but we can at least say that it is much commoner. Hence we may reasonably infer that women escape a measure of peptic ulcer on account of their greater facility for transforming anxiety into hysterical manifestations.—I am, etc.,

London, W.1.

H. CRICHTON-MILLER.

Mind and Stomach

SIR.—If peptic ulceration is a psychosomatic disorder, perhaps an explanation of the different incidence in the sexes mentioned by Sir Henry Bashford in his letter is to be found in the different psychological outlook of men and women. For long ages the "weaker" sex has been regarded as especially liable to nervous upsets. Hysteria, as the name implies, was thought to be a disease peculiar to women. The "going into a decline" so common last century was probably always a feminine reaction to emotional mishaps. A nervous breakdown would be the current description. Nervous debility is most sympathetically regarded if it occurs at the menopause or, in a woman, as the result of war strain. The position for the man is different. He has an equally old tradition behind him, but in his case it is not softness but toughness that is expected. Nervous debility does not sound too good for him. Unconsciously—that is to say, unaware, and unable to control it if he were—he is driven to the somatic moiety of the mind-matter medal. A duodenal ulcer confirmed by x rays, and particularly if it has bled or burst, will solve many environmental difficulties, and with a minimum or no loss of face. Maybe the full emancipation of women, among other changes, will lead to a general levelling out and the disappearance of some of these sex differences.—I am, etc.,

London, S.W.1.

E. GALLOP.

SIR.—Sir Henry Bashford (Nov. 13, p. 619) says: "The national and international environment during the last twenty-five years has been the same for both sexes, and it would be difficult to argue that women are less exposed to the ordinary stresses and strains of everyday life than men. If there is a strong psychological factor at work in the causation of peptic ulceration, why are women so relatively immune?"

But are "ordinary stresses and strains" by themselves often causes of illness? It is true that Davies and Wilson (*Lancet*, 1937, 2, 1531) found that "events" preceded peptic ulceration in 84% of a series of 205 patients. These events were of three main classes—changes of work, financial difficulties, or illness or death of a member of the family. But they also found that 78% of the same series of patients had an unusual mental tension. Wilson (*Brit. J. med. Psychol.*, 1939, 18, 112) described the main basis of this mental tension in a series of 50 patients who had had haematemesis as a need for dependence, often

driven by fear into an aggressive and exaggerated independence. Surely the usual early upbringing of boys, with its emphasis on the suppression of emotions of dependence in the idea of "manliness," is a more likely source of this form of tension than that of girls, who are allowed to keep much their dependence and to express more freely the emotion natural at that age.

Whether or not this may be a reason for the relatively greater incidence of peptic ulceration in males than females there is no doubt that problems of adjustment to personal relations during the first five years of life differ greatly between the sexes.

The main question raised by Sir Henry's letter is whether when we acknowledge (as is now so common) the "psychic," "nervous," or "anxiety" factor in this or that disease we mean mere worry on the conscious level or morbid and precipitated perhaps by conscious worry, but exaggerated reaction by reason of an abnormal state of tension rooted in the unconscious mind.—I am, etc.,

Aylesford, Kent.

E. P. EDMOND.

Functional Dyspepsia

SIR.—Sir Henry Tidy (Oct. 16, p. 473) arrives at the conclusion that "men suffering from non-organic dyspepsia in many cases make useful soldiers providing they are detained too long in hospital. Cure of symptoms should be attempted. An excess of medical attention and investigation in exaggeration of symptoms and repeated admission to hospital." He gives as evidence for this statement the returns of diagnoses of Army personnel on discharge from Army for a given period in 1941. These figures show 0.03% of men were discharged from the Army under heading of "Non-ulcer Dyspepsia" and 42% were discharged from hospital with the same designation. He repeatedly emphasizes the bad effects of treatment upon this group, and points out that wide experience shows how easily they relapse on return to duty.

He indicates that a certain number of these men are fit to be useless in their units, and consequently are discharged from Army with the label of psychoneurosis. Unfortunately he does not give figures, which, if available, would be of considerable support to his thesis. Are "follow-up" figures available for non-ulcer dyspeptics discharged from hospital? He finds some interesting similarities between non-ulcer and ulcer dyspepsia. Approximately the same percentage have a history of similar symptoms in civil life. The sex ratio is also maintained, although the preponderance of males is greater in the ulcer group. Surely there is need for much further observation and investigation, possibly better conducted in the unit than in hospital.

In his 19% of patients with peptic ulcers whose symptoms began in the Army the average length of history was 18 months. This does not indicate that medical officers referred cases for special investigation without good cause. It is most unlikely that unit treatment of the non-ulcer group is materially different from those with ulcers. Better reasons for the earlier reference of dyspeptics to hospital in military life opposed to civil life are given in this paper.

Finally, what are the distinguishing features of a functional dyspepsia "organic in the sense of disturbance of function but not a psychoneurosis, in which there is an absence of recognizable anatomical changes or demonstrable disease in the stomach and duodenum and elsewhere in the body"? Any of the cases which have been produced by an excessive therapeutic zeal belong to this group?—I am, etc.,

A. S. THORLEY,
Major, R.A.M.C.

No. 2 Army Selection Centre.

"Duodenitis"

SIR.—In his authoritative article on peptic ulcer and dyspepsia in the Army (Oct. 16, p. 473) Sir Henry Tidy expresses concern over the term "duodenitis," but I am afraid that his proposal is too late and that the expression, however unsuitable, must come to stay unless someone supplies quickly a more appropriate word. I have been hoping that someone would come forward with a satisfactory definition. I do not feel able to do this myself, but on the occasions when I have employed the term, always, I hope, in inverted commas, I have intended

g: "I have spent a humiliating and profitless examination of this patient's duodenum; at the first examination complete pyloric spasm, which could not be overcome by alteration of position or pressure. On re-examination 30 minutes later, the stomach was nearly empty, overcoming the reluctance of the patient, a second examination. At irregular and infrequent intervals barium spurt rapidly through a contracted cap, but I do not at the deformity shown was constant, and on rare occasions I saw the cap dilate apparently at each time I was taken by surprise. Pressure causes discomfort. I have taken numerous films in various positions; none of them shows any barium in the duodenum. I have a compression device with quick change from fluoroscopy to radiography, but that shows no filling of the duodenum: I cannot pass the duodenal cap as behaving as if it showed a normal silhouette, for what on a few fleeting occasions, but I cannot show evidence of ulceration." This is an exhausting performance if it happens two or three times during a day, and at the end of it to be able to make use of a medical term such as "duodenitis"; but surely, in producing the telling phrase, we, or even more colleagues, could introduce something more.

The radiological investigation of the duodenum, with its difficulties in providing satisfactory evidence, is noted by our colleagues, and I regard this as a thick-set muscular male as one of the least satisfactory enterprises in ordinary radiological etc.,

CHARLES WROTH.

"Atypical Pneumonia" or "Pneumonitis"?

1. "Primary atypical pneumonia," which I have designated "P.A.P.," is being increasingly employed as the common condition of benign inflammation of the lung. This disease has been well known to clinicians for more than ten years, but it has not been generally recognized. It seems possible that it should come to be accepted as the official designation and for this reason it is desirable to consider appropriate to fulfil this purpose. "Primary" taken in conjunction with "pneumonia" supplied, for clinical experience shows that there is a general one or it originates in the upper part of the consolidation in the lung is merely an extension of this same condition has been described as "atypical" or "febricula," and the frequency of its use has only been recognized since the wholesale use of the word. Often there are no abnormal physical signs or at the most the signs of bronchitis. The condition "atypical"? In this context the word that the disease is closely allied to lobar pneumonia is far from the truth, for the two conditions are distinguished at a glance; the respiration rate is greatly increased, whereas in "P.A.P." it is normal. In fact the disease shows a clear-cut clinical entity. It is possible that a similar condition from a variety of infections, both bacterial and viral, may be that more than one cause will be responsible for this syndrome. There is an investigation into the results of chemoprophylaxis of cases; it seems clear that most cases are due to sulphapyridine, but it is possible that it does.

"Pneumonia" conveys the idea, both to the public, of a serious disease which has a high mortality if left untreated. The use of this word is therefore a misnomer. The use of this word is therefore a misnomer. The use of this word is therefore a misnomer.

entity concisely and appropriately. It is possible that increasing knowledge of the cause of the condition may eventually suggest a better term, but this is a matter for the future to decide.—I am, etc.,

London, W.1.

JAMES MAXWELL.

Vitamin B Deficiency

SIR,—We take the opportunity of replying to Dr. G. H. H. Benham, who criticizes our article on vitamin B deficiency (*Journal*, Oct. 23, p. 503) in your issue of Nov. 13 (p. 619).

1. Dr. Benham complains that in our italicized list of symptoms common to psychoneurosis and vitamin B deficiency we specifically omit diarrhoea, which to him seems inexplicable, because "diarrhoea is such a cardinal feature of the disease [pellagra] and so important in diagnosis." May we point out that it is not diarrhoea but constipation which is described as a constant manifestation of a moderate deficiency of the vitamin B complex and of vitamin B₁₂? Dr. Benham is doubtless confusing the symptoms of mild vitamin B deficiency with those of frank pellagra, which is rarely seen in this country. Although the general symptoms of pellagra are summarized in the textbooks by the three D's—diarrhoea, dermatitis, and dementia—these may be absent in the early stages. Diarrhoea is by no means a cardinal feature of the disease in its mild form. On the contrary, the presenting complaints of the potential pellagrin are often constipation, anorexia, dyspepsia, and a sore mouth and tongue—the *pellagra sine pellagra* of former writers.¹ It is important to emphasize that constipation may be present in the early stages of pellagra and that diarrhoea is only diagnostic in the late and advanced stages, which are rarely seen in Britain. Often diarrhoea and constipation alternate. To wait for the three D's is to delay diagnosis. A recent survey² of children in several pellagra families in the United States revealed that constipation was a common symptom.

Dr. Benham also calls us to task for omitting the condition of the bowels of our patients. Constipation and diarrhoea are such relative terms and used so loosely by hospital patients that little reliance can be placed on their statements in this respect unless the conditions are gross. Thus many a patient thinks he is constipated if he does not evacuate daily. It is only when stools can be inspected that the terms constipation and diarrhoea are worth noting.

2. We agree with Dr. Benham that other factors besides a marginal diet may precipitate deficiency disease. In fact we have stated that some of our patients suffered from lack of appetite and nervous dyspepsia, which would reduce further the intake and absorption of vitamins. Dr. Benham asks why one patient develops pellagra while another on the same diet does not. Such individuals are on a marginal diet, just above that supplying the minimal requirements of certain vitamins sufficient to prevent deficiency disease. A condition may occur in one patient and not in another, calling for an increased requirement of one or more vitamins (e.g., infection, hyperthyroidism, pregnancy, increased physical exertion); or resulting in diminished intake or absorption (e.g., gastro-intestinal disease, diarrhoea, anorexia); or interfering with utilization (e.g., liver disease, alcoholism); or increasing excretion (diuresis, pregnancy). One or more of these factors just tips the balance in favour of avitaminosis and deficiency disease. It is well known that many Chinese women appear normal in early pregnancy, but are often in *extremis* at the end from deficiency disease.³ According to modern conceptions, malaria, ankylostomiasis, chronic bacillary and amoebic dysentery, and intestinal tuberculosis are predisposing factors in tropical pellagra.⁴ Beriberi certainly seems more prevalent in malarial districts.⁵ Fox⁶ also points out that African natives do not develop scurvy on a diet low in vitamin C in the absence of precipitating factors (e.g., infection).

3. Dr. Benham states that psychopathologically there is no distinction between psychoneurotic patients and those we have described. He postulates early organic cerebral changes in both. Has he incontrovertible histopathological evidence that such changes do occur, or is this just inference from studies made on the brains of patients with chronic dementia? We know of no reported case of mild vitamin B deficiency (we exclude fatal pellagra) in which histopathological changes in the brain

have been demonstrated. Our primary concern was not with the histopathology of vitamin B deficiency but with the recognition of its oral and mental manifestations as an aid to early diagnosis. Patients suffering from this condition need never reach a hospital for nervous diseases—sometimes it is a mental hospital—if it is recognized and treated early enough, not by sedatives or psychotherapy but by diet and appropriate vitamin therapy.—We are, etc.,

Wellcome Research Institution, London, W.1.

A. G. CLARKE.
F. PRESCOTT.

REFERENCES

- ¹ *Proc. Mayo Clin.*, 1939, 14, 787; 1941, 16, 433.
- ² *Amer. J. med. Sci.*, 1939, 198, 198.
- ³ *J. clin. Invest.*, 1930, 10, 153.
- ⁴ *Amer. J. med. Sci.*, 1940, 200, 757.
- ⁵ *Arch. intern. Med.*, 1942, 69, 721; 1943, 71, 38.
- ⁶ *Amer. J. Physiol.*, 1942, 137, 731.
- ⁷ *J. Nutr.*, 1942, 24, 585.
- ⁸ Manson-Bahr, P., *The Dysenteric Disorders*, London, 1943, p. 331; Harris, S., *Clinical Pellagra*, St. Louis, 1941, p. 290; *Med. Clin. N. America*, 1943, 27, 390.
- ⁹ *J. Amer. med. Ass.*, 1938, 111, 584; *Amer. J. med. Sci.*, 1938, 196, 461.
- ¹⁰ *J. Obstet. Gynaec. Brit. Emp.*, 1942, 49, 614.
- ¹¹ Manson-Bahr, P. See ref. 8, p. 329.
- ¹² Cowgill, E. R., *The Vitamin B Requirement of Man*, New Haven, 1934, p. 16.
- ¹³ *British Medical Journal*, 1941, 1, 311.

Congenital Jaundice in a Man aged 77

SIR,—I have just seen a man who has been more or less strikingly jaundiced all his life and who was 77 years of age on Nov. 25. He enjoys good health, has hardly ever required medical aid of any kind, and continues at work—helping a married son with whose family he lives. I first examined him (in connexion with a life assurance question) in 1917, and from time to time have demonstrated his case at the Royal Society of Medicine (*Proceedings*, Clinical Section, 1917, 10, 13; 1928, 21, 3; 1938, 31, 39). He has scars from leg ulcers (1910), considerable deafness (old otosclerosis), and slight nystagmus. The blood bilirubin has, of course, been found in excess in the blood serum (negative direct Himmans van den Bergh reaction), but the urine has always been found free from bilirubin and from excess of urobilin and urobilinogen. There has never been any anaemia or enlargement of spleen or liver. No abnormal fragility of the erythrocytes (towards graduated sodium chloride solutions) has been discovered. The size and shape of the erythrocytes have never been sufficiently studied to enable one to exclude excess of spherocytes. Anyhow, the case seems to be a very unusual one of congenital haemolytic (acholuric) jaundice, arising doubtless from a germ cell mutation—possibly a new one, as there is no other example of jaundice in the family. The jaundice has not been transmitted to any one of his four children.

I am anxious to ascertain whether medical readers know of a case similar in all respects. I might mention that in the haemolytic (acholuric) family, which I recorded with G. Dörner (*Lancet*, 1910, 1, 227), the first ancestor known to have been affected was a man who had been "yellow all his life," and died at 76 (wrongly printed "70") as a result, it was said, of leg ulcers.—I am, etc.,

London, W.1

F. PARKES WEBER.

Significance of the Rh Factor

SIR,—In his letter in the *Journal* of Oct. 30 (p. 557) Dr. A. P. Bental makes, inadvertently, a most inaccurate and misleading statement. It is not correct to say that the children of a homozygous Rh-positive father (RhRh) and an Rh-negative mother will almost always suffer from erythroblastosis. In our article (*Journal*, Sept. 4) we pointed out that haemolytic disease of the newborn is very much rarer than it would be if it occurred in every family in which the father is Rh-positive and the mother Rh-negative. But once the disease has appeared all subsequent Rh-positive children will almost certainly be affected—very occasionally a later Rh-positive child is born apparently normal. Clearly, women vary greatly in the readiness with which iso-immunization to a foetal antigen occurs: thus we have observed families in which Rh-negative mothers have borne as many as six healthy Rh-positive children without miscarriage or stillbirth. Similarly, it has been found that many Rh-negative women transfused with Rh-positive blood fail to become immunized at all, even after repeated transfusions, whereas others develop antibodies after only a single transfusion. An Rh-negative mother is more likely to be

immunized when every pregnancy is Rh-positive and provide the antigenic stimulus as it does with a homozygous husband than when he is heterozygous and some of the children are positive and others negative. This being so, it is obvious that the proportion of homozygous fathers producing affected children will be greater than the proportion of heterozygous fathers, and from this it follows that in affected families there will be a shortage of Rh-negative children. In our series of 50 families the shortage of Rh-negative children may have been abnormally marked, and in later families we have occasionally found Rh-negative children; but our experience is that the homozygous father more frequently brings about iso-immunization of the mother than does the heterozygous father, and our opinion, unless the father of an affected child has disclosed himself as heterozygous, the chances of a subsequent child being born unaffected should be regarded as very poor. With a heterozygous father the chance of the next pregnancy being Rh-negative is one in two, and although an occasional later Rh-positive child will show no signs of the disease, the chance of a heterozygous father producing a normal child is only very slightly better than one in two.

By serological tests recently described (*Nature*, 1943, 153, 300, 563) it is possible to recognize the genotypes of a large proportion of persons and in many cases to say whether a man is homozygous or heterozygous Rh-positive; with this knowledge we can form a better estimate of the chances of unaffected children being born to couples who have had erythroblastic babies. These tests, owing to the scarcity of the necessary sera, cannot yet be made on a large scale, but the results confirm the opinion expressed in our paper that the proportion of homozygotes is higher among fathers of affected families than in the general population.

In Dr. Bental's case the occurrence of Rh-negative children shows that the father is a heterozygote, and it is to be expected that all the Rh-negative children would be unaffected. It is necessary to suppose that the first two children are Rh-negative; our table shows several families in which three Rh-positive children were born before the disease appeared.

Dr. Bental is right in thinking that the knowledge of unaffected children may be born will encourage those who have to supervise the pregnancy of a woman who has already had erythroblastic children. There is much more encouragement in the knowledge that adequate transfusion of the newborn with appropriate blood may save nearly all the affected babies, as Gimson suggested in this *Journal* on Sept. 4.—We are, etc.,

Cambridge
and St. Andrews.

R. R. RACE.
G. L. TAYLOR.

D. F. CAPPELL.
MARJORY N. MCFARLANE

Are Hospital Diets Adequate?

SIR,—Patients discharged from hospital complain that diet in hospital is not only insufficient but that it is badly cooked and served in an unappetizing manner, so that they often cannot eat the little they get and rely to a considerable extent on food brought to them by relatives. I have found patients suffering from surgical affections, which do not call for dietary restrictions, lose as much as 14 lb. in a month. They surrender their ration-books to the hospital authorities, who remove the food and "points" coupons. Although butter coupons are removed they complain that they are never given any butter during their stay.

It is certainly time that hospital feeding was investigated and hospital cooking. Adequate feeding would contribute materially to shortened convalescence, a matter of some importance in these days.—I am, etc.,

Brookwood.

H. M. STANLEY TURNER.

Sterility and Impaired Fertility

SIR,—The only point at issue between the two letters on this subject published on Oct. 16 (p. 493) and on Nov. 13 (p. 6) is concerning the relative importance of voluntary and involuntary sterility as causes of the decline in the population. The writers of the first letter, after a preliminary and confessedly limited investigation of the subject, have reached the conclusion that involuntary sterility is a more important factor in the decline than was previously supposed, whereas the writers of the second letter are inclined to disagree with them. The signatories are, however, in agreement that every aspect of it

important subject must be fully investigated. It is certainly not that no authoritative pronouncement on this question can be made until much more evidence becomes available, and that valuable data would be derived from census inquiries. It was with the object of calling wider attention to the need for a complete and searching investigation of the causes—economic, biological, and pathological—of the decline in the population that the earlier of the two letters was written. We are therefore grateful for the support given by the signatories of the second letter to the need for this investigation, even although they are of the opinion that the economic causes are of greater importance than the factor of involuntary sterility.—I am, etc.,

KENNETH WALKER.

Chairman of the Subfertility Conference of the
British Social Hygiene Council.

London, W.1.

Contraception and Sterility

SIR.—Mr. V. B. Green-Armytage appears to have a highly laistic mind, if one can judge by the last two publications in the *Journal* to which his signature has been appended. In the first letter (Oct. 16) it is stated:

"... In one group (numbering more than 200 women) of regular users of birth control the average number of children was higher than a comparable group of women using the same methods intermittently. Further investigations show that the contraceptive methods most commonly used by the industrial population—'artificial and infertile alike'—are notoriously unreliable (coitus interruptus and soluble pessaries); their seeming success, to which many working-class women attribute the small size of their families, can be shown to reflect lowered fecundity in at least one-third of the cases (about 100) investigated." In other words, he accepts the inference that, given a higher degree of fertility on the part of the couple concerned, it will bear fruit in spite of attempts at contraception, whereas the fundamentally subfertile couple will achieve a small family by using quite unreliable methods of birth control regularly—i.e., they are subfertile anyway and birth control is not responsible.

In his letter published on Oct. 23 he writes: "The deduction is that anything or any method which prevents, retards, or alters the normal degree of physiological absorption of human semen from the vagina carries with it during the early months and years of matrimony the risk of future sterility from failure of uterine development and endocrine asynchronization." In support of this theory he cites two extremely small series (20 cases in each group): Group 1 had used no contraceptives of any sort; Group 2 had used some form of birth control throughout marriage (chemical douches, caps with medicated pessaries, condoms, or coitus interruptus).

Even in his original paper he does not tell us the ages of these women, how long they had been married, the frequency of coitus, whether the husband's semen had been examined in each case and with what result, nor whether the patients in either group received treatment of any sort. He simply tells us that in both groups conception occurred in 25% of cases as soon as it was tried for; that in the first group 15 had, in his opinion, hypoplastic uteri, 9 of which grew to proper size in 4½ to 6 months; and that in Group 2 10 had hypoplastic uteri, but he does not tell us what they were like at the end of 6 months. Yet from this tiny series he is prepared to make the above deduction, attempting to support it by quoting the results of a few experiments with spayed immature female rats and immature female rabbits, which were injected intramuscularly or intravenously with human semen. These animals showed muscular and glandular development of the uterus and, in the non-spayed, hypertrophy of the ovaries. "Preliminary experiments," he writes, "indicate that full development of the female genitalia is due to the absorption of hormones by the vagina from the human semen," though there is nothing in his experiments to prove that absorption does and can occur from the vagina nor what it is that is absorbed. He quotes Noble (*J. Endocrinol.*, 1939, 1, 184), who worked with synthetic testosterone propionate and not semen, and who produced various complex changes by injections of this hormone (sometimes combined with other hormones) given subcutaneously to rats, but does not quote Goldblatt (*Biochem. J.*, 1935, 29, 1346), who, working with fresh human semen injected intravenously into young virgin rabbits, failed to produce any changes in the uterus or ovaries. He mentions the late Sir Francis Fremantle's recent statement in the House but does not refer to Dr. Gibbon Fitzgibbon's letter in the *Journal* (Sept. 11, p. 350) despite the latter's infinitely wider practical experience.

Mr. Green-Armytage then goes on to accuse contraceptive methods of attacking the arbor vitae and producing a cervicitis with subsequent cervical blockade, apparently ignoring the frequent association of a very typical and non-infective cervical blockade with endocrine dysfunction and genital hypoplasia, which, by the time he has reached his last paragraph, he is attributing rather to some harmful but unspecified influence on the growing girl's constitution

and endocrine system than to the absence of semen in the adolescent vagina. Surely this is too important a matter for such wild assumptions. If, indeed, the use of contraceptives, more particularly by women in the younger age groups, is threatening fecundity, the sooner this is proved by properly controlled and adequate observations the better. If, on the other hand, quite different factors are responsible they must be unearthed and necessary action taken.

He ends by saying that it is irrational to set up petty sterility clinics to deal with the problems of subfertility, and that the work must be in the hands of properly staffed and equipped hospitals; but what the hospitals gain on personnel and equipment they lose on lack of time, intimate personal contact, and co-ordination. The hospitals have not at present time or space to cope adequately with the very great number of people, up and down the country, who want advice on subfertility; some in consequence are doing shoddy work, and many patients are frustrated in their efforts to get adequate investigation and treatment. Family Planning Association clinics have a definite role to fill; by creating a demand for good and thorough work they may galvanize the hospitals into more effective action, and they can act as sorting and co-ordinating centres and as sources of material for research. Why should they, as Mr. Green-Armytage suggests, be cut off from the team work of their local hospital? They should be in constant and close touch with it and have the advice and help of its consultant staff. Moreover, what general hospital has such easy access to large groups of *superfertile* patients as are available at F.P.A. clinics to act as controls in the many difficult problems confronting those who attempt to investigate, diagnose, and treat *subfertility*?

—I am, etc.,

Crednon.

MARGARET HADLEY JACKSON.

SIR.—It is most depressing that the preventive aspect of sterility should make so small an appeal to Dr. Malleison. In her first letter she merely asked for information. Physiological, pathological, biochemical, electro-potential, and clinical evidence was provided to show incontestably that mechanical plus chemical contraceptive measures before the first conception are deleterious. Seeing that the greatest living authorities on sterility were quoted—Rubin, Kurzrock, Miller, Meaker, and Ségué, men whose calibre, research, and team work we have so far been unable to match—it is no good being squeamish or peevish. No opposing or unbiased views of any real weight can be found to gainsay clinical facts that are easy of proof. It is, however, comforting to see in the latest editions of their textbooks that Blair Bell, Beckwith Whitehouse (Eden and Lockyer), and J. H. Peel (Forsdike), on pages 336, 215, and 341 respectively, all support the opinion that such methods are injurious from the point of view of future conception. For the rest *quod scripsi scripsi*.—I am, etc.,

London, W.1.

V. B. GREEN-ARMYTAGE.

Early Diagnosis of Cancer

SIR.—It would appear from Dr. J. F. Brailsford's letter (Oct. 30, p. 555) that he would have the general public kept in ignorance of the early symptoms of cancer despite the consequences. I find his arguments difficult to follow. No one wants it advertised on hoardings; in fact, the hoardings which so desecrate our landscape are largely disappearing from the country, and we all hope that ultimately they will be eradicated.

That a few out of the thousands of cases dealt with by radium or x-ray therapy have been made worse and their sufferings increased merely indicates that we have not reached perfection, that cases have been badly selected or improperly dealt with. Failures and mistakes will have been made in all branches of medicine and in any other walk of life. The most likely source of failure in radiotherapy, and one which may lead to much unnecessary suffering, is the attempt at radical therapy in cases unsuited or too advanced for such treatment. The same applies to surgical treatment of the too advanced, such as radical mastectomy for late carcinoma of the breast and many other procedures of like description, where a major operation planned on the best lines may only lead to further suffering. We need team work and better co-operation between the different specialities in order to select the best treatment for each individual case. Carcinoma of the rectum is a good example. An advanced case with a fixed ulcerating growth and stenosis of the bowel may derive no benefit from radiotherapy, and is likely to be caused greater suffering by attempts at radical therapy by radium. It is surely the aim of all of us to relieve suffering, and no body of people realize this

better than those who devote their full time to radiotherapy and to whom these patients so often turn for treatment and assurance. The therapist or surgeon who treats the disease and forgets the patient is making a mistake.

As regards statistical incidence of cancer, this will continue to rise everywhere until 100% of cancer cases are diagnosed as cancer. One thing we can be pretty sure about is that a cancer case will not get better without treatment, and that in the majority of cases there is a point at which it will become hopelessly incurable. It is because we do not know just precisely when it becomes incurable that we do not regard cancer as an "acute" or "semi-acute" surgical condition. We know from statistical reports that a perforation of the bowel if left more than 30 hours has most likely been left too long, and we would deprecate the delay. The same applies to a cancer case if we substitute days or weeks instead of hours, and we know from experience that a carcinoma of cervix or uterus with symptoms for 30 weeks has little chance of survival, and that there is some particular time when such a case crosses the line that separates those which are curable from those in which the patient will suffer from "recurrences" and ultimately die from the disease. Here are some statistics from one centre to show just what proportion are on the wrong side of that line. Similar figures will be found all over the country.

Carcinoma of Cervix, 1929-35

Stage	No. of Cases	No. Died of Cancer	No. Alive 5 Years	Died of Other Causes or Lost Sight of
III or IV ..	257	213	36	8
I or II ..	162	76	75	11

From this we see that three-fifths of the cases applying for treatment were hopelessly inoperable; they had a one in seven chance of a five-year cure by radiotherapy, and it is questionable whether it was really worth while treating more than half of them. Only two-fifths came at the stage where they had a 50% chance of cure. If those 419 cases came at the earliest possible sign—if they were all Stage I cases—they would have about 80% chance of cure even with present methods, which may leave much to be desired, and we have not yet got down to screening the radiation from the rectum and perfect distribution of the radium.

Now, why should children lose their mothers (or fathers) because their parents are kept in ignorance of the early signs of cancer? It is fear and ignorance which stop them coming. Do we think that the public "cannot take it"? Experience teaches us that we can always take the truth better than deception. By this I do not mean that we should tell the patient that he or she is suffering from cancer, or use the brutal phrase which Dr. Brailsford has put into the mouth of the cancer expert: "You know what is the matter with you, missus; you've got a cancer." What we want is for the public to know that tumour, especially one which is painless, requires prompt attention. The incurable cancer case we must continue to live and console with palliative treatment or placebos and analgesics, and may we be forgiven for the deceptions we practise!

But what harm in educating the public just a little? Why not make a start? I would suggest that the last page or two of the first-aid books which are so popular might have a little space devoted to pointing out what are the "early signs of a tumour," and might give just enough information to enable the reader to recognize when he or she should attend a doctor for advice. It could be worded to give assurance and to encourage early treatment. If we could get it across to the first-aiders it would not be long in reaching the majority of people. Then we might get our cases before they are too late, and our results would be more encouraging.—I am, etc.,

GEORGE W. BLOMFELD,
Medical Director, Sheffield Radium Centre.

Radiology—Empiricism or Science?

SIR.—In the November issue of the *British Journal of Radiology*, writing under this title, Dr. A. E. Barclay presents a most interesting review of the progress of radiology, and also a timely warning about the present critical phase through which radiology is now passing.

It does seem to-day that radiology, and, in fact, radiologists require a lead, and Dr. Barclay's article puts forward a sound and useful proposition to steer radiology on the right course in the future. He advocates a "radiological research institute" devoted solely to the study of the body in health in order to establish a reliable basis from which to assess the pathology and asks whose duty it is to establish such an organization.

While wholly in agreement with his suggestions I would like to even further ahead. For some time back many of my colleagues and I have felt that radiological affairs in this country require a lead from one body by the formation of a College of Radiology. In this college a large section would be devoted to research as Dr. Barclay advocates, while there would also be a teaching side for radiologists and radiographers with the appropriate examinations for higher and lower diplomas. Various types of equipment (for teaching purposes) might be placed at the disposal of the college by the various x-ray manufacturers which indirectly would prove to the manufacturer an excellent show place for his products.

That radiology in this country will undergo some form of reorganization seems the common feeling, and the existing societies do not just meet the case. To my mind here is an opportunity and almost a duty for the British Institute of Radiology to rise to the occasion and create a College of Radiology from its present organization, and thus cement the unity of radiologists and give a lead to this important scientific both in this country and, after the war, to those multitudes of radiological remnants throughout devastated Europe.—I am, etc.,

London, W.1.

NORMAN P. HENDERSON

X-ray Diagnosis in Pulmonary Tuberculosis

SIR.—Dr. J. S. Sharpe in his memorandum (Nov. 6, p. 1) has pointed out the shortcomings of radiography in the diagnosis of a case of pulmonary tuberculosis. He has, however, failed to appreciate that there is no such thing as x-ray diagnosis in pulmonary disease, nor yet in many other types of disease, but there is x-ray evidence.

In pulmonary conditions the similarity between various radiological appearances is such that the failure to approach the case from every angle courts error in diagnosis and disaster. Apart from the usual clinical and pathological investigation, family and occupational history must be considered. This has been forcibly impressed upon me and stressed by me during twenty years' radiological practice in a mixed agricultural and industrial area. Dr. Sharpe's patient certainly received a clinical investigation, but one cannot help wondering what later radiograph would have revealed. The radiological appearance of lung pathology frequently changes rapidly. Most radiologists of experience are alive to the limitations of x-ray radiography. There are limitations in every field of investigation.—I am, etc.,

Ulverston.

RICHARD FAWCETT

Unpadded Plaster in Open Wounds

SIR.—Undoubtedly many lives and many limbs have been saved by the modern treatment of compound fractures—adequate excision of dead and devitalized tissues, removal of foreign bodies, blood clot, and detached fragments of bone followed by the application of sulphonamide powders, a fixation in plaster. In all papers on this subject great emphasis is laid, and rightly so, on the necessity for thorough cleansing of the limb and wound, for all aseptic precautions, "no-touch technique," changing of gloves and instruments, etc.; but one may say the same for the ritual during the second part of operation—namely, the application of the plaster? When this stage is reached asepsis in many clinics simply ceases. One sees plaster bandages unwrapped by ungloved and even washed hands (in the surgical sense) and plaster slabs prepared on tables with unsterilized surfaces. These bandages and slabs are then soaked in unsterilized water in unsterilized buckets and handed to the surgeon or assistant, who applies them to the open and unprotected wound.

Should we not insist that plaster bandages and slabs be sterilized before they leave the manufacturer and that all aseptic precautions are observed during the unwrapping, handling, and soaking?—I am, etc.,

Dundee.

F. R. BROWN

D. and V. and Mastoiditis

SIR.—I am grateful to Dr. Ellison for pointing out an error of logic in my letter (Oct. 23, p. 526). The sentence he justly criticizes would convey my meaning better should it read as follows: "In all cases of D. and V. and dehydration in which bacteriological examination of the faeces proves the absence of a specific organism the diagnosis of gastro-enteritis, if made, is probably incorrect, and the possibility of mastoiditis should be considered as a likely cause of the symptoms. If in such case D. and V. and loss of weight continue in spite of dietetic, saline, and sulphonamide treatment, and if, in addition, the child is restless, puts his hand to his head, has a bald patch in the back of his head and enlarged glands in the posterior triangles, the diagnosis of progressive mastoiditis is almost certain. Such cases should be promptly handed over to the oral surgeon for surgical treatment, for progressive mastoiditis treated medically is a fatal condition."

I would remind Dr. Ellison that the condition to which I refer is one which is present only in infants; his remarks concerning ulcerative colitis and arsenical poisoning, somewhat tinged with sarcasm, are therefore irrelevant.

My letter was an attempt to show that even apart from universal breast-feeding much could be done by both prevention and cure to lessen the death rate among infants diagnosed as gastro-enteritis if its aetiology were more generally realized. It was not intended to arouse antagonism.—I am, etc.,

P. W. LEATHART.

Liverpool.

"Opponents of the Medical Profession"

SIR.—In his letter in your issue of Nov. 13 on "Opponents of the Medical Profession" Mr. Rugg-Gunn, seeking to show that his policy and his *Bulletin* are not anti-Semitic, writes that "quoting the book *Protocols of Zion* we were careful to indicate that there are doubts as to its authenticity."

There is an error here. There are no more doubts as to the authenticity (or probability) of this disreputable anonymous forgery than of the series of closely similar fantasies set forth by that accurate historian Adolf Hitler, in his *Mein Kampf*. That authority has also made many constructive suggestions for a medical policy, which Mr. Rugg-Gunn has doubtless studied. Some may be garnered from the pages of the vast volumes of *Hitler's Speeches*, edited by Prof. Norman Baynes.

Mr. Rugg-Gunn will find a complete and detailed demonstration of the unsavoury origin and fantastic nature of the moss-grown booby-trap in which he has been caught in *Portraits of Mean Men, A Short History of the Protocols of the Elders of Zion*, by Mr. John Gwyer, published in 1938 by Messrs. Cobden-Sanderson. Mr. Gwyer shows—perhaps for the hundredth time—that the main framework and much of the phraseology of the "Protocols" are taken from an attack on Napoleon III, first published at Brussels in 1865 as a romance under the title *Dialogues aux Enfers entre Machiavel et Montesquieu*, which has nothing whatever to do with Jews. The subsequent history of this paltry romance and its modification into its present form is an extremely complicated story. It has been traced in minute detail, but here it must suffice to say that the inglorious author was an obscure scribbler, one Maurice Joly (1831–78) of Lons-le-Saunier in the Jura, who, not inappropriately, died by his own hand.

Despite his zeal for accuracy Mr. Rugg-Gunn quotes wrongly the title of the obscene booklet, the authenticity of which he must be allowed to doubt if he prefers to do so.—I am, etc.,

The Athenaeum, Pall Mall, S.W.1.

CHARLES SINGER.

SIR.—I congratulate you on at last raising the ban on the mention of the Medical Policy Association, even though it be in order to misrepresent it (*Journal*, Oct. 30, p. 552). Your attempt to prove by false logic a connexion, where in fact no connexion exists, between it and Nazism and what is inaccurately called anti-Semitism is hardly worthy of an annotation in a journal concerned with the scientific method; nor is your rather scornful reference to a distinguished member of our profession. Moreover, it is a propagandist device too well known even to the most unsophisticated of your readers to succeed in its purpose.

As one who for years has been working for an objective closely corresponding to that of the M.P.A. (as former letters

to you testify) and who has been connected with this association from its early days, though not actually a founder member, I emphatically assert that, unlike the panel system, by means of which official B.M.A. threatens to extinguish private practice, the M.P.A. draws none of its inspiration from enemy ideology, and there is not even a shadow of foundation for those statements of yours which border on the libellous. If, indeed, they have not offended against the law. The M.P.A. is not frightened by an attack such as yours. It has nothing to hide. It is based on truth and reality against which its would-be detractors can make no headway. Nothing would be more pleasing to its members than to have the attention of the whole profession directed to its origin, aims, and methods.

There are other organizations—the Fabian Society, the London School of Economics and Political Science, and Political and Economic Planning—to which you refer in your article, and about which you appear to be as ill informed as regarding the true nature of the Medical Policy Association. Can you say whether these organizations are as willing as is the M.P.A. to have their ultimate objectives brought into the clear light of day? What is the relation of their activities to present-day political movements both within and without the medical profession? Have they any connexion with the tendency which you deplore in your article "Misrepresentation" (*ibid.*, p. 549) to make the line of medical development an issue of party politics?

I would suggest that anybody who cannot give satisfactory answers to these questions and others like them might be profitably employed in digging down to the roots of things, in exploring the sources from which political movements arise. In this connexion a useful exercise would be to make an investigation whether there is any foundation for the following statement which a Mr. Benjamin Disraeli (afterwards Lord Beaconsfield) puts into the mouth of a character in one of his novels: "So you see, my dear Coningsby, that the world is governed by very different personages from what is imagined by those who are not behind the scenes." How difficult it is for the ordinary personage to get even a peep behind the scenes!—I am, etc.,

Bexley, Kent.

E. U. MACWILLIAM.

SIR.—Your timely castigation of Mr. A. Rugg-Gunn and his friends in the issue of Oct. 30 called forth a letter from him which you published on Nov. 13. There does not appear to be anything in this correspondent's letter to justify a reply, as it is what the German military authorities call a "disengagement" from an awkward situation; but it is worth while to recall a letter in his usual vein by this same correspondent which was published in the *Lancet* in October, 1939, and which was severely dealt with by subsequent letters in the same journal.—I am, etc.,

Golders Green, N.W.

L. S. WOOLF.

* * We have had a number of letters reinforcing those from Prof. Singer and from Dr. Woolf, but the correspondence must now be closed.—Ed., B.M.J.

Therapeutic Fallacies

SIR.—The up-to-date tuition given by Drs. Linnell and Thomson in their paper on therapeutic fallacies prompts some qualifying reflections.

1. Case management suitable in hospital consulting practice may not be fitting in general practice. A patient is not the same person in both settings, the doctors differ in prestige and use and duration of personal service, and the things to be known also differ. Patients come to the G.P. to find out all that the hospital doctor did not tell; G.P.s issue certificates and patients read books; a great many patients think they have "blood pressure" before they come for its measurement; and so on. A patient likes to be told as much truth as he can straightway be taught to bear. Truth-telling provokes "reality-thinking": power to reassure depends on a proved lack of duplicity in the doctor; an anxiety state is best prevented and cured by understanding, anticipating, and balancing the patient's own inner thoughts and feelings.

2. Experimental conditions often differ in essentials from those of clinical experience. Clinically alcohol has a twofold effect, exciting in one way and depressing at the same time

in another way; dosage and circumstances may decide whether stimulation or depression prevails in the total effect. Very small doses and small variations of doses of digitalis cause subjective effects in some senile patients with slowly failing hearts. Assuming that a calcium salt "in some cases of chilblains seems to act like a charm" (Norman Walker) it is inconclusive to object that in all cases "the serum calcium is normal." Even if the objection be relevant, would one argue that a man's donations to persons and to charitable agencies could not bear any relation to his income because his deposit at the bank remained at the "normal" figure?

3. Drugs are not really things endowed with their own power to act; they are substances active in relation to living things and circumstances. Hence a remedy becomes an organismal "poison" only when inappositely prescribed or when given to the right patient in excessive dose. Hence also one should not expect a remedy to give consistent results in all patients or in all disease conditions given the same label. Sulphapyridine may settle a run of cases of tonsillitis within 24 hours in every case; the first failure may or may not indicate a newly arrived infection and give a different remedy a prosperous run. Pulv. ipecac. \bar{c} opio may be either curative or simply emetic on the first night of a "cold," and the same kind of remark applies to various proprietary remedies. Surely the failures have no greater validity than the successes! Surely what is wanted in both events is more adequate discrimination of conditions, as has been largely done for iron and cod-liver oil. Meantime it is often the so-called uncritical impressions of G.P.s which silently decide the retention or discarding of a therapeutic novelty.

4. Large-scale statistics may contain large-scale error from insufficient differentiation of groups of cases. Injecting a multitude of factory employees with anticatarrh vaccine all on the same day does not seem a convincing experiment. Some employees come to the G.P. in a day or two suffering from a cold and seemingly worsened by vaccine given at the wrong time.

In short, there are canons of scepticism as well as canons of belief.—I am, etc.,

Greenford.

W. THOMSON BROWN.

SIR,—A little iconoclasm is frequently salutary in a profession such as ours, which tends to become conservative, and I find much to agree with in Linnell and Thomson's article (Nov. 6, p. 572). I would suggest, however, that their article would be of greater benefit if they could suggest treatment, or, rather, prophylaxis which really works for some of the complaints they list. Can they say, for instance, that enemata will in the end break the constipated habit? As treatment it is unarguable.

As regards the common cold, I will join issue with them. My experience is based on the results of injections in a factory, where 70% of those injected were improved. This is, in my opinion, sufficient justification. The remaining patients for the most part were found to have some cause for their colds, such as sinus infection. I do not claim more than benefit, though a reasonable percentage of patients receive, apparently, immunity.

Have the authors *nothing* constructive to say about chilblains? And, finally, are they unaware of the possibilities in the use of testosterone propionate and nicotinic acid in the treatment of angina pectoris? No one claims that glyceryl trinitrate is anything more than a palliative.—I am, etc.,

Dorchester.

T. RUSSELL STEVENS.

Reporting Deaths to Coroners

SIR,—Owing to uncertainty as to the obligations of medical practitioners to report deaths to coroners, the Medical Defence Union and the London and Counties Medical Protection Society have received a number of inquiries from their members as to the legal position. The above-named societies accordingly obtained the opinion of Mr. Roland Burrows, K.C., of which the following is a summary authorized by him:

1. There is no legally enforceable duty resting on a practitioner, acting as such, to report any death to a coroner.
2. The coroner has no power to require a practitioner to report any death to him.
3. It is the duty of the registrar of deaths to report deaths in certain circumstances to the coroner:

4. A practitioner must not do anything to obstruct the coroner in the discharge of his office.

5. A practitioner may make a post-mortem examination of the consent of the deceased's relatives, whether or not he is the cause of death, unless by so doing he knowingly hinders the coroner in carrying out his duties; but, as soon as it comes to knowledge of a practitioner that the coroner has been informed from any source touching the death, on no account should examination of the body be made without instruction from the coroner.

We have stated above the legal duties of practitioners, they, like other members of the community, have social, public and moral obligations not enforceable by law to assist coroners. It is important that practitioners and coroners should collaborate harmoniously for the public good, and it is hoped that a practitioner will refer to the coroner any death respecting which he feels any doubt. A copy of Mr. Roland Burrows's opinion upon which the above is based, can be obtained by memorandum on application to the Secretary of the Medical Defence Union, 49, Bedford Square, W.C.1, or of the London and Counties Medical Protection Society, Victory House, Leicester Square, W.C.2.—We are, etc.,

JAMES FENTON,
President, Medical Defence Union
CUTHBERT WALLACE,
President, London and Counties
Medical Protection Society.

Obituary

JOHN LEVIS, M.B., B.Ch.

Mr. John S. Levis, honorary assistant surgeon, Royal Ulster Hospital, Bath, and consulting surgeon to the Orthopaedic Hospital at Combe Park, died suddenly at his home in I. down Park on Nov. 5. He studied medicine in Cork, Dublin and took the Irish triple qualification in 1912, followed this a year later with the M.B., B.Ch., B.A.O. of the National University of Ireland, which conferred on him its M.Sc. *de honoris causa* in 1920. Mr. Levis began his service at the Royal United Hospital as resident medical officer, and on settling practice at Bath became honorary anaesthetist. After the war, during which he held the temporary rank of Major R.A.M.C., he was senior medical officer for the city under the Ministry of Pensions. He had a widespread surgical practice in the adjacent parts of Somerset and Wiltshire, and was consulting surgeon to the Malmesbury Hospital, the Victoria Hospital, Frome, and the Trowbridge, Melksham, and Shepton Mallet Hospitals. Joining the B.M.A. in 1919 he held office of honorary secretary of the Section of Orthopaedics at the 1st Annual Meeting in 1925, and was chairman of the local Division in 1929-30. He was also a member of the International Society of Surgeons and of the Bristol Medico-Chirurgical Society.

A colleague writes: With the death of John Levis the profession has suffered a grievous loss. His value to the community can be assessed merely in terms of his undoubted professional skill. He had attributes of character which would have made him an immense influence for good in any profession he had chosen to follow. He had the gifts of simplicity, physical and moral courage, directness and honesty, to a degree too rare in these days. He was tough where necessity demanded it, but his toughness was more respected when evaluated against the background of kindness and charity which was his essential nature. He was an underdog's friend and an indomitable fighter for just causes. He weighed up his actions according to the principles of ethics and despised the idea of expediency. He was unfailingly charitable to the afflicted, the soul of generosity. The world is poorer for his loss, and Bath have suffered not only a grave impoverishment of our efforts as a medical community, but an incalculable depletion of our valuable forces of character. Another colleague writes: The sudden unexpected death of Mr. Levis came as a great shock to every one who knew him, not only in Bath but far outside the confines of the city. As a surgeon he was gifted with great powers of observation and diagnosis and was strongly opposed to routine methods, always striving for improvement, and before the war devoted his time to visiting the great surgical clinics of Europe. His colleagues will deplore his loss, as do hosts of patients, who will miss his cheerful and friendly personality. After the air raids on Bath his home was crowded to overflowing with the homeless, for whom he was not do enough, while his platoon of the Home Guard were made welcome. The little spare time he had was spent in his garden where the writer had the privilege of passing many happy hours.

him. He was a straightforward honest man, a staunch friend never spared himself, and a wise counsellor to whom nobody appealed in vain for help or guidance. Only his closest friends any idea of the extent of his charity. Jack Levis set a shining example of unselfish service and self-sacrifice.

We regret to announce the death at Brighton on Nov. 15 Dr. LOUISA GARRETT ANDERSON, C.B.E. Her father was G. S. Anderson, shipowner, and her mother was Elizabeth Garrett Anderson, M.D., the pioneer medical woman in this country, whose life-story she told in a book published in 1939. She was born on July 28, 1873, and from St. Leonard's School, Andrews, went to the London (Royal Free Hospital) School of Medicine for Women, graduating M.B.Lond. in 1897 and in the M.D. in 1900. After serving as house-surgeon at the Royal Free Hospital she became in turn house-surgeon, house-physician, and assistant surgeon to the New Hospital for Women, and then surgeon to out-patients at the men's Hospital for Children, Harrow Road. In Sept., 1914, Dr. Louisa Garrett Anderson went to France as joint organizer of, and chief surgeon to, the Women's Hospital Corps voluntary unit. She returned to London in 1915 to take up the post of chief surgeon at the newly opened military hospital in Endell Street, and worked there until after Armistice. For her war services she was created C.B.E. She joined the B.M.A. in 1898 and was honorary secretary of the Section of Obstetrics and Gynaecology at the Annual Meeting of 1905. On retiring from practice some years ago she made her home at Paul End, Penn., and was appointed a Justice of the Peace for the County of Bucks. Besides the biography of her noble mother she wrote a number of papers for medical journals and contributed the article on peritonitis to the *Encyclopaedia Medica*.

Dr. SAMUEL HEY died at Ripon on Sept. 28, aged 73. He is the only son of Samuel Hey, F.R.C.S. (1815-88), the Leeds surgeon whose grandfather, William Hey I, had been active in founding the General Infirmary at Leeds in 1767. Dr. Hey was educated at Tonbridge School, Trinity College, Cambridge, and St. Bartholomew's Hospital. He qualified in 1900, and after serving as house-physician at Bart's and R.M.O. of the Royal Chest Hospital, settled in general practice at Ripon, where he became surgeon to the cottage hospital, medical officer to the workhouse, and in 1904 deputy coroner for the Ripon district. He joined the B.M.A. in 1908 and was a member of the West Riding Medico-Chirurgical Society and the Arrogate Medical Society.

Dr. JOHN NEWBURY FERGUSSON, who died at York on Oct. 1 aged 62, was born at Wick. After three years at St. John's College, Cambridge, he went to St. Thomas's Hospital. He qualified in 1905 and till 1913 he practised at Malvern. In 1914 he went to Plymouth and from there joined the R.A.M.C. in 1915 to 1919 he was radiologist in No. 8 General Hospital at Rouen, and while he held that post he contributed to the *B.M.J.* an article on a new system of location and traction of foreign bodies in the brain. In 1919 he became Fellow of the Royal College of Surgeons of Edinburgh. In 1920 he went to York and in 1924 he became honorary radiologist to the York County Hospital. Up till three weeks before his death he gave unstinted loyal service to that hospital. He leaves a widow and a son and daughter; his son a surgeon in an L.C.C. hospital. A colleague writes: "Newbury Fergusson's death is a great loss to the medical profession in York and district. His knowledge of medicine and surgery, added to his skill in radiology, which included a technical genius and ingenuity in engineering, was always at the disposal of his confrères. If patient endeavour and conscientious striving to throw light on a difficult case were needed Newbury could be relied upon to provide these in full measure. He entered whole-heartedly into every phase of medical activity in the district and had held the offices of chairman of the York Division of the B.M.A. and president of the York Medical Society. In all his work he rightly enjoyed the respect and confidence of everyone in the profession. He was quiet and modest by nature, and work was his hobby. Latterly he carried on when those who knew him realized that he should be taking things more easily, but to spare himself was not the way in which he was built. He served his generation truly and well."

Dr. ARCHIBALD OLIVER, of Thetford, Norfolk, died in London on Oct. 4, aged 62. He was the third son of the late Archibald Oliver of Edinburgh, and studied medicine at Edinburgh University, graduating M.B., Ch.B. in 1904 and taking the M.D. and D.P.H. in 1908. He had been M.O.H. for the Thetford Urban District Council since 1912, when he settled in that town. He served in the war of 1914-18 in the R.A.M.C. and was D.A.D.M.S. at Salonika with the rank of major; he

received the Greek Order of St. Saviour and the Médaille des Epidémies in recognition of his work on malaria in Greece. Dr. Oliver took a great interest in public health work and started the Thetford maternity and child welfare centre. He was also president of the local branch of the British Legion, a Justice of the Peace, and a governor of the Thetford Grammar Schools. He joined the B.M.A. in 1908 and had held office as president of the Norfolk and Norwich Medico-Chirurgical Society. He was a keen golfer and angler. His death is a great loss to Thetford and district.

We regret to announce the death on Oct. 6 of Dr. ESSEX FRANK WAKE NIXEY, medical superintendent of St. John's Hospital, St. John's Hill, S.W.11. A medical student of Edinburgh University he graduated M.B., Ch.B. in 1908 and was appointed an assistant medical officer at St. John's Hospital by the Guardians of the Wandsworth Union at the beginning of 1909. He became senior medical officer in 1910 and deputy medical superintendent in 1913, and after transfer to the L.C.C.'s service in 1930 he became medical superintendent on April 1, 1933. Dr. Nixey thus spent the whole of his professional life at St. John's Hospital, and the Hospitals and Medical Services Committee of the L.C.C. has recorded that his long period of service was characterized by ability and zeal. He was particularly interested in psychiatry and made an outstanding success of his work in connexion with the large mental observation unit at the hospital. "His death is a grievous loss to the service, and his unfailing and sympathetic understanding and co-operation will be remembered with gratitude by patients and colleagues."

The death on Oct. 7 of GEOFFREY REMINGTON WILSON has removed a well-known and universally respected figure from the Essex town of Ongar. Wilson was born in 1874, educated at Aldenham School and Trinity College, Cambridge, where he graduated M.B., B.Ch. He learnt medicine at the London Hospital, where he held house appointments, and was also house-physician at Paddington Green Children's Hospital. In 1902 he succeeded to the practice of Dr. Grattan, Ongar, and conducted it up to a short time before his death over forty years later. Wilson was a man of diverse interests and busied himself with local affairs. He was chairman of the bench of Magistrates and of the Public Health Committee in the district council. He was a keen sportsman and played games well, besides being a good Latin scholar and well read in English literature. He was a prime mover in the founding of the Ongar War Memorial Hospital and an active worker in its wards. He will long be remembered for his kindly disposition and by his professional brothers as a loyal and honourable colleague. He joined the B.M.A. in 1902 and was chairman of the Essex Division in 1933-4.

Dr. EDWARD HULSE WILLOCK of Exeter died on Oct. 10 at the Royal Devon and Exeter Hospital, aged 75. He studied medicine at St. Thomas's Hospital, took the L.S.A. in 1891 and the M.R.C.S., L.R.C.P. in 1892, and then practised for a long time in Croydon, where he was surgeon to the War Hospital and assistant surgeon to the Croydon General Hospital, and later medical referee for the Ministry of Pensions. Dr. Willock had been a keen and active member of the British Medical Association, which he joined in 1899; he was a past honorary secretary of the Croydon Division, and from 1912 to 1920 a member of the Central Council. He also served on various committees and subcommittees at headquarters and represented his Division at seven Annual Representative Meetings. Before he went to live in retirement at Exeter he had been a J.P. for Croydon, and in recent years he was chairman of the National Service Medical Board, Exeter.

Prof. Grey Turner writes: Dr. H. E. GAMLEN, whose death was recorded on Oct. 16, was one of the pioneer workers in x rays, and especially on the therapeutic side. In the early part of this century, while in practice in West Hartlepool, he was not only treating lupus and rodent ulcer by x rays but also other types of malignant disease. From time to time he showed cases under treatment at the Northumberland and Durham Medical Society, and at the November meeting in 1904 he presented an example of epithelioma of the tongue in which the Roentgen treatment had been supplemented by the application of radium. This powerful element was in the form of radium bromide, which was kept in a glass tube in a thermometer case and was usually carried in the waistcoat pocket! There was no applicator and the tube was merely held in contact with the affected area. In view of the disappearance of the growth there were those who doubted the diagnosis in that case in spite of the pathological reports which Gamlen produced. But after some months there was a recurrence which was removed by operation, and it was then shown that the tissues were infiltrated with squamous epithelioma. In later years Gamlen

used to explain that in those early days he knew nothing whatever about the harmful effects of irradiation, but it was none the less relentlessly laying the foundation of that distressing dermatitis which was so marked in his case and which was ultimately followed by the development of epithelioma. In the course of years he submitted to many mutilating operations before the disease finally led to the inevitable end. His sight became much affected and deafness supervened, but I never heard him complain. He was always enthusiastic and enjoyed his hard work, and when about 10 years ago he had to give up practice finally on account of increasing disability he took up breeding dogs with great zest and with great success. His name certainly deserves to be recorded on the roll of x-ray martyrs. (During the last war he was attached as consulting radiologist to the Italian, not the Indian, expeditionary force as mentioned in your notice.) Gamlen had one son, who predeceased him, and is survived by his wife, who watched over his latter years with singular devotion.

Dr. PHILIP THEODOSIUS JONES of Coleford, near Bath, died suddenly on Oct. 21. A student of St. Bartholomew's Hospital he qualified M.R.C.S., L.R.C.P. in 1896, and in 1932 he retired from practice and received a presentation at Coleford from a large number of friends and patients—a framed and illuminated address on vellum and a cheque which at Dr. Jones's wish was used to equip the Bath Royal United Hospital with a portable x-ray apparatus. He had been a member of the British Medical Association for 43 years.

Dr. J. A. WAIN, who died on Oct. 25, graduated M.B., B.Ch. at the University of Witwatersrand, Johannesburg, in 1929. After various hospital appointments and some general practice he came to this country and took his Edinburgh F.R.C.S. in 1938. Shortly afterwards he was appointed to the staff of the Radium Institute at the Christie Hospital, Manchester, where he quickly assumed many responsibilities, and where he remained until his death. At the outbreak of war Mrs. Wain and a young daughter returned to South Africa, but Dr. Wain remained, as he would have been happy to put it, in the service of this country. In all his activities, whether in therapy, in teaching, at children's parties, or in digging for victory, Dr. Wain could be counted on for a lively contribution, springing from an energetic personality which knew how to combine enthusiasm with a remarkable capacity for taking pains. As a member of the Radium Institute team his knowledge, criticism, and unflinching generosity contributed largely to its effective working. His unexpected death after an operation, at the age of 38, is indeed a lamentable loss to radiotherapy, and will be painfully felt by his many friends both in and beyond professional circles. His best memorial is a substantial record of scrupulously careful and successful work.

Dr. HERMANN ARTHUR GUNTHER, a former chairman of the South Middlesex Division of the B.M.A., died at Hampton Wick on Oct. 28 after a brief illness. Born in 1872 in the same house where he died, Dr. Gunther shared with his father, the late Dr. Theodore Gunther, an unbroken family practice for a period of 80 years. During part of his boyhood he was brought up with his cousin, later to become Dr. R. T. Gunther, for many years Fellow and Tutor of Magdalen College, Oxford, and Curator of the Science Museum at Oxford. At an early age he went to University College School, and until he was old enough to make the daily journey to and from Hampton Wick, lived with his uncle, the famous zoologist, Dr. Albert Gunther, F.R.S., at the British Museum. H. A. Gunther studied medicine at University College Hospital, qualifying M.R.C.S., L.R.C.P. in 1896, and taking the M.B.Lond. three years later, after serving as obstetrical assistant at U.C.H., house-physician at the Brompton Hospital, and senior house-surgeon at the Royal Northern Hospital. Then for 40 years he practised at Hampton Wick, finding time in the intervals of a busy professional life to take an active part in the work of the Surrey Archaeological Society and of the Japan Society. Dr. Gunther had a wide knowledge of the history of his native district, and he formed a valuable collection of Netsukes.

Dr. ATHOL RAYMOND MOORE of Camberwell, who died suddenly on Oct. 30, studied medicine at Cambridge and the London Hospital, graduating M.A., M.B., B.Ch. in 1904, after which he served at house-physician and house-surgeon at the Poplar Hospital. Dr. Moore was for many years medical officer to the Newton Institution, surgeon to the L Division of the Metropolitan Police, and Admiralty surgeon for the No. 9 District. During the last war he held a commission as captain R.A.M.C., and received the Medal of the Order of the British Empire for rescue work in connexion with a Zeppelin raid. He joined the British Medical Association soon after qualifying and was a member also of the Medico-Legal Society. In view of his large experience in police work he was appointed a member of the Committee on Tests for Drunkenness set up by the

Council of the B.M.A. in 1926 and also of the Police Surgeon Subcommittee in 1936. A. B. writes: It is perhaps in his capacity as joint hon. secretary of the Metropolitan Police Surgeon Association that Moore will be best remembered by his colleagues and friends. For many years he acted in this capacity, and his sympathy and helpfulness to the individual police surgeon who turned to him in any difficulty were invariably genial and cheerful manner sometimes seemed to temper convictions which he held strongly. But, particularly where the professional rights and interests of his colleagues were concerned, he was persistent in his advocacy. His sense of discipline and his forbearance often determined an urbane exterior which in no way deceived those who knew him best. His loss at this juncture will be especially felt.

The City of York as well as the medical profession of the city has suffered loss by the death of one of the oldest of its practitioners, GEORGE WILFRID GOSTLING, on Nov. 3, at the age of 73. He went to York in 1895 as house-surgeon to the York County Hospital and remained attached to it in various capacities for the rest of his life. He became a member of the honorary staff in 1899, and when he retired from the active staff three years ago he had been senior honorary surgeon and chairman of the Medical Board for many years. He occupied the post of president of the York Medical Society, chairman of the local Division of the B.M.A., chairman of the Local Medical and Panel Committee, to the entire satisfaction of the members of these bodies. Dr. Peter Macdonald writes: A man of great charm, Gostling was not only respected but loved by all who knew him. He had a charitable outlook on things and on people. The writer, who knew him intimately during the whole of his York life and who shared many of his activities, cannot remember ever hearing him say an unkind word to anyone.

News has been received of the death in Peking in June 1943 of Dr. W. H. GRAHAM ASPLAND, physician to the British Legation in that city. Dr. Aspland had an adventurous career. He was born in Toronto in 1868, and qualified in medicine in 1896, proceeding M.D. Toronto in the following year. He was the first doctor to be sent by Sir Wilfred Grenfell's Mission to Labrador. There he met his wife, Miss Ada Carwardine, who had been recommended to Grenfell by Sir Frederick Trevelyan as a nurse, and had gone out from London to organize a small hospital on Battle Harbour Island. On this island, which is icebound for six or seven months of the year, Dr. and Mrs. Aspland worked for some years. Later they went to China as medical missionaries, and at Peking, under Bishop Scott, they founded a mission hospital and ran it with the help of Chinese students. Dr. Aspland, having become fluent in the Chinese language, acquired an interesting practice among high-class Chinese, and from 1905 to 1912 he was professor of obstetrics and gynaecology at the Union Medical College. He did excellent work in China. No enterprise offered too great hardship for him, and during an epidemic of pneumonic plague in Manchuria he went out there, serving under a Chinese doctor. Both he and his wife volunteered, but the authorities would not take women, and so Dr. Aspland went alone. He was in England on leave when war broke out in 1914, and, with his wife, volunteered immediately for service in France. In 1914-15 he was medical officer in charge of a military hospital there and his wife was matron. He held the rank of lieutenant-colonel R.A.M.C. In 1915 they went to Serbia, where he was surgeon-in-chief of the Anglo-Serbian hospital, but in the following year they were taken prisoners by the Austrians. Later they were repatriated from Vienna to England, and Dr. Aspland set forth for fresh adventure in Russia, serving in the Anglo-Russian hospital in Petrograd and later with the field hospital attached to the Imperial Guards. During the summer of 1918 the hospital advanced with the Russian Army through the Pripiet marshes for 80 miles. In 1917 Dr. Aspland went to Armenia and worked for a time with the "Save the Children" Fund. After the Armistice he and Mrs. Aspland returned to Peking, where he served as medical officer to the Legation quarter. When Japan came into the war they were interned in their own house in the Embassy compound. Dr. Aspland received Serbian, Russian, and Chinese decorations, and in 1920 the Cross of the Legion of Honour.

News has been received from India of the death of Dr. JAL PESTONJI PADSHAH, who was holding the post of dean of the G.S. Medical School and King Edward Memorial Hospital in Bombay. Dr. Padshah was born in 1897 in Bombay. He came to this country to study medicine at University College Hospital where he won the Bucknill Scholarship. He graduated M.B. B.S. Lond. in 1920 and proceeded to the M.D. degree in 1922. Dr. Padshah worked in London for nearly ten years before returning to India, and had been a member of the British Medical Association for the past 23 years.

The Services

Cols. A. C. Macrae, V.H.S., and R. V. Martin, C.I.E., V.H.S., M.S., have been appointed Honorary Physicians to the King in recession to Cols. C. A. Wood, M.C., and R. Sweet, D.S.O., M.S. (ret.), respectively.

Cols. (temp.) J. T. McQuat and T. Menzies, R.A.M.C., have been appointed O.B.E. (Military Division) in recognition of gallant and distinguished services in North Africa.

Col. (acting) M. MacEwan, O.B.E., D.F.C., T.D., R.A.M.C., has been awarded the D.S.O. in recognition of gallant and distinguished services in North Africa.

Capt. (temp. Major) M. E. M. Hertford, M.B.E., and Capt. E. W. Aldwell, J. S. Martin, and J. Miedema, R.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in Sicily.

Capt. Christopher St. Johnston, R.A.M.C., was, in September, appointed surgeon to the Commander-in-Chief, India (Gen. Auchinleck), and is now on his personal staff in New Delhi.

Information has been received that Capt. L. V. Macdonald and J. H. A. Simmons, R.A.M.C., who have been prisoners of war, are now in Allied hands.

The following have been mentioned in dispatches in recognition of gallant and distinguished services in North Africa: Brig. (local) L. M. Weddell, Reserve of Officers, late R.A.M.C.; Brig. (local) E. R. Boland, O.B.E.; Cols. (temp.) J. H. Bayley, M.C., F. J. Hallinan; Col. (temp.) G. K. Maurice, D.S.O., M.C., Reserve of Officers; Majors (temp. Lieut.-Cols.) J. C. Alexander, T.D., H. D. Chalke, and S. Heatley; Capt. (temp. Major) (acting Lieut.-Col.) S. S. Chessier; Capt. (temp. Major) F. W. Bunting, R.A.M.C. Jemadar Siddiq Ahmed, I.M.S., has been awarded the M.C. in recognition of gallant and distinguished services in the field.

CASUALTIES IN THE MEDICAL SERVICES

Missing.—Surg. Lieut.-Cmdr. H. de L. N. Davis, R.N.V.R.; Capt. Archibald McLellan, R.A.M.C.

Killed by Accident in New Guinea.—Capt. N. V. McKenna, A.A.M.C.

Prisoners of war.—War Subs. Major J. R. Macdonald; Acting Major P. E. F. Routley, R.A.M.C.

Previously reported missing, now reported killed in action.—Major A. G. Porter, R.A.M.C.

Correction.—The name of Major R. L. Mackay, M.C., R.A.M.C., is incorrectly given among the Repatriated Medical Officers on Nov. 13, p. 627. The correct name is Major R. Mackay, R.A.M.C.

DEATHS IN THE SERVICES

We announced on Nov. 13 the death on active service of Major K. C. Eden, F.R.C.S., R.A.M.C. The Consulting Surgeon of the 8th Army writes: The sad death of Kenneth Eden on Oct. 20 from poliomyelitis robbed the 8th Army of its neurological surgeon. From just after El Alamein he had travelled with his unit through the long desert, into Tripolitania, into Tunisia, into Sicily, into Italy. Because of the paucity of these neurological units, his team was split up into two, the advanced section going to whichever C.C.S. drained the whole fighting line, the other section staying with the most advanced general hospital. Thus patients had their early operation by skilled specialized hands and were passed on to another team devoted to their special care, to be retained for a suitable period. In Africa Eden himself moved into the forward section and gave without stint to the neurologically wounded 8th Army man what he deserved—the best of skill and attention. In the British Army he thus had an unrivalled experience of forward neurological surgery. Eden saw Naples and died: many 8th Army men "saw Eden and lived."

Universities and Colleges

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—1. Patricia M. Lloyd, 2. Josephine M. Lord, 3. Margaret MacGregor, 4. J. J. R. Trencore, R. F. Alexander, B. B. Alhadeff, Janet F. Alkass, D. C. Beatty, W. C. H. Bell, G. Behavin, W. E. J. Bennett, Kathleen N. Berger, T. Bliss, D. H. Broxton, W. St. J. Buckler, R. R. Burn, Joyce M. Butt, R. J. Cairns, F. B. Chasrara, S. L. Clifton, Jean M. Connan, M. Conway, Lorna Cooke, J. G. Cotes, Doris A. Crafter, K. D. Crow, A. G. Davies, F. Deery, Elizabeth B. C. Dickson, M. C. H. Dodson, P. Dransfield, A. G. Eicker, D. H. L. Evans, R. H. J. Fairbairn, A. P. Fletcher, Joan M. L. Galt, S. Gee, T. J. B. Giffen, C. H. Gons, K. L. G. Goldsmith, N. M. Gough, O. B. Griffiths, T. Hawley, J. A. Harary, J. Hart, Sheila Haggard, R. G. Hayward, L. D. Henderson, G. R. F. Hilsen, Geraldine M. Howard, Sheila M. Howarth, J. G. Hunt, J. K. Irvine, Ida T. A. Jackson,

R. F. Jennison, H. B. Kelly, G. Kraft, P. G. Large, I. L. M. Larkin, Ninian Lewis, Una G. Lister, T. H. McCall, N. G. McGuire, E. M. Mackay-Scollay, W. Mackenzie, J. R. M. Miller, R. D. Millward, A. J. Moon, H. C. Moore, J. F. K. Muir, J. Mutch, D. H. D. Paine, Audrey Palmer, Diana G. Paradise, P. R. P. Pearshall, M. G. Philpott, S. Pickford, R. Pilsworth, Betsy J. Poland, C. A. Preenell, Denise A. Pullen, T. A. Quilliam, F. J. Rackow, D. A. C. Reid, J. A. Rider, Dorothy M. Ridout, J. A. Robertson, Joan M. Rochford, R. H. Russell, Elizabeth R. Rutherford, W. H. Smith, P. Solnik, V. H. Sprinzel, R. J. M. Steven, F. G. Strong, G. E. Sutcliffe, P. G. Swann, Bessie P. Thurlow, M. Trosser, Judith M. Waterlow, J. S. Watson, G. F. Wigginsworth, P. R. E. Williams, R. E. Wigram, J. Zimmermann.

1 With Honours. 2 Distinguished in Pathology. 3 Distinguished in Medicine. 4 Distinguished in Surgery. 5 University Medal.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At an ordinary meeting of the Council held on Nov. 11, with Sir Alfred Webb-Johnson, President, in the chair, the Gilbert Blane Medal was presented by the Medical Director-General of the Royal Navy, Surg. Vice-Admiral Sir Sheldon Dudley, to Surg. Comdr. D. P. Gurd, R.N., in the presence of the Council of the College and the President of the Royal College of Physicians.

The following were re-elected Members of the Court of Examiners for a year as from Dec. 9, 1943: Messrs. V. Zachary Cope, C. E. Shattock, E. W. Riches, and W. H. C. Romanis.

Mr. J. Leigh Collis was elected a Hunterian Professor for 1944. The Council approved its Memorandum of Evidence to be given before the Teviot Committee.

Diplomas of Membership were granted to the candidates whose names appear in a report of the meeting of the Royal College of Physicians of London in the *Journal* of Nov. 6 (p. 593), and to Dorothy Willoughby and D. E. R. Kelsey.

Diplomas were granted, jointly with the Royal College of Physicians of London, as follows:

DIPLOMA IN PUBLIC HEALTH.—Phyllis M. Burton, Kathleen Fort, Margaret E. Merrick, H. A. Nathan, Lucy M. Sutcliffe.

SOCIETY OF APOTHECARIES OF LONDON

At a quarterly meeting of the Court held on Oct. 26, with Sir Stanley Woodwork, Master, presiding, Dr. J. P. Hedley was reappointed as the Society's representative on the General Medical Council.

The following candidates have satisfied the examiners in the subjects indicated:

PATHOLOGY, BACTERIOLOGY, AND FORENSIC MEDICINE.—A. M. Benson, P. D. Bryant, A. E. Bernstein, D. A. Cox, T. C. McGilmore, G. R. S. Jackson, M. W. Johnston, J. M. Macdonald, J. J. Maskell, J. Middleton, J. C. F. Poole, N. Sachs, J. H. S. Scarlett, C. R. P. Sheen, J. C. Stephens, M. N. Tata, J. Walker, J. K. Wilson, H. M. Wolff.

SURGERY.—A. M. Benson, P. L. Brangwin, R. J. N. Hodges, R. J. C. Hutchinson, J. C. F. Poole, A. M. Rajah, N. Sachs, R. N. Theakston, W. M. Thomas, J. K. Wilson.

MEDICINE.—P. D. Bryant, T. Y. Martin, J. Middleton, J. C. F. Poole, N. Sachs, J. H. S. Scarlett, M. N. Tata, R. N. Theakston, J. M. Thomas, J. K. Wilson.

MIDWIFERY.—S. R. Abrams, A. E. Bernstein, P. L. Brangwin, K. R. J. Coates, T. H. Eustice, E. A. Humphrey, H. R. Mohammed, T. Moss, J. C. F. Poole, N. Sachs, J. K. Sargent, J. K. Wilson, A. M. Wolff.

The Diploma of the Society was granted to G. R. S. Jackson, J. M. Macdonald, J. C. F. Poole, A. M. Rajah, N. Sachs, J. H. S. Scarlett, M. N. Tata, R. N. Theakston, W. M. Thomas, J. K. Wilson.

Medical Notes in Parliament

Ingredients of Packed Foodstuffs

In the House of Commons on Nov. 9 Mr. MABANE stated that a White Paper had been issued explaining the regulations which had been made to enable the Minister of Food to protect the consumer against false and misleading claims of the nutritive quality of foodstuffs. Sections 6 and 8 of the Food and Drugs Act, 1938, and Section 9 of the Sale of Food (Weights and Measures) Act, 1926, were reproduced in the new regulations. The only additional power not previously approved by the House was contained in Regulation 2. This gave power to restrict "the making on advertisements of food of claims or suggestions or the presence in the food of vitamins or minerals." It was unfortunate that a small minority of manufacturers should have been tempted to exploit the national nutritional policy. Reputable food manufacturers, no less than scientists and members of the medical profession, recognized the harm that was being done by misleading advertisements of this nature. It was with the object of bringing them to an end that the new powers had been taken by Order in Council. The enforcement of any specific Orders which might be issued under these powers would be entrusted to local authorities, but they would require, unless it was otherwise provided, to obtain the Minister's consent before proceedings were taken. This would ensure that proceedings were taken against the manufacturer responsible for the false description and not against a large number of retailers through whom the product reached the public.

According to the White Paper it is the intention that in general pre-packed articles of food shall bear a label indicating the name and address of the packer, the common or usual name (if any) of the food, the minimum quantity of food contained in the package, and the common or usual names (but not proportions) of the ingredients. Provision will be made for relaxing these requirements in appropriate cases, and the disclosure of ingredients will not be necessary in the case of foods for which a standard is prescribed under the Regulations. In this way the public will be fully protected as to the quantity of food they are buying or its quality, either by the existence of a standard or by the disclosure of its ingredients. When it is claimed that foods contain vitamins and minerals the label must in future bear a quantitative disclosure of these active ingredients.

Tuberculosis

Mr. AMMON on Nov. 10 opened a debate on tuberculosis. He referred to the rise in incidence since 1938 and desired an indication on post-war planning in regard to housing and medical services so that men should not return from the front to conditions conducive to this disease. There must be an early searching out of cases likely to develop active tuberculosis. Radiography sets could be taken to the factories instead of managements sending workers to distant points. Something could be done by care and training in habits which would restrict the infection. The time had come to draw the line between recoverable cases and those which would not recover, but allowances should be provided for all.

Sir HENRY MORRIS-JONES thought that the black-out had aggravated tuberculosis. In the greater proportion of buildings in this country there was no ventilation during the black-out. Dr. EDITH SUMMERSKILL said that to give allowances only to those patients who were considered curable was contrary to the principles and practice of the medical profession. Sir LAMBERT WARD stated that up to a few weeks ago 17 mass radiography sets had been issued. What were these among 42,000,000 people? Mr. SLOAN contended that hospital accommodation of tuberculosis patients should be part of the general hospital scheme. Colonel H. GUEST asked how voluntary hospitals treating tuberculosis were to associate with State hospitals and hospitals maintained by the rates. Voluntary hospitals were able to carry out research and go in for the high-class surgery which was called for in tuberculosis. The trouble was to know where to send patients when they had undergone the surgical treatment. Mr. MATHERS told of letters from nurses who had contracted this disease in their nursing service and were declared ineligible for any allowance. Apparently there was no compensation for them at all.

Mr. WESTWOOD, replying for the Government, said it was now possible to discover whether a person was liable to contract the disease and possibly to save him from contracting it. The mass radiography was a start. Three sets were to be provided in Scotland. They would be placed in Glasgow, in Edinburgh, and in the county of Lanark. There was difficulty in getting these sets in the midst of war. The shortage of domestic staffs and trained nurses had to be faced. The tuberculosis scheme rested on the recommendations of the Committee on Tuberculosis in Wartime, appointed by the Medical Research Council, at the Government's request, in the autumn of 1941. That committee recommended the controlled use of radiography, and also special financial assistance to induce patients to early treatment. This was an experimental scheme and there would have to be adjustments. The scheme provided relief for patients with pulmonary tuberculosis, and its main purpose was to rehabilitate those who could be rehabilitated. The scheme allowed considerable latitude. It had benefited three out of four cases in Scotland where applications had been made. He hoped incurable or chronic cases would come within the general social security scheme which would apply to those suffering from all diseases.

Precautions against Epidemics

Major LYONS on Nov. 11 inquired what steps had been or were being taken in consultation with the Dominions and Colonies and with the United States of America to ensure that machinery was available to come into complete operation to cope immediately with any world-wide epidemic at the instant of occurrence. Mr. ERNEST BROWN said arrangements for the exchange of epidemiological information were in operation between this country, the Dominions and Colonies, the United States of America, and Allied and neutral countries. The International Sanitary Conventions governing quarantine and other precautions were still being observed by all these countries. Their working had been adapted to wartime conditions and advances in preventive medicine. The risks of epidemics in liberated countries and in the immediate post-war period were

among the matters which would receive closest attention from the United Nations Relief and Rehabilitation Administration.

Diphtheria Immunization.—Mr. VIANT inquired on Nov. 4 the meaning of the Ministry's advertisements in the Press and on the hoardings that immunization protected against diphtheria in view of the statement in the last report of his Department that it had never been claimed that immunization gave complete protection to the individual child. Mr. ERNEST BROWN replied that there was inconsistency between the advertisement and the report. The latter showed that in 1942 the rate of incidence of diphtheria among immunized children was one-fourth or one-fifth of that among those not immunized, and that the unimmunized child was from ten to thirty times as liable to die from diphtheria as the immunized child.

Tuberculosis in Nurses.—Mr. MESSER inquired on Nov. 11 whether any machinery had been established to obtain statistics showing the incidence of tuberculosis among the nursing staffs of tubercular sanatoria separate from those in general hospitals in England and Wales. Mr. BROWN said no such machinery had been established, but he desired to obtain reliable statistical information on the point. He was consulting his Medical Advisory Committee and the Standing Advisory Committee on Tuberculosis as to the scope and form of the inquiries which ought to be made to attain the object.

Notes in Brief

A gas-and-air apparatus has been supplied to every Emergency Maternity Home where a request has been made by the local authority administering the home, and where the staff included a midwife holding the special certificate for the administration of a gas-and-air analgesia.

During the Committee Stage of the Parliament (Elections a Meeting) Bill on Nov. 3 Mr. Peakes for the Government accepted a new clause to permit the appointment of proxies for Service voters at university elections.

The Wage-earners Income Tax Bill passed through Committee the House of Commons on Oct. 20. Resisting a proposal to extend the "pay as you earn" provisions to salaries above £600 a year, Sir John Anderson said he was in favour of extending these at a proper time. He wanted to feel sure he did nothing unfair to professional men assessed under Schedule D. Later Sir John promised to reconsider the scope of the Bill at a later stage.

The Agricultural Research Council has found sufficient time to start field experiments with B.C.G. vaccine for control of bovine tuberculosis. The test must last over five or six years, of which the present year is the first.

Medical News

Owing to the absence of many members on war service the activities of the School Medical Group of the Society of Medical Officers of Health have been suspended for some time past. A meeting has now been called for Friday, Dec. 3, at 2.45 p.m., to be held at the Guildhall, Market Place, Derby, for the election of officers and for a discussion on "The Future of the School Medical Service." The president of the society, Dr. R. H. H. Jolly, will take the chair and all Fellows and members are invited to attend. Those who hope to be present are asked to notify Dr. A. A. E. Newth at 14 Chaucer Street, Nottingham.

At the meeting of the Medical Society for the Study of Venereal Diseases to be held at 11, Chandos Street, Cavendish Square, London, to-day (Saturday, Nov. 27, at 2.30 p.m.) a discussion on "Is a 'No Deal' in Venereal Disease Control Necessary?" will be opened by Dr. I. N. Orpwood Price and Dr. J. A. Burgess. No meeting will be held in December. On Jan. 29 a discussion on "Intensive Arsenotherapy" will be opened by Lieut.-Col. D. M. Pillsbury, Capt. C. J. Courville, and Capt. G. R. Wise, U.S. Army.

The first of a series of clinical and pathological demonstrations will be given in the Royal Salop Infirmary on Dec. 3, at 3.15 p.m., when the subject will be "Disorders of the Blood." The first part will consist of a demonstration of laboratory methods in the diagnosis and control of blood disorders, and the second of a demonstration of cases of the commoner blood disorders. Other meetings will follow, when it is hoped to deal with heart, respiratory, and renal diseases, diseases of the nervous system, and, if possible, all diseases.

The Central Council for Health Education, which is charged by the Ministry of Health with providing material and lectures for the instruction of the public in health matters, urgently needs part-time lecturers. They should be medical men and women who, in their spare time, can give technical instruction simply and in an interesting way to lay audiences. A fee of £1 1s. is paid for each lecture, in addition to third-class travelling and certain out-of-pocket expenses. Further information and enrolment form may be obtained from Dr. Robert Sutherland, Central Council for Health Education, Tavistock House, Tavistock Square, London, W.C.1.

The Secretary of State for the Colonies has appointed a committee, under the chairmanship of Lord Rushcliffe, to examine the action of training, both in this country and over-seas, for nurses to be to serve in Colonial territories, and to make recommendations having regard also to the need in those territories for increased public health activities and for the fostering and development of community welfare. The medical members of the committee are: Mary Blacklock, Dr. W. H. Kaunz, Dr. H. M. C. Macaulay, Dr. A. H. Moody, and Dr. A. G. H. Smart, Medical Adviser to the Secretary of State.

Sir Walter Womersley, Minister of Pensions, and Mr. G. Minson, M.P., Parliamentary Secretary to the Minister of Labour and National Service, recently attended a lecture-demonstration at Leeds to further the plans of the two Ministries for equipping and training limbless persons to enable them to return to industry and to live a life of normal activity. Describing the plans of his Ministry to rehabilitate the limbless, Sir Walter emphasized that the scheme did not affect their pension rights. Dr. R. D. L. Kelham (from Roehampton Hospital) described the great advance that had been made in the training and equipment of the limbless.

The William Osler Medal of the American Association of the History of Medicine has been awarded to George Edward Murphy of the School of Medicine of the University of Pennsylvania for an essay entitled "The Evolution of our Knowledge of Rheumatic Fever." The essay will be published in the *Bulletin of the History of Medicine*.

Christmas cards and calendars will not be so plentiful this year, as the Grenfell Association has a selection available which it is offering as useful in aid of the children of Labrador. There are boxes containing six cards and envelopes at 1s. 6d. and 1s. 9d. and single cards with envelopes at 6d. each, also useful pocket calendars at 3d. Copies will be supplied if postage is sent to the Grenfell Association at 66, Victoria Street, London, S.W.1, or to 21, Bothwell Street, Glasgow, C.2. All who buy will have the double satisfaction of curing cards which, for wartime, are very moderately priced and helping a good cause.

The National Association for the Prevention of Tuberculosis has produced a short sound film about mass radiography. This film will be useful for showing to office and factory staffs, managers, shop stewards, and others before mass radiography examinations are to be made. An advance view of the procedure should help them to form a correct idea of what mass radiography is, and will disarm criticisms from management and workers. It should also show the complicated procedure of passing the subject in and out of the x-ray room, and thus save time. The film is available in 6-mm. and 35-mm. size (non-flam) and lasts for 12 minutes. Apply to Dr. Harley Williams, N.A.P.T., Tavistock House North, Tavistock Square, London, W.C.1. The N.A.P.T. cinema unit is available for the showing of health programmes, including the mass radiography film, as engagements permit.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales there were rises in the incidence of acute pneumonia 100, diphtheria 68, and whooping-cough 62, but those of scarlet fever, dysentery, and measles fell by 249, 102, and 32 respectively. The only important local variation in the trend of scarlet fever was a fall of 70 cases in Middlesex. The largest of the local increases in diphtheria was in Yorks West Riding—40. Lancashire showed the biggest rise in acute pneumonia, 43. On account of an outbreak in Birmingham C.B. notifications of whooping-cough in Warwickshire rose by 13. A steep fall occurred in the notifications of dysentery from 148 to 146; during the preceding nine weeks an average of 259 cases had been recorded. In Bedfordshire, which last week had 30 cases, 16 new cases were reported, and 7 from Dorsetshire last week 361. The incidence in London remained at a high level: 43 cases were reported compared with 53 in the previous week. Other centres of infection were Middlesex 17 and Surrey 14.

In Scotland notifications of dysentery rose by 90 cases, of acute pneumonia by 48, diphtheria by 13, and whooping-cough by 11. Kincardine County reported 25 cases of dysentery, and in Edinburgh the incidence of this disease rose from 29 to 85; a small rise also occurred in Glasgow from 8 to 16. In the latter city cases of pneumonia rose by 30.

In Eire scabies—because of its prevalence—has been added to the list of notifiable diseases. In the city of Cork 2,549 persons have been treated in the corporation's clinic since the end of March. 1,076 were adults and 1,473 children.

The Week Ending November 13

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 3,236, whooping-cough 1,902, diphtheria 819, measles 557, acute pneumonia 781, cerebrospinal fever 41, dysentery 158, paratyphoid 4, typhoid 5.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov. 6.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	44	4	27	3	4	65	3	30	1	—
Deaths	—	—	1	2	—	—	—	—	—	—
Diphtheria	770	41	179	117	40	881	43	259	93	16
Deaths	12	1	5	—	1	16	1	2	5	—
Dysentery	146	43	156	—	4	142	14	53	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	4	—	1	1	—	2	—	2	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	60	6	2	—	—	58	2	4
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	44	10	14	29	3	57	5	10	30	4
Deaths	—	—	—	12	—	—	—	—	20	—
Measles	553	46	62	29	2	7,384	—	379	10	44
Deaths	—	—	—	—	—	10	5	—	—	—
Ophthalmia neonatorum	85	8	17	—	1	76	2	18	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	4	—	—	—	1	6	—	—	—	—
Deaths	—	—	—	—	—	1	—	—	—	—
Pneumonia, influenza*	676	32	29	2	1	543	24	9	—	5
Deaths (from influenza)	31	4	20	1	1	19	3	8	—	—
Pneumonia, primary	—	—	306	21	13	—	—	145	6	7
Deaths	—	—	30	13	—	—	—	—	8	—
Polio-encephalitis, acute	—	—	—	—	—	1	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Polymyositis, acute	11	—	1	2	—	18	1	4	18	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	2	26	—	—	—	3	11	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	142	7	14	1	2	140	10	15	6	1
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	3,374	237	407	61	111	2,736	163	453	55	47
Deaths	1	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	2	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	4	—	2	10	—	6	—	1	11	3
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	1,755	108	216	16	25	965	72	39	33	11
Deaths	7	—	31	—	—	7	1	—	—	—
Deaths (0-1 year)	318	41	63	32	22	324	33	60	32	30
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	4,171	611	630	204	135	4,219	603	57	181	133
Annual death rate (per 1,000 persons living)	—	—	14.2	13.4	—	—	—	13.6	12.1	—
Live births	5,675	717	839	336	263	5,572	650	876	309	249
Annual rate per 1,000 persons living	—	—	17.1	22.1	—	—	—	18.1	20.6	—
Stillbirths	189	22	42	—	—	202	23	31	—	—
Rate per 1,000 total births (including stillborn)	—	—	45	—	—	—	—	34	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Members' subscriptions should be sent to the Secretary of the Association.

TELEPHONE No.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES.—EDITOR, *Aitiology Westcent*, London; SECRETARY, *Medisecra Westcent*, London.

B.M.A. SCOTTISH OFFICE: 7, Drumshough Gardens, Edinburgh.

ANY QUESTIONS?

Heat in the Treatment of Shock

Q.—*What is the current teaching on the use of heat for shock? I have been in the habit of telling my first-aid classes that restoring heat to the shocked person is of first importance. I am now told that modern work is showing that the application of heat may even be dangerous. I should therefore like to know the present position with regard to heat in the first-aid treatment of shock and in the treatment of shock in a resuscitation ward.*

A.—The shocked patient is usually cold and, under war conditions, may often be suffering from the effects of exposure. It was formerly regarded as of first importance to apply heat rapidly and vigorously. Modern considerations have led to some well-founded criticism of this line of treatment.

In a normal human subject the application of heat accelerates the circulation, the increase taking place almost entirely through the skin and muscles. It used to be claimed that the improvement in pulse volume following the application of heat in shock was an indication of the benefit achieved. It is understandable that, as the skin of the arms and hands shares in the improvement of the superficial circulation, this observation does not necessarily indicate any change for the better in circulation through vital organs. The shocked patient is suffering from a depletion of the circulating blood volume. It is estimated that when the blood vessels of the skin are dilated by the application of heat, as much as 500 c.cm. of blood may be diverted into this part of the vascular system. When the blood flow through the vital organs is already imperilled by shock, it would appear to be harmful to increase the skin circulation at their expense. Furthermore, the increased heat leads to an increased tissue demand for oxygen, which may create further difficulties in the presence of a depleted circulation. Blalock and Mason in a long series of experiments in dogs produced a standard degree of shock by bleeding and other methods. It was found that the survival time of these animals was considerably prolonged by cooling, while overheating accelerated death.

It would be unwise at the moment to transfer these results unmodified to the human subject and to recommend cooling as a line of treatment. Clinical observations do, however, suggest that over-heating is definitely harmful and should be avoided. If the patient complains of cold he should be given enough cover and warmth for comfort, but overheating should be regarded as undesirable. In the absence of any shivering or other discomfort from cold, it is unlikely that cold does much harm.

"Alarming Effects" of Choline Derivatives

Q.—*In the interesting and chastening article, "Some Therapeutic Fallacies," by Drs. Linnell and Thomson, in the JOURNAL of Nov. 6, the authors, in discussing the treatment of paroxysmal tachycardia, say of acetyl-beta-methylcholine chloride that "its effects in other ways may be alarming." What are these alarming effects, and to what extent do they militate against the use of the choline derivatives—also how should they be counteracted?*

A.—The alarming effects which may be caused are (1) syncope due to sudden great fall in blood pressure, (2) a sense of subnormal oppression or even pain, (3) asthma, especially in an allergic subject, (4) vomiting, (5) diarrhoea or even involuntary defaecation; (6) arrest of the heart has also been described. Atropine in full dosage is an effective antidote and should be kept in readiness in every case in which the drug or an allied choline compound is administered. These drugs should not be used in known allergic subjects, and, if an attack of asthma should be caused, adrenaline chloride should be immediately injected. It may be added that choline compounds should never be given intravenously or with the patient sitting up; and it is always wise to have a bed-pan at hand so that the patient need not raise himself to defaecate.

Spondylitis

Q.—*A patient aged about 30 has been treated since March with wide-field x rays for spondylitis. A radiograph of the lumbar and pelvic areas now shows arrested spondylitis with some decalcification of the thoraco-lumbar vertebrae, fusion of 4th and 5th lumbar vertebrae, sacro-ileitis, and osteo-arthritis of the left hip joint. The patient has not experienced any relief. What is the treatment?*

A.—It is difficult to see how x rays can demonstrate "arrested" spondylitis if decalcification is present and the patient has experienced any relief; it rather suggests wishful thinking. Sedimentation rate would furnish more reliable information. My experience wide-field x-ray therapy has not proved of value in established ankylosing spondylitis and has sometimes been responsible for serious constitutional disturbance; this does not apply to localized deep therapy over a small area at a time. It follows therefore that a second course is not advised. A period of rest in bed with fresh air, heliotherapy or ultra-violet irradiation, cod-liver oil to raise the general resistance, and the wearing subsequently of a well-fitted spinal brace of the Goldthwait or Taylor pattern if work is resumed, is likely to be the most beneficial line of treatment.

Transmission of the Blood Group

Q.—*Does the blood of a newly born baby exhibit the character of one of the blood groups? If not, when do they develop? If they inherited, and do they follow known Mendelian laws?*

A.—Yes. The agglutinogens have been detected as early as the 37th day of foetal life. The reaction at birth is, however, relatively weak and increases in strength during childhood. The agglutinins of the serum are not formed till after birth; any then present derived from the mother. The blood group to which a person belongs is entirely determined by heredity. The mode of inheritance is thoroughly understood. As regards the ordinary blood groups, (A, B, AB, these are determined by which pair of genes is received from the parents. A person receiving two O genes belongs to Group O (universal donors); a person receiving either two A genes or one A and one O belongs to Group A; a person receiving either two B genes or one B and one O to Group B; a person receiving one A gene and one B gene belongs to Group AB. It is now known that not all A genes are the same. A1 produces a 'strong' reaction, a weaker reaction, and A3 a still weaker reaction. A1 and A2 are both common, A3 very rare. The MN series involves quite different agglutinogens. Except in extremely rare instances the corresponding agglutinins do not occur in human serum; they have to be produced by inoculation of rabbits with human red cells. There is only one pair of genes. A person who receives two M genes belongs to Group M; a person who receives two N genes to Group N; a recipient of one M and one N gene belongs to Group MN. The factor which has aroused so much interest in connection with erythroblastosis foetalis (icterus gravis neonatorum) depends on a gene pair, Rhrh. Persons receiving two Rh genes or one Rh and one rh are Rh-positive; persons receiving two rh genes are Rh-negative. The great majority of the babies suffering from the condition erythroblastosis foetalis, the Rh gene being derived from the father. Their mothers may excite the production of the antibody in their blood, so producing the reaction. Altogether nothing in human genetics is better understood than the transmission of the blood group, and it is a story to which further chapters are likely to be added.

Gwathmey's Obstetric Anaesthesia

Q.—*Will you please give me the technical details of obstetric anaesthesia according to Dr. Gwathmey.*

A.—Gwathmey believes that a combination of drugs, each for a specific purpose, produces more than an additive effect, one enhancing the action of the other (synergism). He originally stated that hypodermic injections of magnesium sulphate potentiate the action of small amounts of other analgesic drugs given simultaneously, but he now appears to have abandoned this claim. It is doubtful if the mag. sulph. ever served any useful purpose in the dosage he used. His present technique is as follows: The rectum is washed out with a 5 to 10% sodium bicarbonate solution. The pains become severe the patient is given nembutal gr. 3. The effect of this initial dose of nembutal begins to wear off, the following mixture is run into the rectum: Ether 3 24; quinine alkaloid gr. 20; alcohol n 45; paraldehyde 3 2; olive oil ad 10. This may be repeated after an interval of 24 hours, though it is not often required. The quinine is not given more than twice in the meanwhile further sedation or analgesia is necessary and given further doses of nembutal gr. 1½ when required, and if pains are strong morphine gr. 1/6 is given with this second dose of nembutal, though it is omitted if delivery is expected within 4 hours. Throughout labour the degree of the patient's sufficiency rather than the amount of cervical dilatation is the guide to additional doses of nembutal. At the actual delivery nitrous oxide or oxygen may be used, but not chloroform.

Polyuria

Q.—What is the cause of polyuria and frequency arising in a healthy man of 44? Frequency during the day, every 2 to 3 hours; 0 difficulty, no pain or any other symptoms of disorder: S.G. of ay urine 1000, pale, no albumin or sugar. Occasional single disturbance at night; urine dark, high S.G., onset fairly sudden 1st 2 to 3 months. No apparent disease in any organ, general health excellent, no cardiovascular disease, B.P. 125/80. No thirst, appetite normal.

A.—The degree of polyuria is not stated, and the highest specific gravity of the specimens of urine is not given. If the specific gravity of any one specimen is over 1020 then polyuria is not due to diminished renal function, and if there is a high specific gravity in any specimen, then diabetes insipidus is probably not present. The symptom of polyuria without thirst and with normal appetite suggests that it can only be slight in degree. If the 24-hour volume is less than 1,800 c.cm. the condition is probably frequency without polyuria, and it will be necessary to exclude infection of the urinary tract by microscopical and bacteriological examination of the deposit from a centrifuged specimen of urine. It is assumed that a rectal examination has been made. Other factors which may be considered are alterations in physical or mental habits, diet, or environment. Frequency of micturition is sometimes a symptom associated with anxiety states.

Voluntary Sterilization and the Law

Q.—A woman says to me, "Doctor, I want to be sterilized." Can I do it in the absence of obstetrical indications, or is it illegal?

A.—The sterilization of a woman apart from therapeutic indication is nowhere forbidden by statute law. The Offences against the Person Act, 1861, which was intended to be a complete code of this part of the criminal law, does not mention it. At that date, however, surgical sterilization was not a practical possibility. If a doctor were prosecuted for such an act, the prosecution would therefore have to allege a breach of the common law. This has never yet been done. Judges occasionally create new common-law offences, or, rather, declare for the first time that the act charged is and would always have been an offence. The common law is a body of principles rather than a code, and new ways of offending against those principles may be developed from time to time. It is therefore always open to a judge to rule that a doctor has committed an offence against the common law by rendering (without good medical reason) a woman permanently incapable of bearing a child, for to do so is an injury to the State. Professional ethics has always insisted that medical skill should be confined to medical indications and not directed by social, eugenic, or economic considerations, still less by those of personal convenience. A doctor who disregards his professional code need not be surprised if he soon conflicts with the law. If the sterilizing process was intended to be temporary and could be easily undone, the offence (if it is an offence) would presumably be mitigated. In brief, sterilization without good medical reason is probably illegal, and the doctor would be well advised to leave it alone.

Sulphonamides for "Rheumatism"

Q.—Are there any records of the sulphonamides being used in cases of rheumatoid arthritis and fibrositis, and are they likely to be of use in the infective forms?

A.—Response to sulphonamide treatment is determined not by the nature of a disease but by the identity of the micro-organism responsible. In so far as the conditions named may be caused by either the haemolytic streptococcus or the gonococcus, a good effect may be expected; otherwise probably not. In the great majority of cases an infective origin is incapable of real proof, though it may be suspected; antibacterial treatment is therefore empirical, and has certainly had no consistent success. It has also to be remembered that sulphonamide treatment is generally less effective in chronic infections and those involving less vascular structures than in acute.

Dermatomyositis

Q.—I have a man of 58 under my care at present who has been suffering from dermatomyositis for six months. The left arm and hand are chiefly affected, with typical swelling of the fingers and filling up of the palm, marked limitation of movements, and commencing atrophy of the forearm muscles. He now complains of the chest and right arm, with acute tenderness of the skin and muscles on pressure. Before consulting me a month ago he had had all known treatments for neuritis, arthritis, etc., including gold, vitamin B, (both orally and parenterally), and all forms of physiotherapy, including short-wave, without any relief of pain. A combination of thiosinamine and thyroid aggravated the condition, and codine gr. 1/2 gives no benefit. All forms of heat treatment make the pain worse.

A.—There have been no important advances in the treatment of this chronic condition. One American author suggests that sulph-

anilamide may be helpful, but owing to wartime difficulties the writer has been unable to trace the paper. It is assumed that the diagnosis of dermatomyositis is correct, though the question does not give a very convincing description of the disease. Attempts have been made to demonstrate a relationship between dermatomyositis, myasthenia gravis, and thyrotoxicosis, but even if a connexion exists it does not suggest any line of treatment. From the practical point of view this disease remains obscure, very rare, and of unknown aetiology. There is no specific therapy, and the only thing to do is to push analgesics until relief of pain is achieved.

Haldane's Haemoglobinometer and CO

Q.—We have a Haldane haemoglobinometer in the sick bay; but there is no coal gas laid on. Is there any way we can use this instrument without carbon monoxide? Would a solution of coal gas in distilled water serve the purpose? Is there a large error in the reading if the estimation is carried out without passing coal gas through it?

A.—There is no way of using the Haldane haemoglobinometer without carbon monoxide that is really satisfactory. Carbon monoxide cylinders can be obtained from British Oxygen Company, East Lane, Wembley, Middx., at a price of £2 13s. 6d. per cylinder (17 cu. ft.), and refills can be obtained at a price of £1 6s. 6d. If a fine-adjustment needle is fixed to the cylinder the result is extremely satisfactory. This arrangement is used extensively in the present surveys that are being made of haemoglobin levels. An alternative is to make your own carbon monoxide as described in Peters, J. P., and Van Slyke, D. D., *Quantitative Clinical Chemistry Methods* 1932, 2, 342.

Undescended Testes with Infantile Genitals

Q.—A boy 10 years of age, of a bright appearance and normal intelligence, shows one marked abnormality—namely, under-development of the external generative organs and non-descent of the testes. The genitalia appear like those of an infant and the testes are palpable neither in the scrotum nor along the inguinal canal. There is no tendency to obesity.

A.—This is probably a case of selective failure of the anterior pituitary gonadotrophic function. The correct treatment is the intramuscular injection of chorionic gonadotrophin, 500 rat units twice weekly in alternate months. The prognosis should be somewhat guarded, but there is a high probability that the treatment will be successful.

Breast Lymph and Cancer

Q.—What difference is there, if any, between the lymph in a normal breast and the lymph in a breast with early cancer?

A.—Stasis of lymph is regarded by some as an important precursor of cancer. I cannot recall a demonstration that lymph in a breast with early cancer differs in quality from the lymph in a normal breast.

INCOME TAX

Appointment: Expenses

"N. J." held an appointment in North London and took a house there. He now holds another E.M.S. appointment, south of the Thames. Can he claim an allowance for the following expenses: (a) travelling from his home to the hospital where he works, (b) cost of telephone, which is necessitated by liability to be called out in air raids as casualty officer, (c) cost of books for M.R.C.P. study, and (d) cost of domestic servant in view of his wife's whole-time work under the Ministry of Labour.

* (a) Under the Finance Act, 1942, Sec. 26, an allowance can be claimed up to a maximum of £10 a year if the change in the place of work is (as presumably it is) connected with the present war. (b) Only a proportion according to use, so far as there is a direct connexion with a paid appointment. (c) No—the cost is one of a capital nature. (d) No—the old case of Bowers v. Harding is conclusive on this point.

Proportion of General Expenses

"Y. Z." occupies a large house and garden, which has been attached to the practice for 120 years. Recently the inspector of taxes has refused to continue the allowance for part of the cost of a gardener and claims to reduce the amount allowed for keep of a locum tenens and of a maid employed in the work of the practice. What action should be taken?

* This is one of those questions which depend so much on the facts of the particular case that it is difficult to offer any advice in general terms. The broad principle followed is that the whole expense of the premises should be divided in the ratio in which the premises are in fact used for private or professional purposes. On that basis the claim to an allowance for part of the gardener's wages is weak—it would in strictness probably be confined to the part

spent on keeping the approach to the consulting room in reasonably decent order. As regards the cost of maid's keep, that should be capable of estimation on the basis that it is a fraction of the total cost of the whole establishment. Failing agreement with the inspector of taxes "Y. Z." has the right of appeal either to the local Commissioners of Income Tax or to the Special Commissioners, whose office is in London but who hear appeals locally when "on circuit."

Amount of Tax Payable

F. S.—The facts are sufficiently indicated below:

•• Total income:

	£	s.	d.	£	s.	d.
Dividends	540	0	0			
Property	52	0	0			
Personal Allowance				592	0	0
Taxable Income				140	0	0
Tax at 6s. 6d. on £165				£452	0	0
" 10s. " £287				53	12	6
£452				143	10	0
				£197	2	6

If the total income were £500 only the amount of tax payable would be as follows:

Total Income	500	0	0
Personal Allowance	140	0	0
" Old Age Relief " (one-tenth)	50	0	0
	190	0	0
Tax at 6s. 6d. on £165	53	12	6
" 10s. " £145	72	10	0
£310	£126	2	6
The alternative liability is therefore	126	2	6
plus three-quarters of (£592—£500)=£92	69	0	0
	£195	2	6

As this is less than the £197 2s. 6d. calculated in the ordinary way, £195 2s. 6d. is the true liability.

Allowance for Premiums under Pension Scheme

C. H. inquires why an allowance for premiums paid under a pension insurance scheme is given at the rate of 5s. only, and not at the rate of 7s. 6d., where the total income is between £1,000 and £2,000.

•• The higher rate applies to compulsory payments for deferred annuities to widows, etc.—e.g., where the payment is required by statute or as a condition of employment. Where the payment is made by virtue of a contract the appropriate rate is 5s. (Income Tax Act, 1918, Section 32 (3) (E) as amended).

LETTERS, NOTES, ETC.

Film of First-aid Post during Raids

Drs. L. ARTHUR N. LINE and W. G. ARTHUR (Birmingham) write: A film for the instruction of new or "directed" personnel has been made for the use of the Birmingham casualty services at the first-aid post of which we are in charge. This shows the administration and working of a post during raids, and gives an idea of what is expected of the staff in dealing with typical casualties, and follows the description of such work published by one of us in the *Journal* (Feb. 7, 1942, p. 193). The film runs for about 35 minutes, and though it is "silent" a careful commentary has been written to be spoken when it is shown. While it is by no means perfect and has the limitations of its small-scale production, it is practical and "common-sense" and seems to serve its purpose. As such a film takes many hours of time and trouble to produce we are mentioning it here so that, should other first-aid medical officers outside this area feel the need for such a method of instruction for their posts, further copies may be made for this purpose.

Stilboestrol for Cancer

Dr. WILLIAM MACWEN (Glasgow) writes: I am much interested in recent letters appearing in the *Journal* regarding the use of stilboestrol in carcinoma of the prostate, and I should like to know whether stilboestrol has been used in the treatment of carcinoma of the stomach or of the intestinal tract, and, if so, with what results. Perhaps some of your readers may be able to give information on this matter.

Strychnine for Paralysis

Dr. T. BLANCHARD SELLORS (Berkhamsted) writes: The letter of Dr. J. C. Jones (Oct. 23, p. 534) reminds me that during my tenure of office at R.M.O., St. Mary's Hospital for Children, Plaistow, 1899 and 1900, diphtheria was terribly rife in West Ham and paralytic cases were frequently admitted. Twelve cases of respiratory paralysis—all accompanied by pareses of legs and palate, some of arm, larynx, posterior cervical, facial, or other muscles in addition

—formed the subject-matter of a paper never sent for publication. This has been unearthed and a summary is here appended. An average of the cases shows that a child of 5½ tolerated 1/30 gr. strychnine hydrochlor. hypodermically every four hours for 17 days before exhibiting signs of overdose. The only fatal case began to twitch on the second day and indeed was past hope on admission. One boy of 4, very extensively paralysed, tolerated 1/50 gr. every 4 hours for 27 days. Improvement was rapid in most cases and recovery well on the way before reduction of the dose was necessary. I have no notes of those cases without diaphragmatic palsy, but remember that the good effects of strychnine in these encouraged me to try heavy dosage in severe affections. Such energetic treatment could only be carried out in a hospital under skilled nursing and observation. Absolute rest (a calico band behind the back with loops for the shoulder to ensure recumbence, nas. feeding, etc.) was essential. Whether massive dosage from the start or Dr. Jones's graduation is employed matters little so long as the child is quickly brought under the influence of the drug.

Mycotic Nails

Mr L. N. REECE, F.R.C.S. (Brixham, S. Devon) writes: I was horrified to read under "Any Questions?" (*Journal*, Aug. 14, p. 221) the suggested drastic procedures for the cure of this condition, and haste to advise experiment with a line of treatment which I have been trying out on the cases which have come my way in the past few years. All G.P.s are familiar with the intractable bluish swelling of the nail folds which go on for months or years and discharge or become painful at times, but not all have realized that it is due to a fungus infection. I have made use of the affinity of the aniline dyes for this fungus, and so far have used a 20% wate solution of brilliant green. A weaker solution might be equally effective, and crystal violet would do equally well. My present technique is as follows: In every case of this infection it will be found that the cuticle is to some extent separated from the nail, and on exploring with the eye of a large needle a pocket is found. This pocket is the seat of the infection, and the purpose of treatment is to sterilize it. The eye of the needle is loaded with the solution, and the pocket is flooded and gently rubbed inside over its whole extent. The separation of the cuticle is increased as much as possible without discomfort, to give easy access. If the painting is done gently there should be no more discomfort than a little smarting. If desired, the stained nail fold may be concealed with a small strip of elastoplast. Once the dye has dried, the hand may be washed as usual. After three days the patient returns for a second treatment, when a great improvement will be seen. Almost all pain and swelling will have gone. Painting of the pockets carried out as before, re-separating the cuticle where it is already tending to adhere once more. After this the patient attends weekly intervals for a few weeks and any doubtful spots are repainted. Cure is recognized when there is no swelling, the color is normal, and the cuticle is normally adherent. This treatment is equally effective in those cases of invasion by fungus under the free edge of the nail. So far, in a small series of cases, including one of at least ten years' duration, there have been no failures or complications.

Abdominal Viscera in Thorax of Newborn Infant

Dr. J. B. FRUMIN (Blaenavon, Glam) writes: On June 16 the local midwife reported to me that a normal baby which she had delivered at 11 p.m. the previous night had been found dead 7 hours later. I visited the house and the mother said that she had not slept a night; at 2 a.m. she imagined the baby was cold, but was not unduly alarmed; at 6 a.m. she realized the baby was dead. The midwife told me that the baby had cried lustily and appeared quite normal. At the coroner's request I performed a post-mortem, and found that the abdominal viscera, with the exception of the liver and a portion of the large bowel, were packed in the left side of the thoracic cavity. As I have no idea how rare this abnormality is I report the post-mortem findings in case they may be of interest. The body was that of a male infant about 8 lb. in weight. Face cyanosed, well formed, no external abnormalities. On opening the thorax: left side of thorax was occupied by the stomach, spleen, all the small intestine, most of the large bowel, all enclosed in peritoneal sac; right side of thorax had the heart and lungs. The heart had two well-developed ventricles, but I could find only one large dilated auricle, with no trace of a septum. Right lung expanded; left lung unexpanded and very small. The abdomen contained only the liver, which seemed very large, and the distal end of the large bowel passed straight down from the diaphragm to the rectum. Both kidneys were in normal position.

Correction

In the article on "Employment of the Tuberculous in Industry in the U.S.S.R." (Nov. 20, p. 652), the fourth and fifth lines of the second paragraph should have read, "the People's Commissariat for Health and the Central Council of Trades Unions (which is responsible . . ."

PHYSICS AND THE SURGEON*

BY

H. S. SOUTTAR, C.B.E., D.M., M.Ch., F.R.C.S.

Surgeon to the London Hospital

William Wood Bradshaw, whose memory this lecture honours, was born in 1801 and became a member of our College in 1833. He was a man of unusual enterprise, for in the same year he became a Doctor of Medicine of Erlangen, and his appreciation of education was further shown when in 1844 he matriculated at Oxford as a Gentleman Commoner of New Inn Hall, becoming a Master of Arts three years later. He practised as a doctor in Reading, and in 1854 this College showed its high opinion of his worth by electing him a Fellow as a Member of 20 years' standing. He died in 1866, and his widow endowed a lecture at each of the Royal Colleges "to maintain her husband's name in good repute by associating it with the advancement of the science which he loved, and to testify her gratitude for the happiness which she owed to him." I feel that William Bradshaw was a man we should all like to have known and whose memory we gladly honour. He was an ornament to the College, and I am grateful to our President for the opportunity he has given me of following his own memorable Bradshaw Lecture of 1940.

It has been customary to choose as a subject for the Bradshaw Lecture some aspect of surgery which has interested the speaker for much of his life, which is of general interest to his colleagues in the art of surgery, and which is not without interest to the layman. In choosing as my subject Physics in Relation to Surgery I have entirely satisfied the first condition, and I hope to satisfy the other two. It is of course a vast subject, and I can only touch on a few of its fields; of these I have chosen Force, Heat, and Radiation as branches of physics which affect the surgeon most closely and which he is constantly turning to his own use. But even in these I must limit myself to a few problems with which I have met in surgical work and upon which some knowledge of physical principles has thrown light, sometimes revealing important features that would otherwise have been missed.

Force and Movement

Two of the most important subjects considered in physics are Force and Movement, and of these we have endless examples in the human body. The movement, of course, occurs at the joints, and the force is exerted by the muscles; but few of us are aware of the forces which the muscles can exert, or appreciate the exquisite precision of the mechanism by which the movements are controlled. The best examples are always obtained from one's own experience, and I cannot choose a better illustration than one from an exercise of which in years gone by I had ample experience—the pulling of an oar. From our standpoint it is a very simple action and lends itself to accurate measurement, though from the oarsman's point of view it is anything but simple. Seated on a sliding seat and driving with his full power from the stretcher, he can exert a drive

of 400 lb. weight. As his seat moves freely it follows that through each of his legs he exerts a driving force of 200 lb. Let us see how this is accomplished.

Although apparently so simple, the movements involved are by no means simple and the forces employed are exceedingly complex. The most important movement, however, is the straightening of the knee, and the muscle effecting this is the quadriceps extensor. Now in my own case, while the slide travels 18 inches my patella travels only 3 inches, or one-sixth of the track of the slide, and therefore if the quadriceps alone did the whole of the work the force exerted by the quadriceps on the patella would be six times the driving force exerted by the leg, or 1,200 lb. This is an exaggeration, as other muscles act indirectly, and noticeably the gluteus maximus in extending the hip; but I should be well within the mark in saying that my quadriceps alone can exert a force of 600 lb., and that the whole of my thigh muscles acting together can exert a total force of half a ton. Moreover, these great forces have to be exerted with the utmost delicacy, for the watermanship which controls the balance of a racing boat depends upon differences in the pressure of the toes measured in ounces.

Now the modern treatment of a fractured femur is to reduce the fracture to an accurate position by traction, and it is usually found that a force of 15 lb. is quite sufficient. How do you account for such a ridiculous disparity? To talk about tiring out the muscles is absurd, for the effect on the patient's comfort is immediate. What really happens is that the irritation arising from the fracture is checked, the reflex which produces spasm of the muscles is broken, the muscles relax, and it is on the relaxed muscles that traction is exerted. It is of importance that this point should be remembered when the powerful methods of modern skeletal traction are employed, and its neglect has often resulted in failure of a simple fracture to unite.

In order that such a small force should be effective it is essential that the limb should be slung quite freely so as to avoid friction, and if this is done the traction force has a secondary result, to which it is worth while to call your attention. There must, of course, be some counter-pull to prevent the patient being pulled out of bed, and this is most easily obtained by raising the foot of the bed. But you will see at once that this counter-pull acts on the centre of the pelvis, while the traction pull passes through the hip. This side of the pelvis is thus pulled down so that the pelvis lies obliquely and the leg is effectively abducted at the hip. In the case of a fractured femur this is of no importance, but in many conditions of the hip-joint abduction is the essential point in treatment. You might imagine that this would easily be obtained by swinging the leg out; but this is by no means the case, as the pelvis may swing with it. Traction in the line of the leg is the correct physical method of obtaining abduction; but this simple fact is not generally appreciated, and the so-called abduction splint is still too often seen, even—low be it spoken—in the wards of orthopaedic surgeons. Moreover, traction in the line of the femur can abolish pressure

*The Bradshaw Lecture, given before the Royal College of Surgeons of England on Nov. 11, 1943.

on the hip-joint, and in the case of inflammation in the joint this may effect the immediate abolition of reflex spasm and the dramatic relief of the patient. Direct attempts at abduction will increase the pressure and, by increasing spasm, make abduction impossible.

One of the most interesting muscles in the body from the physical standpoint is the biceps muscle of the arm. As its name implies, it arises by two heads from the scapula; it lies in front of the humerus, to which it has no attachment, and is inserted into the back of a tubercle on the inner side of the radius. Its action is thus a very complex one, and the provision of a single muscle for this very complex movement is a measure of its importance. It rotates the forearm outwards, it flexes the elbow, and it flexes the shoulder; and it thus achieves the most important of all human movements, for it enables us to bring food to our mouths.

But for the moment I would direct attention solely to one element of this movement—the rotation of the forearm. The very powerful movement of supination is effected by two muscles, the biceps and the supinator brevis, both acting at what we term great mechanical disadvantage and the biceps taking the larger share. By holding a weight at the end of a rod and raising it by rotating the forearm it is easy to measure the force involved and to show that the biceps tendon, which is no bigger than a shoelace, can easily support a tension of at least 100 lb. weight.

But the biceps does far more than merely provide a powerful force, for by its nervous connexions it measures the amount of force and adjusts it to requirements, and at the same time it acts as a delicate feeling piece, defining exactly the degree of its contraction and giving most precise information as to the position of the limb. How superbly the muscles perform this function can be seen in the facility with which a pianist can strike a distant note with absolute certainty and without the aid of vision.

The position of the hand and arm produced by contraction of the biceps, supination, and flexion of the elbow and shoulder is of particular interest, as it is that adopted by the violinist and the fencer, and far from being an abnormal position, it is that in which the fingers and the whole limb are under the most perfect control. I do not suppose that it has ever occurred to a violinist that it is to his biceps that he owes the possibility of maintaining the position of his left hand. Still less would it occur to him that the peculiar action of the right hand in drawing the bow, described as raising the wrist, is essentially based on a rotation of the forearm, again controlled by the biceps. Rotation of the forearm is indeed a movement of countless uses, and one over which it is possible to develop the most exquisite control.

Another muscle whose mechanism has always fascinated me is the opponens of the thumb. This little muscle is capable of exerting great force, and with the adductor pollicis forms the basis of a powerful grip. But the beauty of its action consists in the rotation which it gives to the thumb so that this may face the object grasped. Whatever the size of the object—a large ball, a ring, a pencil—it will be found that the pulp of the thumb faces the object and ensures a powerful and yet most delicate grasp. It is one of the most perfect examples of adaptation to function in the human body.

Force and the Skull

So far we have considered the forces exerted by the human body. Let us now consider the forces it is capable of resisting, and as an example let us consider the effects of a blow on the head. If a man were struck on the head by a stone weighing 1 lb. and falling a distance of 9 ft., he would probably have some degree of concussion, although his skull might not be broken. Let us consider the forces involved. The stone falling 9 ft. reaches a velocity of 24 ft. per second, and as it weighs 1 lb. it has acquired 288 foot-second units of energy. If it deforms the skull one-quarter of an inch, which is about the possible limit, it means that the resisting force has destroyed this amount of energy in $1/48$ of a foot, and the average force must therefore be 48×288 units of force, or 432 lb. weight. If this be distributed over an area of the skull $2\frac{1}{2}$ in. in diameter it would mean a local pressure of 86 lb. to the square inch.

Now, the skull is for all practical purposes filled by an incompressible fluid, which for such sudden forces has to escape. Any deformation will be resisted by a rise in intracranial pressure, and the effect of this will be enormously greater than any resistance offered by the comparatively elastic skull. Thus the rise in intracranial pressure in the case we have described will be at least in the order of 80 lb. to the square inch. Such a pressure, even though it lasts only for a fraction of a second, must force every drop of blood from the capillaries and leave the brain completely anaemic, with the clinical result of a complete and instantaneous paralysis. Surely this provides a complete justification of Trotter's theory that the phenomena of concussion are the result of sudden anaemia resulting from the rise in intracranial pressure. So far as I am aware he never actually calculated the pressure, but the surmise is an example of the penetration of his intellect. No more acute brain than that of Wilfred Trotter has ever adorned the College—like a diamond in the keenness of its penetration, in its crystal clearness, and in the sparkling brilliance of its humour, as he himself was like a diamond in the flawless perfection of his character.

My attention was first directed, many years ago, to the problem of intracranial pressure by a curious case which came under my care at the London Hospital. A child of 3 years had been knocked down by a light cart, the wheel of which passed over her head. She was unconscious and had a large and very dirty lacerated wound of the scalp above and behind the right ear. I cleaned the wound up as well as I could and in doing so noticed a fine crack running vertically through the centre of the temporal region. The condition of the child precluded any further disturbance, and indeed I was astonished two days later to find that she was fully conscious and in very fair condition. Then, however, she went back, and at the end of four days from the injury was comatose, with clear sign of intracranial pressure. Expecting to find an intracranial haemorrhage, I trephined and discovered beneath the hairlike crack not blood but an extradural disk of hard mud, 2 in. in diameter and $1/4$ in. thick in the centre. I removed the mud and left the skull widely open. To my amazement the child made an uninterrupted recovery.

Now, the considerable mass of mud can only have got in through the crack, and as the force applied was but momentary the crack must have opened widely. If one may estimate the momentary force as 250 lb. weight, this would be supported only by the pressure within the skull, for the skull of a child is far too fragile to offer appreciable resistance to such violence. If, further, we regard the child's skull as a sphere 5 in. in diameter and imagine it to have been flattened by the compression of the wheel over an area $2\frac{1}{2}$ in. in diameter, as would seem a reasonable approximation, we find that the force of 250 lb. weight must have been supported on an area of 5 sq. in., so that the pressure within the skull must have been 50 lb. to the square inch. Now the central cross-section of a sphere 5 in. in diameter is just 20 sq. in., and as the internal pressure, although momentary, is exerted equally in all directions this means a disruptive force of 1,000 lb., or nearly half a ton, so that the wide opening of the crack is fully explained. That such forces must produce anaemia is obvious: that the brain should recover shows how little even the most delicate cells are affected by mere pressure and that in every case its most important effect is to deprive them of their blood supply.

The Absorption of Heat

A very interesting problem in physiological physics, and on with practical results of the first importance, is introduced by the application of heat to the surface of the body. As a simple example let us consider what happens if the forearm is placed in a tank of flowing water at 110° F. If the forearm were a mere mass of inert flesh its temperature would rapidly rise to that of the water; but that this does not occur is shown by a very simple experiment which I owe to Sir Thomas Lewis. If while the arm is immersed in the bath its circulation is checked, in a few seconds the feeling of comfortable warmth gives place to intolerable pain, for the deep layers of the skin are too sensitive to stand such temperature. With an intact circulation the vessels of the skin rapidly dilate and the heat is carried off by the blood stream.

so that the temperature within the limb is prevented from rising to a painful level. The temperature in the deep tissues does, however, rise to a certain degree, and in response to this the vessels dilate and the blood flow increases. This necessarily results in increased metabolism and an internal production of heat in the limb.

An elaborate protective mechanism is thus brought into play, depending for its effectiveness upon an intact circulation, and in this the skin plays a predominant part. The skin protects the deep tissues in two ways. When it is cold and avascular it forms an efficient defence against the loss of heat, without which one could survive in a cold sea only for a very short time. When it is warm its vascularity increases enormously, so that the blood flow may be a hundred times as great, and it now protects the deep structures by the amount of heat it can carry away in the blood stream.

If, however, owing to local pressure or some defect in circulation the flow of blood in the skin is diminished, this protective mechanism breaks down and the temperature of the skin itself, or even of the deeper structures, may rise to such a point that coagulation and local death of the tissues occur. This is undoubtedly the explanation of many of the hot-water-bottle burns, especially under anaesthesia and in patients with defective circulation. It is the explanation also of necrosis arising in another circumstance, in which the connexion is far less obvious.

Endothermy is one of the most valuable gifts of physics to surgery, and with reasonable precautions and in skilled hands it would seem to be perfectly safe. It consists in the passage through the body of a high-tension current which oscillates to the order of a million times a second—so rapidly, in fact, that none of the chemical effects of electricity occur in the tissues. The current, however, is comparatively large and may reach as much as three amperes, so that a great amount of heat is produced by the resistance of the tissues; and it is characteristic of endothermy that, as the name implies, the heat is produced in the tissues. If, for example, the two poles of the apparatus are held in the hands the only sensation is one of peculiar warmth inside the wrists and spreading up the arms.

Now, provided that the heat is carried off by the circulation so that the local rise of temperature is not excessive no harm results. If, however, this condition is not satisfied terrible disasters may occur. It is quite common to place the so-called indifferent pole under the sacrum, and unless a large soft pad is used it is obvious that the pressure on the thin skin in this region may render the skin avascular, so that its temperature may rise to a dangerous point. But this is not all. The sacrum itself has a poor blood supply and is not very sensitive, so that even in a conscious patient its temperature may rise dangerously. I know of two cases in which it underwent total necrosis. The risk of such a disaster is very real, and the indifferent endothermy pole should never be placed in this position. In fact, wherever it is applied care must be taken that the blood supply of the tissues is adequate and not obliterated by pressure; for unless this condition is satisfied extensive necrosis of the skin may occur.

The increased metabolism which arises from the heating of the tissues introduces considerations which show how dangerous it is to regard the body as a mere piece of physical apparatus, and this is especially the case where there is a defect in the circulation. If heat is applied to a limb in which the circulation is so defective that it cannot respond to the demands made upon it, gangrene may be precipitated. If, on the other hand, heat is applied to some other part of the body no harm can be done, since heat can only be conveyed to the damaged limb by its circulation, and increase in this can only be beneficial. In a case, therefore, of incipient gangrene heat may be applied to any part of the body other than the affected limb, where only the loss of heat should be prevented.

Similar considerations apply in certain cases of shock: for if the body is heated when the amount of circulating blood is inadequate the resulting vasodilatation and increased metabolism may actually result in a further lowering of the blood pressure, with even fatal results. The supply of heat is justified only when it has been established that there is an adequate amount of blood in active circulation.

Radiation

I would turn now to another branch of physics of recent development, the implications of which we are only just beginning to realize. Radiation is of course one of the oldest of physical studies, for it is radiation which brings to us the heat, energy, and light of the sun; but it would not be too much to say that its developments in the last 25 years have revolutionized our lives. To it we owe the wireless waves which allow us to speak and to listen across the world. X rays are only one of its forms, and it is to radiation alone that radium owes its power.

The radiation of which I am speaking consists of ether waves transmitting energy across space at a uniform velocity of 186,000 miles a second, so that the light of the sun takes just 8½ minutes to reach us across 93 million miles of space. No matter what the wave-length of ether waves their velocity is unaltered, but the physical effect of the radiation depends on the wave-length. In order to appreciate the vast range of wave-lengths at our disposal, one may make a diagram in which the whole range of 60 octaves which we use is illustrated graphically by objects of similar dimensions. At one end of the scale we have the very long waves, each of which might reach from here to Aberdeen; and then we have the ordinary wireless waves ranging from 2,000 metres to as little as 10 metres—a range of about 8 octaves. Heat waves come next, occupying a short region of wave-lengths from one-hundredth to one-thousandth of a millimetre; and then comes the single octave which gives us light. For this octave alone are we provided with any sense organ capable of appreciating the vibrating energy by which all space around us and within us is filled. To this octave we owe our perception of the beauty of form and colour by which we are surrounded, and without it the blue sky, the rolling clouds, the green fields, and the infinite variety of Nature's shades would for us no longer exist. One wonders what the other octaves might reveal could we but perceive them.

Beyond the light octave come the ultra-violet rays, and, far beyond these, x rays and the gamma rays of radium, the last so short that one hundred thousand would be required to equal one wave of yellow light.

Now, it is a fundamental law of radiation, although it was discovered by Planck but a few years ago, that it can only exist in certain units of energy and that the energy in each unit is inversely proportional to the wave-length: thus the unit of energy for hard gamma rays is one hundred times that of ordinary deep x rays and a hundred thousand times that of yellow light. It is to this that such rays owe their penetrating power and their effects upon the tissues. The shorter the wave-length the greater the energy, and in exact proportion; so that to compare the unit of energy from radium with the unit of visible light is to compare a 12-in. shell in full flight with a pellet from an air-gun.

X rays and the gamma rays of radium have now taken their place as established instruments of surgical technique, but to understand their use it is essential to know something of their origin and nature. Both arise within the atom, but from very different sources.

In the modern view all matter is built up of atoms, and each atom of any one substance has an identical structure, whilst all atoms are variations and elaborations of the same general pattern. Each atom consists essentially of a nucleus round which circulate a number of electrons, themselves minute and identical particles of negative electricity. Hydrogen is the simplest of all atoms, consisting only of a nucleus and one electron. Helium has a larger nucleus and two electrons, and the atoms of the elements gradually increase in size until we reach uranium, with a vastly complex nucleus and a cloud of 92 electrons flying around it. Radium itself is, nearly as complex with 88 electrons in its service.

Radiation arises from disturbance of the electrons in their orbits and from their attempt to regain their normal positions. As one might expect, the possible radiations of any given element are strictly limited, and to this it owes its spectrum. Every element has its own peculiar spectrum or group of lines, each of which represents one wave-length of radiation, the whole forming the signature of the element by which its

presence can be detected with absolute certainty even in the furthest star. Various forms of disturbance can give rise to radiation, and the commonest is, of course, heat, the source of most of the spectra with which we are familiar.

There is, however, a much more powerful way of arousing the electrons to radiate, and that is by hurling at the atom a stream of electrons driven by strong electric forces, and it is in this way that x rays are produced. The result is a radiation of short wave-length, perhaps one ten-thousandth of that of light and of corresponding energy. To obtain such results a modern x-ray plant may require half a million volts—a really terrific force comparable to that of a flash of lightning. It is a wonderful achievement that we are able not only to produce such vast physical forces but to control them and to bend them to our service.

The gamma rays of radium arise also from a disturbance of the electron field of the atom, but this disturbance is produced not by any outside influence but by an explosion of the nucleus of the atom itself. For reasons of which we are entirely ignorant the nuclei of the atoms of radium explode at regular intervals at an absolutely uniform rate of roughly one atom in a million per day. As a result, another substance—the gas radon—is formed, the atoms of which again explode but at much shorter intervals, and this process is repeated until there is left only an inert particle of lead. The whole process is described as “decay,” and it is not too much to say that the discovery of the decay of radium by Becquerel revolutionized all our conceptions of matter.

These successive explosions of the nucleus in the process of decay produce a violent disturbance of the electron field of the atom, and as a result a radiation is produced of very short wave-length and enormous energy. The radiation is thus identical in kind with that of x rays, but of x rays produced by an energy of two million volts. Moreover, such x rays would require a huge engineering plant for their production, while the gamma rays are given off in a continuous stream by the most minute particle of radium.

Now it has been found that such radiation of short wave-length and great energy had a profound effect upon the tissues, and especially upon cellular growth. Where the cells are dividing rapidly they may be completely destroyed, and it is this property which gives these rays their peculiar value in the treatment of malignant growths. In such growths the cells are always dividing at a rate many times, sometimes thousands of times, more rapid than that of normal cells, and it is just this rapid division which marks them as vulnerable to x rays and gamma rays.

But it must not be imagined that the normal tissues are immune. They are profoundly affected, and the greatest skill is required to destroy a growth by radiation without doing irreparable damage to the tissues in which it lies. Some sacrifice is unavoidable, but it should be only such as can in time be remedied by the natural processes of repair.

Of the exact mechanism by which the radiation produces its effect upon the cell we know almost nothing; but it must certainly be atomic, and the primary effect must be the ionization of certain atoms and a consequent rise in their chemical activity. Some substance is thus produced which is toxic to the cell, or perhaps some substance is destroyed which is essential to its normal growth. It would seem to be upon the chromosomes and upon the reproductive mechanism of the cell that the effect is most severe, for it can be shown that the cells which survive and continue to reproduce are themselves deformed and transmit their defects to succeeding generations.

It is evident that in radiation we possess a powerful but very dangerous weapon, for though it may destroy a malignant growth it may do incalculable damage to the tissues which remain. Moreover, if the growth is not completely destroyed and reappears it will now spread in the tissues damaged by radiation, with annihilating effect. I believe that in radiation we have one of the greatest weapons of surgical progress; but it is indeed a weapon and not a tool, and only those who are prepared to devote their lives to its study have any right to use it except in very limited fields or with the close co-operation of those who understand its dangers as well as its powers.

Conclusion

I have ranged over a very wide field and yet I feel that I have only touched the fringes of my subject. I hope that I have convinced you that there are many points at which the work of the surgeon enters the field of physics and that toward the solution of many of the problems of surgery the physicist could give invaluable help. I trust that the future may see a fuller collaboration between two branches of science which at first seem to have little in common and that each may gain from the experience which the other brings.

THE HUMAN RESPONSE TO FLYING STRESS

BY

C. P. SYMONDS, D.M., F.R.C.P.

Air Commodore, R.A.F.V.R.

LECTURE II: THE FOUNDATIONS OF CONFIDENCE

Fearlessness

In this lecture I shall consider the nature of fearlessness, which I mean a state of mind in which fear is absent under circumstances which would naturally be expected to arouse that emotion. I should make it clear at the outset that I distinguish fearlessness from courage. The latter is a state of mind in which fear is present, but is endured for the sake of attaining an object. Fearlessness, as the word implies, is a state in which there is no need for courage because fear does not exist. Fearlessness in relation to a particular stimulus pattern may be primary—meaning that no fear response has ever occurred; or secondary—meaning that the fear response was at one time present but has since been lost. Reverting to what has been said of the origin and growth of fear reactions in children, we may postulate causes for fearlessness of the first kind. First, certain trigger responses may be lacking owing to constitutional variation. Secondly, the process by which the original trigger responses normally develop, that they respond to a wider range of stimulus patterns, may be interfered with. This process may be called learning. In Pavlov's (1927) terms the development of conditioned responses, and may be interfered with in a number of ways. Broadly speaking in terms of conditioned response, we may distinguish between processes which depend upon variations in the efficiency of the cerebral cortex as analyser and those which result from variations in experience and training. For either of these reasons there may be failure to acquire the fear reactions which most people do acquire as the result of conditioning.

Thus there is a kind of fearlessness which is associated with lack of intelligence or imagination. Fearlessness of this origin may be a source of strength in time of danger, but carries with it a source of weakness. The same defect of brain or mind which prevents the acquisition of fear by conditioning or experience prevents the inhibition of fear by conditioning or experience. Thus the stupid man is fearless in the presence of remote or complex danger, but in the presence of immediate obtrusive dangers he is apt to be more overcome by fear for the moment than others of greater intelligence. Nevertheless the man whose lack of imagination prevents anticipatory fear is thereby saved much stress.

That training and experience, or lack of experience, may affect the range of fear reactions is theoretically obvious and is commonly observed. The factors involved are numerous and complex. Parental example and influence are clearly of great importance, and begin to operate so early that it must be very difficult to trace their origins. It is possible that an inhibitory process may in some instances anticipate the development of a positive conditioned response, or even, as Valentine (1942) suggests, that inhibition may be so well established on some other foundation that an unconditioned fear response destined

* Based upon the Dunham Lectures at Harvard University, March 1943, and the Croonian Lectures before the Royal College of Physicians of London, May, 1943.

to mature late never appears. The fearlessness of inexperience, due simply to lack of opportunity for the development of the ordinary range of conditioned fear responses, may be viewed separately. It is commonly observed in children, but comparatively rarely in adults, except under novel circumstances such as those of war. Then the noise of the approaching shell may leave the novice unmoved while at once exciting fear in the man who is aware from experience of its meaning. Unawareness of danger may also occur (even in the experienced person) from narrowing of the field of consciousness. A man may be so preoccupied with task or train of thought that there is no room for the idea of danger. The direction of such preoccupation has probably an emotional bias with inhibitory effect.

Apart from those varieties of fearlessness which depend upon the number and specificity of innate tendencies and the capacity and opportunity for acquiring conditioned reactions, both of a positive and of an inhibitory kind, it seems not impossible that in some individuals—to borrow a physiological expression—the threshold for fear is relatively high, as an innate quality. Such innate variation in the threshold of the fear response would be comparable with the variation in the affective response to painful stimuli observed by clinicians. The individual who is relatively insensitive to fear—using the word “insensitive” with this restricted meaning—may be fearless under circumstances which would be expected to arouse fear in others, not for lack of intelligence, imagination, experience, or attention, but because the stimulus, whatever other effects it produces, fails to arouse the affective response. Such a man might at the extreme react to danger with flight but not feel fear, for the same kind of reason as a man insensitive to pain might throw away a match which he saw was burning his fingers without feeling pain.

Continuing with the same metaphor, fearlessness may be due to a low threshold for some affective response which can inhibit fear. Most fear-evoking situations are complex, and contain stimuli capable of evoking affects other than fear. Just as there are persons who are by nature especially sensitive to the evocation of fear, there are those in whom other kinds of affective response are relatively easily aroused, more intense, and of longer duration. Anger provides a good example, for many situations which are capable of provoking fear are also capable of provoking anger. If a person with a low threshold or anger be exposed to such a situation he may feel anger when another person would feel fear. Fear in these circumstances is inhibited.

Inhibition as a Basis for Fearlessness

I have already used the word “inhibition” more than once in connexion with the absence of fear, and it becomes necessary at this juncture to discuss its meaning, for I believe that inhibition, besides playing some part in primary fearlessness, is the basis of all secondary fearlessness, the subject which I am next going to consider. The neurophysiological concept of inhibition is best illustrated from the spinal or decerebrate animal. Here for a given muscle an afferent nerve may be found whose stimulation causes reflex contraction; another, whose stimulation diminishes or abolishes contraction if already present. Concurrent stimulation of excitatory afferent and inhibitory afferent reveals gradation of effect according to the intensity of the stimuli. A strong inhibitory stimulus will abolish, a weaker inhibitory stimulus will only diminish, the effect of the same excitatory stimulus. But, as Sherrington (1925) has said, there is more to be observed than this:

“Stimulation of the inhibitory afferent when the excitatory reflex is not in operation may seem to produce no central effect. That this absence of central effect is, however, only semblance can be shown in several ways. Thus precurent brief stimulation of the inhibitory afferent will lengthen the latency and diminish the result of a closely following stimulus of the excitatory afferent. Again, stimulation of the inhibitory afferent begun precurrently and continued concurrently with stimulation of the excitatory afferent can prevent altogether or diminish the reflex result of the latter.”

The inhibitory effect under these conditions is not manifested directly, but indirectly by the absence of an expected contraction or an expected degree of contraction.

Contraction of a skeletal muscle depends upon the excitation of the motoneurone, and reflex contraction upon whether the

flow of impulses peripherally aroused reaches the motoneurone to excite it. Sherrington conceives an interplay of central excitatory and central inhibitory activities at a point of confluence which he describes as “upstream” of the motoneurone. Whether the motoneurone is set into activity or not depends upon the balance here between central excitatory and central inhibitory states. The central inhibitory state is as much a

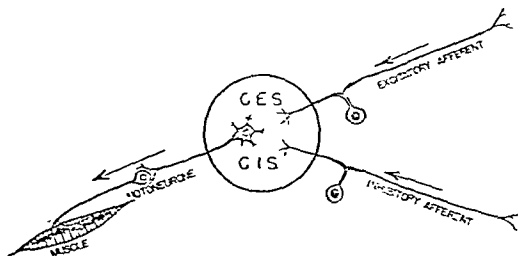


Diagram to illustrate the balance between excitation and inhibition in the reflex arc. C.E.S.=central excitatory state; C.I.S.=central inhibitory state.

positive phenomenon as the central excitatory state, and must itself be excited by appropriate impulses from without. When thus excited it safeguards the motoneurone partially or wholly from excitation. It seems that the hypotheses of central nervous function at the reflex level which I have outlined may be applied with profit and without any great stretch of the imagination to physiological processes underlying the excitation of affect. We may suppose a central inhibitory state for a given affect (for example, fear), maintained by appropriate afferent stimuli, which would not be manifest at all except when stimulation of the excitatory afferent for this affect occurred. Then the inhibitory state would be revealed either by the absence of any affective response or by a response of unexpectedly small degree. We should then observe what we have described as fearlessness—the absence or relative absence of fear in relation to situations which might be expected to cause it.

The analogy of inhibition in a physiological sense has previously been employed by Rivers (1924) with particular reference to fear or “wind up” in air-crews during the last war. Rivers identified inhibition with the psychopathological concept of repression, and assumed that when a reaction to danger was unaccompanied by fear this emotion was present “in the unconscious.” It is difficult to accept this concept, for, as McCurdy (1925) remarks, “repressed” or “unconscious” affect is a contradiction in terms. An affect as such cannot have any existence unless it is conscious, because it is something that a person feels: it does not exist until it is felt. The view which I have taken differs in supposing inhibition to occur “upstream” of the point of affective response. The central inhibitory state is revealed by the absence of affect, as in the motor system it is revealed by the absence of contraction in a given muscle. The affect might be said to be potentially present in so far as nervous impulses have been generated which would have excited the affect if they had not been blocked short—“upstream” of—the central point of excitation. But there has been no experience of affect, no registration of affect in “the unconscious.”

There are two further points of reference for this analogy. An excitatory impulse if blocked by inhibition has no apparent effect, but this again is only semblance. It will have added an increment of excitation to the central excitatory state, thus cancelling an equal amount of the central inhibitory state. The balance in favour of inhibition is thus temporarily diminished, and a further excitatory impulse arriving during this time will meet with less resistance. This is in accord with the observation, which seems from introspective account to be true, that a frightening experience which does not in itself excite fear may have the result that for the time being fear is more easily excited by another stimulus of the same kind. There is, in fact, at the physiological or subconscious level central summation. The second point is that inhibition may provide one explanation for the absence of fear at the time of danger and its appearance later when the danger is past. The

inhibitory forces may be various—anger, sense of duty, self-regard, or what Rivers called manipulative activity. These contribute to a central inhibitory state which occludes fear for the time being. As the situation develops the strength of these inhibiting stimuli becomes less. The occasion for anger is past, duty and self-regard are satisfied, the central balance alters, inhibition is weakened, and fear if still excited appears.

This attempt to describe certain aspects of fearlessness in physiological language is made not without realization of the dangers of over-simplification. Its excuse must be the desire to be explicit in applying the word "inhibition" to affective processes.

Pavlov's Observations applied to Fearlessness

I have already referred to the observations of Pavlov (1927) on the development of conditioned responses in connexion with the growth of fear. His observations on inhibition are of equal value in understanding the growth of fearlessness. He showed that by various means it was possible, after a conditioned response had been established, to diminish or prevent the expected flow of saliva. The main variations of Pavlov's inhibitory responses, as will be remembered, are as follows. If a positive conditioned reflex (salivation) is established by the association of a stimulus—for example, the sound of a bell, with subsequent feeding—and then the bell is sounded on several occasions without feeding, salivation ceases to occur. The conditioned response is then said to have suffered extinction. The extinction of conditioned fear is a matter of common observation. A previously indifferent stimulus becomes by association a danger signal and by itself produces fear. One may take as one example the sound of a siren which has been followed by the fall of bombs. A conditioned fear response has now been established. Now, if the same stimulus is frequently repeated without subsequent bombing it ceases eventually to elicit fear. The conditioned fear response has been extinguished.

A second variety, called conditioned inhibition, is induced thus. A well-established conditioned stimulus is combined with a new (indifferent) stimulus, and the combination is repeated without subsequent feeding. The new combination soon becomes ineffective, though the original stimulus uncombined is still effective. Conditioned inhibition is an important factor for the acquisition of fearlessness in any occupation which at first excites fear. The instructor makes use of it in training, combining with hazardous manoeuvre a trick or ritual: the man who carries a mascot to support his confidence is using the same method.

Differential inhibition is the name given to a third category of Pavlov's observations. A musical tone, for example, is used to establish a conditioned response. It is then found that a second, neighbouring tone will also excite the response (the phenomenon of irradiation). If subsequently the stimulus of the second tone is several times repeated without feeding, it not only fails to excite but becomes inhibitory. Examples of differential inhibition are easily found under conditions of

For a man who has been exposed to shell-fire the whistle of a near-approaching shell becomes a conditioned stimulus for fear. By irradiation the whistle of any approaching shell, whether near or far, becomes effective to produce fear. With frequent repetition the sound of a shell which will be harmless ceases to excite fear, while that of a shell near enough to be dangerous is still effective. Fearlessness in relation to certain specific stimuli has thus been acquired by differential inhibition.

A fourth variety of inhibition described by Pavlov was external inhibition. This could be induced by an extraneous stimulus eliciting an unconditioned response other than salivation if this were timed to precede the conditioned stimulus. For example, an extraneous sound evoking what Pavlov called the orienting or "Where is it?" response will thus inhibit a well-established conditioned response. The analogy between external inhibition and the inhibition of one affect by another is surely a close one. Psychologists have objected that Pavlov's observations might have been recorded equally well—they would say more accurately—in psychological terms. Pavlov (1941) replied that in such an interpretation the psychologist has adopted the conventional habit of thinking of the

complicated activity of animals in terms of his own feelings and thoughts. The merit of Pavlov's observations is their objectivity.

One general observation made by Pavlov (1941) relevant to the present discussion was a relationship between the type of conditioned response most easily established and temperament. In one group of dogs positive conditioned responses were relatively easily established and well preserved, whereas inhibitory responses were less easily established and more readily lost. These animals he called specialists in excitation. In another group positive responses were established with greater difficulty and were less stable; inhibitory responses were established with relative ease and were more stable. This group he called specialists in inhibition. He observed that his specialists in inhibition were invariably of a timid cowardly disposition, and concluded that there was some inherent relationship between timidity and the preponderance of inhibitory function. As an example he gives the story of a dog born in the laboratory and always gently handled but always timid and shrinking. After some difficulty positive conditioned responses were established. Any extraneous stimulus, however, would abolish the positive responses, leaving the negative (inhibitory) responses. After the Leningrad flood, in which all the animals experienced the threat of drowning, this animal lost all positive responses. They were gradually restored when the original experimenter sat with the animal with the food in the experimental room. Then a trickle of water was allowed to flow under the door; again all positive responses were lost, and had to be restored by the same means as before. This dog is described as a specialist in inhibition. Surely this interpretation is wrong. The animal was, in fact, a specialist in excitation for stimuli of a fear-evoking quality, and the excitation of fear inhibited other forms of response. This interpretation may be applied generally to the distinction between the excitatory and inhibitory types as observed under the restricted conditions of Pavlov's experiments. His specialist in excitation was a specialist of this type so far as the response to food is concerned. His specialist in inhibition was primarily a specialist in excitation so far as the fear response was concerned, and the excitation of the fear response caused inhibition of other responses.

Courage and Confidence

In the acquisition of fearlessness it is evident that courage—persistence with the task despite fear—must play an important part. Persistence despite fear implies emotional conflict. During the exercise of courage awareness of the nature of the conflict and of the emotions involved on either side may be more or less clouded by self-deception. The presence of emotional conflict is, however, manifest by a feeling of tension from which courage is inseparable. In this respect it is essentially different from fearlessness. Courage is generally regarded as the quality most highly to be prized in the soldier, and rightly so, for his duty is bound to lead him where persistence despite fear is indispensable for success; but the soldier's courage is of even greater value in enabling him to acquire fearlessness. This is what we mean when we say that the brave man learns to conquer his fears. It is the fearlessness born of courage which is the greater prize than courage itself—the state of calm rather than the state of tension. What the soldier fears is the anguish of being afraid and having to exert a degree of courage which will absorb his attention and detract from his efficiency. A man of good morale therefore will endeavour by every means to acquire fearlessness, using his courage to this end.

From this discussion of fearlessness and courage I shall now return to the consideration of confidence and loss of confidence in flying personnel. Confidence may be regarded as being compounded of different kinds of fearlessness. Many of these are of the acquired variety (for flying is *ab initio* dangerous) and their acquisition therefore calls for courage. As also experiences of an exceptionally frightening nature are common in flying, and inseparable from operational flying, these various kinds of fearlessness, which are, so to speak, the stones of which confidence is built, are often exposed to stress and not infrequently dislodged: hence loss of confidence, more or less severe according to the number of stones dislodged and their key value in the structure. Courage is again necessary for

repair. The amount of courage which a man needs to acquire and maintain confidence depends upon many factors. The most important of these are included in his pre-flying disposition and his flying experience. Let us try for a moment to imagine some of the fluctuations of confidence in an average pilot from the beginning of training to the completion of an operational tour in heavy bombers. We must suppose that he is by constitution neither exceptionally timid nor fearless. The first time he is air-borne he probably experiences slight fear. Awareness of the fact that flying is an offence against the law of gravity is, I have been told by very experienced airmen, seldom absent from the fringe of attention. Fear, however, is readily inhibited in the average person by the excitation of other affects, such as those involved in professional keenness and by the conditioning of experience. The first solo flight and the first performance of aerobatics again excite fear, which is again readily inhibited by the factors mentioned. In the course of training there are pretty certain to be other experiences of a fear-exciting kind—experiencing or witnessing crashes, death of friends, getting lost, narrow escapes of one kind and another. Most of these do excite fear, though sometimes it may be inhibited. Every time fear is excited the inhibitory state responsible for some kind of fearlessness is weakened. The exercise of courage is then called for. Experience then reconditions inhibition, and from further experience differential inhibition is developed. Meanwhile, however, there is a progressive loss of the fearlessness of inexperience: for the more flying a man has done the greater the number of things he knows which may go wrong, so that with experience the number of situations that are potentially fear-exciting increases, with a correspondingly greater demand upon inhibition for the preservation of confidence. The balance at rest, so to speak, between central excitatory and central inhibitory states becomes more and more in favour of the former. For this reason, even under the relatively harmless conditions of civil aviation, when a man has flown long enough confidence tends to wane. This has been emphasized by Armstrong, and the neurosis which results from the effort to continue flying despite loss of confidence is, I think, what Armstrong (1939) has called *aeroneurosis*. Our hypothetical pilot, however, will not have flown long enough for this. When he reaches the operational training unit there are new dangers to be met arising from the length of trips and bad weather, and at the same time greater stress from fatigue. Now he embarks on his operational career to meet a whole series of fresh hazards. It is certain that these will test his courage, and possible that before the end of the tour the exercise of courage must be continuous, with inevitable tension and strain. So long, however, as he can make use of courage to conquer fears, and by this and other means can preserve his confidence, tension and strain will be diminished, efficiency will be augmented, and he will have courage in reserve to balance exceptional stress. What are the new factors which assail and support confidence in this phase of the airman's career? On the one hand are all the hazards of flying over enemy territory to a target which he knows will be defended by flak, searchlights, and night fighters, new dangers of weather involved in the length of trips, and the risk of bad visibility on return. There is also the effect of casualties. At first he is protected to some extent by the fearlessness of inexperience and by the inhibitory effect of curiosity upon fear. After the first few sorties this protection is lost. This is a critical point in the tour for confidence. As the tour goes on the more stable fearlessness of experience grows, but further experience adds to the number of conditioned fears which need to be inhibited if confidence is to be maintained. The strain of anticipation consequently increases, and the prolonged wait for a sortie cancelled at the last minute is almost as much of a strain as an actual trip. Fatigue, physical and occupational, is an additional factor weakening inhibition, and lack of sleep during periods of intense operational activity operates in the same direction. On the other side there are new factors which help to inhibit fear. High among these ranks squadron and crew morale.

Our pilot, then, having lost the fearlessness of inexperience, finds other sources of fearlessness to support his confidence, but towards the end of the tour a number of factors conspire to weaken the inhibition of fear. There is the increase in the

number of conditioned fears resulting from the unpleasant experiences which he must by now have had; there is the anticipation of relief from strain, and of holiday, which sometimes of a sudden makes life precious and fear insistent; and there is the effect of cumulative fatigue. For all these reasons the structure of confidence tends to become weakened and the call for courage greater. I do not imply that at any time during the tour there has been no demand upon courage. On the contrary, distinguished men of great operational experience have told me that fear, especially before a trip, generally calls for conscious control; but once the sortie has begun there is no fear in excess, and relatively little tension. There is, however, enough tension always, in most men, to cause that fatigue which we are all aware follows a prolonged effort to control emotion. There is reason, from clinical experience, to suppose that the effects of this kind of fatigue are cumulative. For example, a fighter pilot who had won the D.S.O. and D.F.C. and bar was observed by an experienced medical officer to be becoming tense and irritable by contrast with his normally good-tempered disposition. In this instance the suggestion that he needed a rest was disregarded; but later he reported sick, confiding that for several months he had been aware of a conscious effort to control fear while on operational flights. The need for this effort gradually increased, and it was a greater strain to preserve his composure. He had good insight into his condition, arguing that real courage was the ability to overcome natural fear in the presence of danger, but had reached a point when he felt suddenly exhausted.

Lack of Confidence

I have already referred briefly to the effect of a crash with injury in weakening fearlessness and undermining confidence. Several factors operate here besides the crash: there is the fact of being hurt; the opportunity for fear to increase with reflection; and the absence from flying, which by itself can impair confidence. The man who is able to fly again soon after a crash is better placed. Here is the self-revealed story of a fighter pilot who crashed and suffered a head injury and a fractured vertebra, with satisfactory recovery from both. He was sent back to duty apparently keen to fly, but after a short period returned to hospital with vague complaints of pain in his back. He was reassured, and returned to duty. A suspicion was entertained at the time that he had lost confidence, but was dismissed on his own denial; and there the story would have ended had he not unexpectedly written this letter to his physician nearly two years later.

"I can now fly and aerobat an aircraft in a way that fully satisfies me. In fact, I shall now make a confession to you. All the time I was in hospital I was scared stiff of flying. I definitely wanted to fly, but being in the air again just froze me with fright. I kept all this entirely to myself because I thought it would be put down to cowardice. Very stupid of me! When the board eventually put me back on flying, I told them I wanted to fly, when they asked me, for the same reason. I eventually did about nine hours' flying, and most of it was a complete nightmare to me. I was simply scared stiff. But again I kept it all to myself. Then just when I was beginning to overcome my fears, and at the very time when I ought to have been made to fly, I was sent back to hospital. At that time I wondered whether I could continue on with flying when I left hospital, because it meant starting all over again. After that I did about 300 to 400 hours' flying before I really felt an inclination to confidence on just ordinary level flying. Now after 700 hours I have at last got full confidence back for aerobating. When I look back now and think of the agonies I went through it all seems rather amusing. However, the point now is that I am and feel perfectly fit and confident. My back is well, and that is that."

I will now present an example of another kind—that of a sergeant air-gunner, a man of timid disposition in whom fear of flying was never inhibited. He eventually reported sick with dyspepsia, and was told by his medical officer that his symptoms were those of a neurosis, and of a kind which might be due to fear. Next day he wrote to his medical officer as follows:

"Sir,—As you know, I have during the last three or four months been suffering from, as I thought, some minor gastric disorder. This morning I was informed by you that my health is O.K.; and the probable cause of my disorder was mental, or in other words some unconscious fear. After thinking very deeply on the subject for some hours, Sir, I have come to the conclusion that you are right, but only partly so, as you hadn't the whole of the evidence.

"You no doubt have the impression that this fear has only developed over the past month or so. That is not the case. It

goes right back to the very first time I placed my foot in an aircraft. From the moment that craft left the ground I was in the grip of fear and subject to extreme nervous tension. This was not the usual feeling of uncertainty which I suppose everyone experiences on taking this step for the first time. It was real and concrete. Every moment, every bump or bank filled me, and still does, with breathless suspense, and the overwhelming desire to land and get away from it at all costs. My mental impressions to-day have not changed from those of my first flight. I still experience the same cold shivers and fears as I did then, only now more accentuated. If, Sir, these gastric pains are from the aforementioned trouble, I beg to point out that I have tried now for approximately twelve months to overcome the nauseating fear to which I am subject when flying, but, as events have borne out, so far unsuccessfully.

"The only conclusion to which I can arrive is that the trouble is not caused by temporary loss of nerve but by the gradual whittling down of the barrier I have consistently tried to erect between my temperamental equipment and the job to which I am assigned. No one has been more anxious than myself to overcome this complex, because not only has it been a severe blow to my personal pride, but also I have the same abhorrence as I suppose all persons have to being alluded to as 'yellow' or some such designation by my acquaintances."

Although the relation of these stories has occupied some time, I could not without the aid of introspective accounts have illustrated the factors which influence the development of fear and fearlessness in flying personnel. It is to be observed that in none of these cases was there any lack of courage. One of the problems with which the Air Force doctor must be confronted from time to time is the distinction between lack of confidence and lack of courage. That there is such a distinction to be made I hope I have shown. How far a man must be expected to persist in the endeavour to conquer fear is a matter to be decided not by the doctor but by those who face the dangers of operational flying themselves. The principle is that which obtains for all combatant troops. There is, however, a special aspect of the problem for flying personnel, for the state of tension inseparable from the exercise of courage becomes sooner for them a drag upon efficiency. There may come a point for some when, whether they are to be judged medically sick or sound, they are no longer efficient. Whether they are to be disposed of then as brave men or as lacking in moral fibre must be left to the judgment of their peers. The severity of this judgment is a reflection of morale. Severity does not imply lack of sympathy. The distinguished leaders who have spoken to me of their own experiences have often dwelt upon the pain of fear in excess. They have also dwelt upon the happiness and satisfaction of fearlessness, with insight into the means by which in their own case it has been obtained. A fighter pilot who had previously flown light bombers in the Battle of France said that during this time he hardly ever saw targets or the effect of his bombs. After a while he was so frightened that he sweated every time he got into an aeroplane, and could not sleep. Later, in Hurricanes in the Battle of Britain, he found—these are his own words: "Success in the game is the great motive to subdue fear. Once you've shot down two or three effect is terrific, and you'll go on till you're killed. It's of the sport rather than sense of duty that makes you on without minding how much you are shot up." This young officer was severely wounded in combat, but after his recovery went on to destroy many enemy aircraft, win several decorations, and command his squadron.

Here is a case in which the fighter job discovered an affective response which easily inhibited fear. It is an example of that chance matching of stimulus pattern with innate tendency upon which the foundations of confidence are sometimes built.

Conclusion

In this brief view of the human response to flying stress I have dwelt much on the psychological factors, because in the last war they were somewhat obscured by uncertainty about the effects of anoxia and are now more easily discerned. The analysis has led to a somewhat detailed discussion of fear and fearlessness, and to the conclusion that the emotional tension resulting from the prolonged exercise of courage is the most important element of stress. This does not exclude the presence of other important factors which deserve consideration. Skill fatigue in the pilot is one, and has been notably studied by Bartlett (1943), who has shown that loss of emotional control

and abnormal behaviour may be prominent among its symptoms. Fatigue of vision and of hearing, the effects of acceleration and decompression, and even to-day under certain conditions anoxia, also play their part, and all may contribute to central nervous disorder. There are, therefore, effects of flying stress which the clinician will only see truly when he is guided by the psychologist and the physiologist, who in their turn may profit from clinical observation. In the study of the human response to flying stress collaboration of this kind is essential.

My acknowledgments are due to Air Marshal Sir Harold Whittingham for permission to use for these lectures material collected under his direction; to all my colleagues of the Royal Air Force Medical Service who have contributed to and encouraged the work, especially Air Commodore H. L. Burton for his guidance, and Squadron Leader Denis Williams, R.A.F.V.R., for his constant collaboration; to Prof. F. C. Bartlett, F.R.S., for advice and criticism; and, not least, to the General Duty Officers of the Royal Air Force for their invaluable co-operation.

REFERENCES

- Armstrong, H. G. (1939). *Principles and Practice of Aviation Medicine*, Baillière, Tindall and Cox, London.
Bard, P. (1939). *Proc. Ass. Res. nerv. ment. Dis.*, 19, 190, Williams Wilkins Co. Baltimore.
Bartlett, F. C. (1943). *Proc. roy. Soc.*, B, 131, 247.
Birley, J. L. (1920a). *Lancet*, 1, 1147, 1205, 1251.
— (1920b). *Med. Res. Cncl. Sp. Rep. Ser.*, No. 53, p. 141, London.
Cooper, E. L., and Sinclair, A. J. M. (1942). *Med. J. Austral.*, 2, 73.
Curran, D., and Mallinson, W. P. (1940). *Lancet*, 2, 738.
Dillon, F. (1940). In *The Neuroses of War*, ed. E. Miller, Macmillan and Co. London.
Flack, M. (1920). *Med. Res. Cncl. Sp. Rep. Ser.*, No. 53, p. 93, London.
Gillespie, R. D. (1942). *Psychological Effects of War on Citizen and Soldier*, Chapman and Hall, London.
Hadfield, J. A. (1942). *British Medical Journal*, 1, 281.
Love, H. R. (1942). *Med. J. Austral.*, 2, 137.
McCurdy, J. T. (1925). *The Psychology of Emotion, Morbid and Normal*, Kegan Paul, London.
Mapother, E. (1935). *Proc. roy. Soc. Med.*, 29, 858.
Mosso, A. (1896). *Fear*, Longmans Green, London.
Pavlov, I. P. (1927). *Conditioned Reflexes*, Oxford University Press, London.
— (1941). *Lectures on Conditioned Reflexes*, Lawrence and Wishart, London.
Report of the War Office Committee of Inquiry into Shell Shock (1922). H.M. Stationery Office, London.
Rivers, W. H. R. (1924). *Instinct and the Unconscious*, Cambridge University Press, London.
Sherrington, C. S. (1925). *Proc. roy. Soc.*, B, 97, 519.
Valentine, C. W. (1942). *The Psychology of Early Childhood*, Methuen, London.

ADVANTAGES OF A DISODIUM-CITRATE-GLUCOSE MIXTURE AS A BLOOD PRESERVATIVE*

BY

J. F. LOUIT, B.M., M.R.C.P.

AND

P. L. MOLLISON, M.B., M.R.C.P.

In another communication (Loutit, Mollison, and Young, 1943) the advantages, resulting from the use of certain citric-acid-sodium-citrate-glucose mixtures as preservatives for stored blood are reported. In assessing the preservative value of these and other recommended solutions the chief criterion adopted was the survival *in vivo* of transfused red cells which were stored in the various solutions. By this test the citric-acid-sodium-citrate-glucose mixtures were found to be definitely superior to the standard M.R.C. (1940) trisodium-citrate-glucose mixture and slightly better than the Rous-Turner (1916) solution. Moreover, these acid solutions had the additional advantage that they could be autoclaved entire with but little or no caramelization, whereas to avoid this with the M.R.C. and Rous-Turner solutions the glucose and the alkaline trisodium citrate have to be autoclaved separately and later mixed aseptically.

Of the acid solutions tested, however, all had minor disadvantages. Only one solution developed no caramel at all on autoclaving, and this solution was rather deficient in citrate ion, so that clotting of the blood was not infrequently observed. With the other solutions, which contained more citrate, a certain amount of caramelization occurred on autoclaving. This could be prevented by increasing the amount of citric acid in the

* A Report to the Medical Research Council from the South-West London Blood Supply Depot.

mixture, but then increased haemolysis of the blood occurred during storage. It has therefore been necessary to continue the trial of acidified citrate-glucose mixtures to find one that satisfies more completely the following criteria: (1) improved preservation, as judged by survival tests *in vivo*, on comparison with the present standard M.R.C. solution; (2) absence of caramelization on autoclaving; (3) a content of citrate ion adequate to prevent clotting even when the blood is not perfectly mixed with the solution during taking.

From among many possible suitable formulae the one selected for trial was:

100 c.cm. of 2% disodium citrate (monohydric)
20 c.cm. of 15% glucose (or 10 c.cm. of 30% glucose)

for admixture with 420 to 430 c.cm. of blood. This mixture, autoclaved in the standard M.R.C. bottles, with caps loose, at 20-lb. pressure for 30 minutes in the standard vertical, gas-heated, air-jacketed autoclaves supplied to the War Emergency Blood Transfusion Services, gives a colourless solution. Disodium citrate, moreover, has one other practical advantage over citric-acid-trisodium-citrate mixtures in that a single substance only has to be weighed.

Methods

Blood from healthy donors of Group O was taken into the above solution and stored at 2° to 6° C. for 20, 28, or 45 days. On the day of the test transfusion a concentrated cell suspension was prepared by removing the bulk of supernatant plasma from two bottles of identical age and pooling the packed red cells. Patients of Groups A and B whose anaemia was thought not to be due to haemorrhage or haemolysis were chosen as recipients. The transfusion was usually completed in 60 minutes. Venous samples were taken before transfusion, 5 minutes after transfusion, and thereafter at convenient intervals (usually 24 hours, 7 days, 21 days, and 60 days). The number of surviving donor cells was estimated after carrying out differential agglutination by Dacie and Mollison's modification (1943) of Ashby's technique. In every case a pre-transfusion sample was tested, and the small number of unagglutinated cells found was subtracted from all subsequent counts of unagglutinated cells.

In order to determine the efficacy of the solution as an anticoagulant an examination was made of the number of clots found among the red-cell sediments of bottles that were being used for plasma production. The red-cell sediments were passed through four layers of gauze, and any clots found were weighed wet. A similar test was made of blood stored in two other solutions—namely, Murray's solution (1943), and a mixture of 90 c.cm. of 3% trisodium citrate, 10 c.cm. of 3% citric acid, 10 c.cm. of 30% glucose with 430 c.cm. of blood (solution No. 2, investigated by Loutit, Mollison, and Young).

Results

Two patients received blood stored for 20 days, 7 patients received blood stored for 28 days, and 2 patients received

Solutions	No. of Cases	Time of Storage (Days)	% Survival			
			24 Hrs.	7 Days	21 Days	60 Days
M.R.C.*	15	0-4	104	101	86	49
M.R.C.*	4	20 (av.)	80	65	46	10
Disodium-citrate-glucose	2	20	92	87	83	50
Other citric-acid-sodium-citrate-glucose mixtures†	4	20	90	79	62	31
M.R.C.*	5	28 (av.)	45	22	10	—
Disodium-citrate-glucose	7	28 (av.)	81	74	59	25
Other citric-acid-sodium-citrate-glucose mixtures†	8	28 (av.)	91	82	64	33
Rous-Turner*	4	26 (av.)	83	78	50	12
Disodium-citrate-glucose	2	45	46	31	20	—

* From Mollison and Young (1942).

† From Loutit, Mollison, and Young (1943).

"M.R.C." stands for the present standard trisodium-citrate-glucose mixture.

"Disodium-citrate-glucose" is the solution under trial.

45-day-old blood. To make a direct comparison, transfusions of blood stored for 28 days in the present standard M.R.C. trisodium-citrate-glucose solution were also given to 5 patients,

and survival was estimated. The results are shown in the accompanying Table, and for comparison some of the results obtained in two previous trials are included.

When the figures for blood stored for 28 days in this disodium-citrate-glucose and the M.R.C. mixtures are compared, the striking superiority of the former solution is clearly shown. For instance, 7 days after transfusion 74% of erythrocytes stored in the disodium citrate mixture are surviving, compared with only 22% of the erythrocytes stored in the present trisodium citrate solution.

Clot Formation.—Sediments (1) from 196 bloods stored in the disodium mixture, (2) from 132 stored in Murray's mixture, and (3) from 198 stored in "solution No. 2" were filtered. The numbers and weights of the clots were as follows: (1) 196 bloods, 27 clots, total weight 355 g.; (2) 132 bloods, 34 clots, total weight 894 g.; (3) 198 bloods, 5 clots, total weight 22½ g.

Discussion

As will be seen from the Table, the survival of blood stored in the solution under trial is far superior to that of blood stored for an equivalent period in the present standard M.R.C. solution. From the point of view of survival, blood stored for 45 days in the disodium-citrate-glucose solution compares favourably with blood stored for only 28 days in the present standard citrate-glucose mixture, and blood stored for 20 and even for 28 days in the disodium citrate solution is not greatly inferior to fresh blood as a source of viable erythrocytes.

The only disadvantage of the disodium citrate solution is its liability to permit clot formation if the blood is not carefully mixed with the solution during taking. Maizels (1943) has calculated that 10 mM. of citrate in the final citrate-glucose-plasma mixture is adequate to prevent clotting with moderately energetic rotation of the tilted bottle. 420 c.cm. of blood diluted with 120 c.cm. of Murray's solution contains only approximately 10 mM. citrate, and it is therefore not surprising that clotting sometimes occurs; the present disodium citrate mixture, however, contains double this quantity, and careless taking is thus probably responsible for the large number of clots found in the present test. With care it should be possible to avoid clot formation completely. Using a modified technique in the collection of blood, the following results have been obtained: 75 bloods stored in the disodium-citrate-glucose mixture gave 5 clots, total weight 75 g.

Summary

A mixture of 100 c.cm. of 2% disodium citrate with 20 c.cm. of 15% glucose (to be added to 420 to 430 c.cm. of blood) has two advantages over the present standard trisodium-citrate-glucose mixture as an anticoagulant and preservative solution for blood storage: (1) Its preservative power, judged by the survival *in vivo* of erythrocytes stored in the solution, is considerably superior; (2) the mixture can be autoclaved entire without the production of any caramel.

The mixture, however, contains less citrate radical than the standard trisodium citrate solution, and greater care must be taken to secure thorough mixing of blood and solution if clot formation is to be avoided.

REFERENCES

- Dacie, J. V., and Mollison, P. L. (1943). *Lancet*, 1, 550.
Loutit, J. F., Mollison, P. L., and Young, I. M. (1943). *Quart. J. exp. Physiol.* (in the press).
Maizels, M. (1943). Report to the M.R.C. Blood Transfusion Research Committee.
" (1940). War Memorandum No. 1.
" (1942). *Quart. J. exp. Physiol.*, 31, 359.
" M.R.C. Blood Transfusion Research Committee.
J. exp. Med., 73, 219.

L. Chargin, N. Sobel, and H. Goldstein (*Arch. Derm. Syph.*, 1943, 47, 467) record an epidemic of erythema infectiosum in a New York City orphanage from Nov. 4, 1941, to April 11, 1942. There were 80 primary attacks, and 90 relapses numbering from one to six. The severest attacks were among girls. In 64.7% the eruption was limited to the face, in 2.3% it was confined to the body, and in 33% both the face and the body were affected. Infants and children between 1 and 4 years were relatively immune. The incubation period was from one to twelve days.

PROGRESSIVE CEREBRAL ISCHAEMIA

BY

TREVOR H. HOWELL, M.R.C.P.Ed.

Captain, R.A.M.C.; Deputy Physician and Surgeon, Royal Hospital, Chelsea

Elderly people who are beginning to "fail" often show changes in mentality or behaviour as the first sign of their deterioration. During the last two years a number of such patients have been studied at the Royal Hospital, Chelsea. Among them were two groups of cases which seemed to be associated with the presence of cerebral ischaemia. One of these, in which the condition remained stationary, appeared to correspond to the "relative hypotension" of Stieglitz (1935). This was one of the commoner forms of senile dementia. The other, described below, was progressive through three distinct stages to a fatal termination.

Clinical Picture

Of the 27 patients in this series all but two were Chelsea pensioners. Their ages ranged from 70 to 87. Fifteen had but recently recovered from an infection of the respiratory tract; 14 were suffering from congestive heart failure, which followed bronchitis or bronchopneumonia in 7 of them; 9 had had previous cerebral thrombosis; 1 had infection, cerebral thrombosis, and heart failure; while 1 had no known predisposing factor apart from hypertension.

TABLE I.—Predisposing Factors

Recent infection	15
Congestive heart failure	14
Previous cerebral thrombosis	9
Infection and heart failure	7
Heart failure and cerebral thrombosis	4
Infection and cerebral thrombosis	4

The first change to be noticed was a vague or muddled state of mind in a patient previously lucid. Thought processes became irregular and sometimes delusions appeared. These might be of persecution by members of the staff or others, but often concerned the price of articles. For instance, one man asked for £150 to buy a pipe and tobacco; another patient watered an imaginary garden with his urinal; while a third sprinkled his pudding with tobacco. Failure to recognize friends or relatives was also common. Members of the hospital staff might be addressed as brothers or sisters in error. At this stage the blood pressure was high in most of the cases recorded, but not so high as the previous normal. A fall from 230 to 170 mm. or from 205 to 195 mm. was the type of change noted.

After this came a stage of restlessness, often going on to violence, and usually worse at night. The most characteristic feature was a desire to get in and out of bed without reason. Automatic resistance to nursing or treatment was common.

In some cases the clinical picture resembled the condition known as "cerebral irritation," seen after head injuries. Two patients in this stage had to be sent to a mental hospital, but died in cardiac failure soon afterwards. The blood pressure in this phase was definitely lower than before, varying from 110/100 to 110/70 in patients previously hypertensive.

As the restlessness passed off the pulse became perceptibly weaker and the patient drifted into a terminal coma at systolic pressures between 120 and 75 mm. Diastolic pressures were always hard to determine at this stage, but one man showed 95/80 mm. as his last reading. His original figures were 180/90 mm. Another patient lingered for three days with no pulse palpable below the elbow, although his previous level

TABLE II.—Symptoms and Blood Pressure (in mm.) of Typical Cases

Case	Usual B.P.	Muddled or Delusional	Restless or Violent	Comatose	Duration
5	?	120/90	110/80	95?	28 days
6	?	190/90	110/70	?	5 days
9	?	140/90	110/80	75?	1 month
11	205/140	195/100	130/80	105/60	13 days
15	230/110	170/110	?	brachial 0	21 months
18	?	150/120	150/100	120/80	5 weeks
21	180/90	160/90	130/80	95/80	2 months
24	180/90	150/80	130/70	110/60	21 days
25	225/130	150/100	130/100	110?	1 month
26	?	150/110	150/90	100/60	9 weeks
27	?	170/90	140/80	110?	5 weeks

had been 230/110. At this stage it was usual to find peripheral cyanosis and evidence of circulatory stagnation.

Discussion

The first cases in this series came to notice because the condition relapsed after apparently successful treatment. For example, patients with bronchopneumonia cured by sulphapyridine returned in congestive heart failure. This was treated by administration of digitalis and injections of mersalyl, which removed the oedema; but the patients showed the successive mental symptoms described, and died in spite of all effort. It was then observed that many of them had been previously hypertensive or showed cardiac enlargement suggesting high blood pressure; so readings were taken at intervals. Unfortunately enemy action destroyed many of the early records.

The relation between a falling blood pressure and the appearance of cerebral symptoms in arteriosclerotic subjects suggests that progressive cerebral ischaemia is the basic pathology. This was mentioned by me in a communication (Howell, 1941) on the subject of heart failure in the aged. Subsequent cases, with more detailed study of the arterial tension, have gone to confirm this. Successive ischaemia of cerebral cortex, hypothalamic area, and medulla would likely to give the symptoms described. Owing to the favourable outcome of this syndrome its recognition is of some prognostic importance to the practitioner.

Conclusions

A series of cerebral symptoms occurring in 27 senile patients is described. A progressive fall in blood pressure accompanied the symptoms in every case which had such readings taken. It is suggested that the symptoms were caused by progressive cerebral ischaemia. The invariably fatal prognosis of this syndrome is stressed.

REFERENCES

- Howell, T. H. (1941). *Postgrad. med. J.*, 17, 195.
Stieglitz, E. J. (1935). *Abnormal Arterial Tension*, New York.

CONGENITAL ABSENCE OF THE VAGINA
TREATED SUCCESSFULLY BY THE
BALDWIN TECHNIQUE

BY

THOMAS O'NEILL, F.R.C.S.

Surgical Chief Assistant, Manchester Royal Infirmary;
Late Assistant Surgeon, E.M.S.

Operations for the treatment of congenital absence of the vagina have been performed since the end of the last century. The basis of these operations was dissection of the recto-vesical space, and lining by epithelium or endothelium of the cavity thus produced. Heppner (1892) used skin from the thigh; Pozzi (1908), flaps from the labia; while Thiersch (1909) used flaps from the rectum. Others have employed grafts, pinch grafts, or peritoneum have been employed. Wharton (1940) merely dissects the recto-vesical space and inserts a rubber-covered mould, which is worn for about four months. He claims that by the end of that time epithelium has grown up from the orificium to line the cavity. He states that contracture has not occurred in any of 11 cases done by his method. This is difficult to understand, as contracture is the bane of all operations where bowel is not employed.

Snegireff (1904) used the rectum to replace the missing organ and a modification of his operation was designed by Schulz (1911, 1912). In the modern construction of the vagina from bowel a loop of pelvic colon or ileum is employed. Baldwin (1907) was the first to describe the technique of using small intestine. His operation was performed in the case described below.

Clinical History

The patient was aged 25, had been married two years, complained of primary amenorrhoea. Her secondary characteristics were well developed and her libido was normal. She was mentally depressed owing to her deformity. Exam-

tion showed a normal pudendum, except that the vagina could not be found. On rectal examination the ovaries could be felt, but the uterus was not palpated. Intravenous pyelography showed that the kidneys were normal in position and function. The patient was extremely anxious for operation and willing to accept its limitations.

Report of Operation

The operation was performed in July, 1942. The patient was placed in the lithotomy position and the recto-vesical space dissected up to the peritoneum. A long tissue forceps was put in the cavity and the Trendelenburg position adopted for the second stage of the operation. The abdomen was next opened by a right paramedian incision: the ovaries, tubes, and round and broad ligaments were present, and looked normal. The appearance was as if a total hysterectomy had been performed. The lowest loop of the ileum was "measured" over the pubis. This loop was excluded from the intestinal tract by dividing the bowel between clamps, about six inches from the ileo-caecal valve, and again about ten inches higher up. The ends of the separated loop were closed and its mesentery was mobilized for about two inches, care being taken that its blood supply was not jeopardized. Bowel continuity was restored by end-to-end anastomosis. Aided by an assistant pushing on the forceps, the peritoneum in the pouch of Douglas was divided. The forceps was made to seize a ligature passed through the centre of the mesentery of the loop, and the assistant pulled forceps and loop down. This was the most difficult part of the operation, and could only be done when the Trendelenburg position had been abandoned. The peritoneum was sutured over the ends of the loop and the abdomen sewn up in layers. The lithotomy position having been again adopted, the convexity of the loop was sutured to the orificium and opened. A corrugated drain was left in the recto-vesical space for 24 hours.

The patient stood the operation well; the spur was crushed after three weeks and again a week later. She left hospital six weeks from the time of operation. The vagina was now four and a half inches long and admitted two fingers. Her stay in hospital was prolonged because of superficial infection of the abdominal wound. She was seen again in six months: her cheerful attitude towards life was a striking change. The vagina had not contracted, and she had no noticeable mucous discharge.

Conclusion

One case of congenital absence of the vagina treated successfully by the Baldwin technique is described. When uterus and ovaries are normal there can be no question as to the propriety of operation. In the type of case described above it is felt that operation is justifiable if the patient is married or about to marry, if her attitude towards sex is normal, and if she is willing to undergo an operation of some severity.

From absence of personal experience, no comparison is made with other methods of treatment. It may be said, however, that the vagina constructed by this method shows no disposition to contract, is lined by mucous membrane, and on bimanual examination is almost indistinguishable from the normal vagina.

REFERENCES

- Baldwin, J. F. (1907). *Amer. J. Obstet. Gynec.*, 56, 636; abstr. in *J. Obstet. Gynaec. Brit. Emp.*, 1908, 13, 124.
Heppner (1892). *St. Petersburg med. Wochr.*, Heft 2.
Pozzi, S. (1903). *Rev. Gynec.*, 12, 1109.
Schuber, G. (1911). *Zbl. Gynäk.*, 35, 1017.
(1912). *Ibid.*, 36, 198, 1109.
Snegireff, V. F. (1904). *Ibid.*, 28, 772.
Wharton, L. R. (1940). *Ann. Surg.*, 111, 1010.

W. I. Daggett (*J. Laryngol. Otol.*, 1942, 57, 427) describes a condition of desquamative otitis externa which is rarely if ever seen in Great Britain, but is well known in hot humid climates such as Malta, where he has seen 164 cases. The incidence is seasonal, the disease being very common in the summer and virtually disappearing in the winter. The chief characteristic is desquamation lining the deep bony meatus. The commonest bacteriological findings are diphtheroids plus *B. proteus*, and diphtheroids plus *B. pyocyaneus*. Treatment consists in careful cleaning, astringent wicks, and powder insufflation.

Medical Memoranda

Two Cases of Congenital Absence of One Kidney in the Same Family

Although congenital absence of a kidney is not rare enough to warrant the reporting of a case—A. R. Stevens (1937) estimated its occurrence as about 1 in 1,000—two cases in the same family are of interest in suggesting that the condition may be hereditary. More than one case in a family does not appear to have been recorded before: Ballowitz (1895) gives a summary of 210 cases, and reports 3 new ones, but no mention is made of the condition being familial or hereditary.

CASE REPORT

The patient, a boy aged 8, was sent for investigation because albumin had been found in the urine at a routine pre-operative examination. He was in good health, and had no symptoms referable to renal disease. He had had a tonsillectomy at the age of 6. The mother's uncle was known to have had "kidney trouble."

On examination the boy appeared well. Neither kidney was palpable. The heart was normal, and the blood pressure 110/70. The urine showed no albumin at any time, even after the boy had been up and about. Microscopy of the urine revealed a very occasional pus cell and red blood cell, but no casts. The blood urea was 42 mg. per 100 c.cm. The urea clearance was 103% of the average normal. An intravenous pyelogram showed a large but normal left kidney in a normal position, but the right kidney outline was not visible and there was no visible secretion from it. Cystoscopy revealed a normal left ureteric orifice, but no right ureteric orifice was visible. The interureteric bar was seen up to the midline, but no sign of it was present on the right side. No other congenital deformity was found.

Further inquiry about the condition of the mother's uncle was then made, and it was found that two intravenous pyelograms had failed to reveal any kidney on the right side, the left kidney being large, with normal outline of the calices, pelvis, and ureter. The absence of the right kidney was confirmed by palpation during an appendicectomy.

The occurrence of the identical abnormality in two members of the same family suggests that the condition may be hereditary, and is a stimulus to search for more such cases.

I have to thank Dr. W. J. Pearson for permission to publish this case, and Mr. F. J. F. Barrington for doing the cystoscopy.

J. P. BOUND, M.B., B.S.,

House-physician to the Children's Department,
University College Hospital.

REFERENCES

- Ballowitz, Emil (1895). *Virchows Arch.*, 141, 309.
Stevens, A. R. (1937). *J. Urol.*, 37, 610.

Sealing Intratracheal Catheters, and a Listening-tube

I have tried various ways of sealing intratracheal catheters in position to prevent loss of cyclopropane through leaks and to gain control of intrathoracic pressure, and for some years have relied, except for operations in the mouth and some others entirely on the following:

1. The soft parts about the glottis—the base of the tongue, epiglottis, aryepiglottic folds, etc.—are themselves pressed into service to occlude the space where leaks occur. This is done by approximating them to the posterior wall of the pharynx by tying the chin back with two turns of bandage, and is facilitated by the phenomenal relaxation of the jaw under cyclopropane. The method has the advantage of being very simple and efficacious, and it is harmless. The use of packing is avoided, and the only care needed is to keep the tongue, which is protruded from the half-open mouth, moist. Moreover, an ordinary Magill catheter is used, whereas an inflatable cuff, when wrinkled, may impede blind intubation. In some patients the face becomes congested.

2. It is a great help to be able to hear the breathing well, and in cases which have been intubated but not connected to a breathing-bag I cut a piece of rubber tubing, a few inches long by 3/8 in. diameter, to use as a listening-tube in the following way: Near one end a slit 3/8 in. long is made, and diametrically opposite to this a piece is cut out of the wall with scissors, leaving a large hole; the other end is cemented with rubber solution on to a length of tubing of smaller diameter for conveniently holding to the anaesthetist's ear. The slit is slipped over the collar of a Magill metal connexion, and so the breath goes in and out past the hole. It can be most clearly heard, and has been much appreciated by students, who are thus enabled to heed every change in the breathing.

K. B. PINSON, M.R.C.S.

Reviews

INDUSTRIAL MEDICINE

The Principles and Practice of Industrial Medicine. By 32 authors. Edited by Fred J. Wampler, M.D., Professor of Preventive and Industrial Medicine, Medical College of Virginia. (Pp. 579); Illustrated. 56.00 or 33s.) Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1943.

This is an extremely timely textbook, and is admirably written by 32 authors—each an expert on his own branch of work. Industrial medicine is a subject whose importance has been adequately recognized only since the present war began. Comprehensive textbooks are few, and therefore this excellent one should be greatly appreciated both by industrial medical officers and by students. Unfortunately legal and compensation matters are not identical in the United States and Great Britain, and therefore in this country it is not a book of reference on these subjects. However, practice runs to a great extent parallel, and this does not detract greatly from its value for the student. It begins by giving an excellent account of the place of the physician in industry; there is a very sane discussion on relations with management, supervisors, foremen, and workers. This is followed by the position of Governmental agencies in industrial hygiene. The full importance of environment is recognized by chapters on temperature, humidity, atmospheric pressure, lighting, and ventilation. The survey of substances which cause occupational poisoning is first-rate. The relation of gradations in degree of toxicity to the periodic classification is stressed. Kehoe gives the benefit of his experience in a chapter which is an up-to-date review of the present state of our knowledge of lead poisoning. Chapters on solvents and dust diseases complete the section devoted to occupational diseases. It is noticeable, however, that no mention is made of byssinosis, or diseases resulting from the use of compressed-air tools.

The last part of the book is devoted to prevention, trauma, and rehabilitation, all of which are admirably discussed, though it is surprising that only one short paragraph is devoted to a discussion of the place of mass miniature radiography in detecting the early case of pulmonary tuberculosis. Diagrams and illustrations are scattered throughout the book, and each chapter has a comprehensive bibliography. In general this is an excellent pioneer textbook which should be of much value in redressing the balance of medical education. We hope that it will have a great success and will be extensively read. Its sins are those of omission, which are almost inevitable in such a pioneer book, and will doubtless be corrected in future editions.

DISEASES OF THE BREAST

Diseases of the Breast: Diagnosis, Pathology, Treatment. By Charles F. Geschickter, M.D. With a special section on treatment in collaboration with Murray M. Copeland, M.D., F.A.C.S. (Pp. 829; Illustrated. 72s.) London: J. B. Lippincott Company. 1943.

The author of this important volume is a pathologist of high distinction, especially in the field of experimental pathology of tumours and their relation to endocrines. To this experience he has added a study of cases seen in the wards of Dean Lewis at Johns Hopkins Hospital and of the case-histories, specimens, and follow-up studies recorded in the surgical laboratory of Johns Hopkins and therefore largely the work of Halsted, Welch, and Bloodgood. It is from its pathological aspects, and still more from its account of experimental pathology, that the book derives its importance, and it would, perhaps, have made for clearness if the author had separated the laboratory methods, of which he is a master, from the clinical aspects of the subject, which might well have made a special study.

The opening chapters deal with the development and physiology of the breast, especially in relation to endocrines, and here the author has made full use of his wide experience in the mammary evolution of the rat and the monkey. This is followed by an account of mammary hypertrophy, of puerperal changes, and of chronic cystic mastitis, which is discussed at great length and with full reference to experimental work on animals, and this is followed by well-illustrated chapters on non-malignant tumours.

One-half of the volume is rightly devoted to cancer of the breast, and from the pathological and experimental points of view this is certainly the most important part of the book. When, however, actual treatment is taken up there are numerous statements with which we cannot at all agree, and which would seem to us to be entirely out of date; for example no one nowadays thinks it necessary to remove large portions of skin, nor when a surgeon undercuts the skin would regard sloughing as even a distant possibility. The problem of irradiation is discussed at considerable length, but one who have welcomed a fuller critical account of its advantages, disadvantages or of the complications which may arise. The volume concludes with chapters on the experimental production in animals of chronic cystic mastitis and of cancer by injection of oestrogen and hormones.

It will be seen that the book is essentially a pathological review for the study of the expert who wishes to make himself familiar with the results of experimental methods, combined with an analysis of a large amount of clinical material by surgeons who were leaders of their time. It is superbly illustrated, and each section is provided with full bibliography.

MENTAL HEALTH OF UNDERGRADUATES

Mental Health in College. By Clements C. Fry, M.D., with the collaboration of Edna G. Rosow. (Pp. 365. 52.00 or 11s. 6d.) New York: The Commonwealth Fund; London: Oxford University Press.

Nearly 20 years ago the authorities at Yale University heart-searchings because while so much was done for intellectual and physical well-being of their students little was done to help their general adjustment to a new life. A college community in the United States is a rather formidable world for some to face, as the life is highly organized and competitive. "With its residential colleges, fraternities, senior societies, its numerous student activities and high scholastic standards, Yale is a community which makes insistent demands upon its members." A department of psychiatry (using that word in its wider American sense) was therefore instituted to help students to make adjustments to it. At a survey of all entrants was attempted, but, as might have been anticipated, the results were incommensurate with the labour involved. Then students in difficulty were referred by their teachers to the department or came of their own accord. Naturally, the best results were achieved among those who came willingly. This book is a statement of the observations made and conclusions reached. Typical problems are considered in turn—difficulties with family relationships, scholastic achievement, social adjustments, and so on. Case histories are embedded in the text. Frankly, we do not think this is the best plan. Seldom does one of these causes exist in isolation; they are generally interwoven. Thus there is a good deal of repetition which is accentuated by the monotonous similarity of the case histories. A more general discussion, with the case histories relegated to an appendix to which reference could be made by way of illustration, would have increased the pleasure of reading the book without detracting from its value as a record. Nevertheless many interesting results emerge.

It is not surprising that the parental relationship bulk largely in these discussions. As Otto Rank said, the development of the growing personality from the parents is one of the most essential stages, as it is the most painful, in development. Between dependence on the security and affection of the home on the one hand and subjugation by parental domination on the other, many a young life is faced by a veritable Scylla and Charybdis. Moreover, domination is not always harsh; even more often it is affectionate, but too intrusive. In the present volume we meet with many instances of old Yale men urging, from loyalty to his alma mater, academic life on a son who is completely unfitted for it. "Broken homes" present another aspect of this problem. Desire for social acceptance seems an extraordinarily powerful influence at Yale; fraternities abound which are governed by strict ritual and surrounded by an atmosphere of secrecy and solemnity. Failure to obtain election to the desired one often seems to have a very depressing effect on the student. This is quite unlike the informal clubs abounding in our universities, which no one, either inside or outside them, takes very seriously. As to problems arising from scholastic duties, it is surprising to learn that in the first year more

20% have to drop out because they fail to reach the intellectual standard required; between a quarter and a half of these cases were due to insufficient earlier education, but in the remainder the pre-college record had been satisfactory. This surely suggests too intensive pressure is exerted on them.

A comparison of the reactions in the various faculties gave interesting results. The divinity students are of a higher average age but of poorer financial status. It is the fundamentalists finding themselves in a more liberal atmosphere who chiefly provide the problem cases. The medical students are given more opportunities of developing their own initiative, and the authors are surprised, though we are not, that this appeared to diminish difficulty of adjustment. Such difficulties were chiefly among those who found they had chosen the wrong vocation. Curiously enough the medical students were the group to show the most resistance to psychiatry. The law students, again an older group, showed the greatest uniformity of symptoms, which were generally those of an anxiety state centred on the gastro-intestinal tract.

Now that Yale has adopted the residential system it becomes of interest to compare experiences there with those of the older universities in this country. On the whole their students enter younger, and in the majority of cases ours have already become more detached from home influences at boarding-schools. Nor have we to deal with considerable numbers of the sons of foreign immigrants, to whom a Yale degree represents prestige and yet more difficulty in social adjustment. It would also seem that the atmosphere is more fiercely competitive than here. It may be that we are apt to be too complacent in our view that adolescence is a condition which soon cures itself, and are rather reticent about probing the personality of others. Nevertheless there are grounds for believing that psychoneuroses are less common in undergraduates in England than in the States. Probably the recent generations are more subject to them than their fathers, who were brought up with a stable background which imparted a sense of security. State scholars are sometimes a problem, when a well-meaning local authority insists on sending up students who are unsuitable. These do not like the university life and yet become dissatisfied with home conditions; they swell the third class and find it difficult to fit into life afterwards. Both at Yale and here the conclusion seems to be that a university career is not for all. As a parodist of the Grand Inquisitor's song in "The Gondoliers" wrote:

"For no one is of high degree
When everybody's got one."

Notes on Books

Vol. II of the new series of *Clinics* published by Lippincotts contains a symposium on haemorrhagic states, blood substitutes, and the management of haemolytic states, as well as a review of haemoglobinuria. In addition there are articles on such widely different topics as meningitis, fibrositis, burns, and abortion. The reviews are competently written, but it is a little difficult to know to whom they are addressed. The haematological subjects have already been reviewed *ad nauseam* and there is little significant recent progress to report. The material is perhaps too detailed for the practitioner and not fundamental enough for the researcher. It is also probable that the articles on blood banks and burns would not be regarded as absolutely up to date by those working in these subjects on this side of the Atlantic. This is because much of the most important medical research of the war is still locked in the secret archives of the United Nations. The time has surely come for the authorities to consider the orderly release of some of this material, and when this happens it may well require all our present facilities for reviewing. But until then it is pertinent to ask whether American publishers are not overdoing the business of reviewing medical progress.

A pamphlet describing the steps being taken in schools and youth organizations to give sex education to children and young people has been published by the Board of Education. *Sex Education for Children and Young People* (H.M. Stationery Office, 6d.) is based on a recent survey by H.M. Inspectors and is published for the benefit of local education authorities, teachers, and youth leaders, and of parents who wish to give their children some guidance. One of the main conclusions of the survey is that far too many young people to-day are ill informed on the facts of sex and ill advised regarding their social implications. This is mainly due to the absence of sex instruction in early years by parents and subsequently

in the schools. To assist parents the Board strongly urges education authorities to arrange parents' meetings with a view to securing their co-operation in everything that is done in the schools and helping them in dealing themselves with their own children. It is estimated that about one-third of the secondary schools in England make a serious attempt to give instruction. Though most secondary schools claim to offer some sex instruction, in many cases it is confined to individual advice. Some progress has also been made in the elementary schools, but the present school-leaving age is generally recognized to be a severe limitation in dealing adequately with the social and moral implications of sex conduct. The pamphlet emphasizes two main stages in sex education: (i) factual instruction in the physiology of sex (this usually forms an integral part of a normal course, such as biology or general science); and (ii) guidance to groups or individuals towards a better understanding of the sexual impulse and emotion and the moral and social problems arising from it. In the schools the first element is best dealt with through class teaching; this helps to avoid any special emphasis. It is found that it is advisable for children to receive this practical background before adolescence gives an emotional colour to the subject. Guidance on questions of conduct comes later when the child is more mature. The pamphlet stresses that simple and sensible answers should be given to children's questions from the earliest age.

Despite wartime difficulties *Recent Advances in Medicine* appears in a new edition (the eleventh), and in it Dr. G. E. BEAUMONT and Prof. E. C. DODDS continue their critical review which they began nearly 20 years ago. Nearly one-fourth of the present volume consists of new material, and certain familiar sections of various editions have had to be excluded. Physicians and practitioners will find much of interest between the covers of this book, which is published by J. and A. Churchill at 18s.

Preparations and Appliances

SYRINGE FOR TRANSFUSIONS AND INFUSIONS

Dr. LEONARD ROSENTHAL, senior resident medical officer, Staincliffe County Hospital, Dewsbury, writes:

The syringe here described was devised to facilitate the transfusion of blood and the intravenous infusion of plasma, saline, glucose, etc. It has been used for venesection, and should prove useful in taking blood from donors and in continuous intravenous anaesthesia.

It consists of a 1 c.cm. Record syringe the piston and piston-stem of which are hollow, being formed with a uniform bore throughout their length. Towards the end of the piston-stem is attached a tap manipulated by a small lever, while the end of the piston-stem is adapted for the fitting of rubber tubing.

In use, the syringe is connected to the reservoir of fluid to be infused and the whole apparatus, including an intravenous



$\frac{3}{4}$ Scale
Patent applied for

needle attached to the syringe, is filled, with the tap on the piston-stem open and the piston fully withdrawn. The tap is then closed and the piston driven "home." The syringe with the tap closed is, in effect, like any ordinary syringe, and is now used as in taking a blood sample from a vein. As soon as the vein is entered, shown by blood flowing into the barrel, the tap is opened and the perfusing fluid allowed to run through into the vein. The syringe is then strapped to the arm.

By the use of this syringe dissection of the vein is avoided and the same vein can be used repeatedly. Again, because the syringe is a vein-seeker there is no doubt when the needle is in the vein. This makes it especially useful when the veins are difficult to locate. Starting the transfusion or infusion is simple and can be accomplished by a finger of the same hand that holds the syringe. The glass barrel provides a "window" through which continual inspection of the perfusing fluid can be made. Any blockage of the apparatus, as sometimes occurs in blood transfusion, can be overcome without withdrawing the needle from the vein. All that is necessary is for the piston to be withdrawn to its full length, the tap closed, and the contents of the syringe injected into the vein. The opening of the tap will then restart the transfusion. This syringe has been in use for over a year for routine and emergency work, and its simplicity in both design and operation has saved a great deal of time in transfusion procedures. It may be found useful in the emergency transfusions in the field.

My thanks are due to Mr. James Walker, who made the original syringe from my design. It is now being manufactured by Chas. F. Thackray, Ltd., Park Street, Leeds, 1.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY DECEMBER 11 1943

PENICILLIN IN BATTLE WOUNDS

The Tunisian experience of which Prof. H. W. Florey gave a necessarily brief account to a crowded audience at the Royal Society of Medicine on Nov. 9 (*B.M.J.*, Nov. 20, p. 654) is fully described in a War Office Report of which we give a summary on p. 755. It appears that this report is for official circulation only; it is to be hoped that copies will reach all those who are engaged in the clinical use of penicillin, since it is by far the fullest account of this form of treatment so far written, and contains a mass of valuable information both on general principles and on details of surgical technique. The circumstances in which this study came to be made are now fairly well known. The work of Florey and others during the past two years had shown that penicillin is capable of controlling infection by almost any of the pathogenic Gram-positive bacteria which occur in wounds, and the possible applications of this fact to military surgery had clearly to be investigated as a matter of prime urgency. Clinical material in quantity was available only in North Africa, and accordingly Florey himself with Brigadier Cairns went out there for three months, and collaborated with a trained surgical team in forward base hospitals in Tripoli and Sousse in the treatment of early casualties from the campaign in Sicily. A preliminary study in Algiers of the treatment of chronic wound sepsis had been disappointing: local treatment with penicillin was often ineffective, and only prolonged systemic administration involving heavy and perhaps unjustifiable expenditure of penicillin could be relied on to bring infection under control; even this failed in some cases.

The circumstances of the Sicilian campaign were well suited for a trial of reasonably early though not immediate penicillin treatment. In a few cases treatment was in fact more or less immediate: 13 wounds were operated on in hospital ship off the Sicilian shore, being closed after introduction of undiluted penicillin powder—the only instances in which penicillin was used in this form. The great bulk of the cases were 3 to 12 days old on arrival at the forward base in North Africa; the majority were infected and some frankly septic and dirty, although some had been kept clean by the insufflation of penicillin-sulphanilamide powder in the forward area. With or without further insufflation, every possible soft-tissue wound, however large and regardless of sepsis, was completely closed, small tubes being left in through which penicillin solution was injected twice daily for 4 days. In the great majority all Gram-positive infection was eliminated at a small cost in penicillin; either the wound remained dry, or a benign sort of "Gram-negative pus" (containing *Ps. pyocyanea*) could be aspirated or escaped from the wound, its formation not apparently retarding healing. The other main class of case was the compound fracture; here again closure was the policy, in order to

obviate chronic infection. These cases received 500,000 units of penicillin by systemic routes, a dosage which may have to be increased somewhat, especially for fractures of the femur. In these two main classes the numbers of men treated were 171 and 36 respectively. Accounts are also given of the local treatment of 23 brain wounds and 7 cases of gas gangrene.

That this study should have been compressed into a space of only three months, during which successful new methods were devised and tested on a considerable scale, is an achievement with which its authors have every reason to be well satisfied. It is said that the investigation has been criticized on the ground that it was "uncontrolled" in the sense that no parallel series was treated by other methods. A vigorous rejoinder to this comment points out that any such comparison would require a far longer period of study, and goes on to observe that in spite of four years of war there are as yet no data by which the merits of sulphonamide wound treatment can be judged. Somewhat acid comments are made on the existing lack of statistical information generally: there are no large-scale figures available concerning the frequency of wound infections or their duration, still less of the effect on them of any particular form of treatment. The appointment of statistical officers to assemble such data for both penicillin-treated and other cases is recommended. It is difficult to envisage a strictly controlled investigation, since it is repeatedly stated or implied that no surgeon would have considered closure of some of the large and dirty wounds which were treated but for the assurance that penicillin would enable him to get away with it. That there was not one disaster in consequence of this often drastic and difficult proceeding is perhaps the most encouraging single feature of the whole report. The absence of controls is also excused on the ground that penicillin treatment should not be compared with any other until its technique has been perfected. With more experience it is anticipated that methods and results will be improved.

It may well be considered that Florey and Cairns have already succeeded in their object of discovering how penicillin can be used to the best advantage in the treatment of battle wounds. The simple answer is that penicillin treatment will overcome sepsis if it can be started within a fortnight of wounding or preferably earlier, that it should be accompanied wherever possible by complete closure, and that the prospects for it are improved by preliminary insufflation with penicillin-sulphanilamide powder in the forward area. Treatment at this stage, which is feasible at any advanced base, will be far more productive of results than any attack on chronic and intractable suppuration. The recommendation that penicillin treatment be mainly confined to one theatre of operations will be commended in so far as the study of a therapeutic problem is concerned. But to the extent that penicillin wound therapy becomes well-founded and capable of successful general application this restriction must appear in a different light, especially if larger supplies become available. We look forward to hearing that the supply position and the availability of trained personnel permit of extending this treatment if necessary to other possible theatres of war than the Mediterranean.

PERIPHERAL BLOOD VESSELS IN HEALTH AND DISEASE

Recent groups of papers published in America testify to the continued versatility of the attack on the problems presented by the peripheral vasculature. Complicated studies are being made with elaborate plethysmographs, calorimeters, oscillometers, capillary microscopes, and capillary manometers. On the other hand there are experiments involving the triple response of the small vessels of the skin, the injection of histamine, or the production of a saline wheal, which are technically so simple that they may be carried out by any clinician. It is a field full of questions awaiting answers, where it is easy to collect data, but where the interpretation of results is extremely difficult and where all experimental methods need to be controlled rigorously.

A new technique has been elaborated by Divalpa and his co-workers¹ from the reactive hyperaemia test, used widely in this country to separate organic from functional vascular disorders. In the "ring reactive hyperaemia test," as they call it, a 500-gramme lead weight with a lower surface whose area is 5 sq. cm. is placed on the skin for a sufficient time to cause a hyperaemic area of even intensity and discrete edges after removal. This is called the "threshold time," and is an indication of the ability of the smallest vessels of the skin to respond by reactive hyperaemia. The time taken for the hyperaemic area to fade to the colour of the surrounding skin is called the "clearing time," and is an indication of the rate of the local blood flow. Many factors apart from disease of the vessels affect the response. The activity of the patient, his environment, and his diet must all be standardized, and the speed of response varies even with the season. Both the "threshold time" and the "clearing time" are shorter in the cephalad segments than they are in caudal segments, and the palm, sole, cheek, and buttocks give values below the mean. In the aged there is little change on the trunk, but on the extremities both the times are lengthened. Some attempt was made to determine the cause of the changes. It was noted that the areas of greatest sensitivity are those where the concentration of haemoglobin is proportionally highest. Induced anoxaemia and acidosis were followed by decreased sensitivity, and alkalosis by an increase. Divalpa concluded that the irritability and the blood flow of the small cutaneous vessels are related to the concentration of CO₂ in the blood.²

Much work continues to be done on those diseases of the peripheral vessels which cause gross nutritional changes in the tissues. When arteriosclerosis is complicated by skin lesions on the feet the ability of the small vessels of the skin to dilate after ischaemia has been shown to be normal. As was to be expected, it was found that the blood flow is reduced, which suggests that the skin lesions are related to the rate of cutaneous blood flow and not to a change in the functional capacity of the small vessels finally responsible for the nutrition of the tissues.^{3,4} The digital circulation in Raynaud's disease, scleroderma, and thrombo-

angiitis obliterans has been studied in great detail with the aid of a calorimeter which makes possible an estimate of the rate of blood flow.⁵ In Raynaud's disease and in scleroderma the digital blood flow is usually decreased and the vascular resistance increased. In thrombo-angiitis obliterans the vascular resistance is normal, but the blood flow is decreased because of the low digital pressure. The results confirm the views generally held about these conditions and lead to a clearer understanding of the functional changes involved. For clinical purposes little information is obtained from complicated investigations in clear-cut cases of organic obliterative disease of the arteries except as supporting evidence. The physician can obtain the information necessary for his diagnosis by observing the nutrition and colour of the skin, by palpating the arteries, and by measuring the temperature with the back of his hand.

The dynamics of the circulation in hypertension attract much attention. Eichna and Bordley⁶ have not been content with the indirect evidence that there is no change in the pressure in the capillaries in hypertension and have proved it by direct micro-injection. The first part of their report,⁷ which deals with the effect on capillary blood pressure of such factors as neurogenic vasoconstriction, vasoconstriction with adrenaline, and reflex vasodilatation, is a good indication of the amount of work to be done in this field before you can begin to answer your original question. Another group of workers have measured the speed and degree of the response of the small vessels which follows sensory stimuli such as pin-prick.⁸ The data suggest that in cases of hypertension the reaction time of the vessels is short and the degree of constriction greater than in normal subjects. This is, of course, merely a more elaborate way of getting at the same point reached by Hines and Brown,⁹ who measured the increase in blood pressure after putting the hand in iced water. Brown and Macgrath demonstrated a similar increase in the reactivity of the blood vessels of animals after the experimental production of hypertension.¹⁰ The digital blood flow in hypertension has again been measured,¹¹ this time with a calorimeter, and in essential benign hypertension it is normal. In malignant hypertension it is decreased, and the vascular resistance is increased out of proportion to the elevation of blood pressure. There is another difference between the two conditions: in benign hypertension there is a normal response to the "ring reactive hyperaemia test," but in malignant hypertension the sensitivity of the smallest vessels of the skin is greatly reduced.⁴ As so often happens with a new observation, we are reminded of an old one, made more simply, and this time it is Volhard's separation of hypertensive patients into those with red and those with pale skins. Perhaps here was a lead which has been neglected because the original interpretation proved to be wrong. Now we can expect new attempts to explain the nature of this long-known difference, and there is reason to hope that they will rapidly have clinical importance.

¹ *J. clin. Invest.*, 1942, 21, 547.

² *Ibid.*, p. 711.

³ *Ibid.*, p. 697.

⁴ *Ibid.*, p. 655.

⁵ *Ann. Intern. Med.*, 1933, 7, 209.

⁶ *J. Physiol.*, 1941, 99, 304.

⁷ *J. clin. Invest.*, 1942, 21, 539.

¹ *Amer. Heart J.*, 1942, 24, 332.

² *J. exp. Med.*, 1942, 76, 401.

³ *Amer. Heart J.*, 1942, 24, 345.

⁴ *J. clin. Invest.*, 1942, 21, 675.

TREATMENT OF FACIAL PALSY

The recommendation of Ballance and Duel, based on experimental and clinical grounds, that every case of facial palsy should be submitted to operation as soon as possible has yielded a large harvest of good results. But as many cases recover spontaneously their advice has not always proved acceptable. Unfortunately the hope of recovery leads not only to delay, but to such long delay that good recovery in any circumstances is improbable. They stated—perhaps too dogmatically—that “the accepted time to operate is now. No delay is justifiable.” In fact, however, it has never been possible to distinguish those cases which will recover without operation from those which will not, apart from those in which it is known that the nerve has been either cut or torn, making recovery impossible without some form of surgical intervention. It was, however, the disastrous result of waiting too long for recovery which never came that led Ballance and Duel into the recommendation that all cases should be submitted to immediate operation.

In the hope of obtaining some information in the matter of prognosis which would resolve this difficulty in the selection of cases for operation, Karsten Kettel¹ (Copenhagen) re-examined a large number of patients suffering from facial palsy from the clinical material treated at the Municipal Hospital in Copenhagen between 1906 and 1938. Among 13,135 cases of suppuration in the middle ear there occurred 264 cases of peripheral facial palsy. None of the patients was under observation for less than a year, and 35 were observed for over twenty years. Many had died and some could not be traced, but it was possible to re-examine 169. Some of the conclusions at which it was justifiable to arrive were as follows: After three years, normal sense of taste on the affected side becomes restored even after a radical mastoid operation. This is ascribed to the possibility that the opposite chorda tympani or the glossopharyngeal on the same side can take over the function of taste, as regeneration of the chorda tympani must be impossible. The proportion of patients with facial palsy is about 2% of all cases of otitis media, both acute and chronic, and this agrees closely with many other statistical observations; but facial palsy is a much commoner complication of chronic than of acute otitis media, this being due chiefly to the distinctive influence of cholesteatoma. Post-operative facial paralysis is also much commoner after chronic than after acute otitis media. This follows from the nature of the operations required, the radical operation and labyrinth operations carrying greater risks. In acute otitis of the mastoid it is impossible to predict a more favourable result in partial than in complete paralysis, but in the great majority of cases the palsy disappears after operation, without any decompression of the nerve by opening the Fallopian canal. However, if the palsy does not disappear the patient must be kept under observation. Not only is chronic otitis media an absolute indication for the radical operation in facial palsy, in contrast to the relative indication only in acute otitis, but the prognosis is not nearly so good. In about half of these cases there was either no recovery at all, or very little. The test for faradic excitability does not provide any useful information in forming a prognosis. It is noted that a partial paralysis which followed fracture of the posterior wall of the external auditory meatus still persisted 24 years later. In sixty patients in whom facial palsy supervened immediately on either the radical operation or the radical combined with the labyrinthine operation, the recovery was either quite negligible or unsatisfactory in 37; in 6 the paralysis was slight; and in only 17 was there full recovery.

¹ Arch. Otolaryngol., 1943, 37, 303.

The author concludes that these last bad results might be improved if the advice of Ballance and Duel to reopen the wound immediately were followed, with the object either of decompressing the nerve in its canal or of grafting the gap in a severed nerve. It is possible that some unnecessary operations would be performed, but on the whole the results would be better. Actually, it is quite evident that if the nerve is known to have been divided or torn and the central end is accessible, the sooner the wound is reopened and a graft inserted the more likely is there to be good recovery without contracture. When there is no breach of continuity the benefit of simply exposing the nerve trunk is not so clear, but recovery from haematoma in the canal or swelling caused by bruising is no doubt accelerated. The results of grafting the gap in a torn or severed nerve have been on the whole satisfactory, though the results are not always entirely satisfactory on account of contractures, synkinesia (the whole of the facial musculature contracting together), and occasionally ties. Accessibility of the central end is a necessary assumption which Ballance and Duel ignored, but this condition is not infrequently absent, in which case resort to the older method of uniting the facial with the hypoglossal is necessary. This does not restore the emotional movements to the face, but it apparently possesses the advantage that it is not followed by either contracture or tie.

BILL OF HEALTH FOR TWO GREAT CITIES

Liverpool and Manchester, the third and fourth cities of England in population, and separated from one another by only 35 miles of Lancashire country, show very similar health records. Liverpool has the advantage in the birth rate (20.5 per 1,000 as against Manchester's 17.0), but the death rate is almost identical for 1942 (14.0 and 14.7). In infant mortality Manchester had the better record last year (64.5 per 1,000 births as compared with Liverpool's 76.0), but the maternal mortality rates (round about 2.3) were almost exactly the same in the two cities. Both showed a fall in mortality from tuberculosis; in Manchester this came down to 1.12 per 1,000 of population and in Liverpool to 1.15, but the notifications in Liverpool were slightly up on the previous year, and in Manchester slightly down. Other figures in the reports for 1942 from the medical officers of health show the extent of inoculation against diphtheria. In Manchester to the end of last year 17,707 children under 5 had had a full course of injections, 29,575 children between 5 and 10, and 38,483 between 10 and 15. The figures for these three age groups in Liverpool were respectively 15,337, 28,824, and 35,758, but Liverpool has an estimated total population some 68,000 higher than Manchester, and presumably a higher child population also. In both cities the story of venereal disease is much the same as in London. The medical officer of health for Liverpool mentions that early syphilis appears to have increased four times in the male and eight times in the female population since 1938, and in Manchester, comparing 1942 with 1939, there has been a decrease in new cases of venereal disease among males of 13%, but an increase among females of 28.7%. But, of course, these sex ratios are fallacious, because the figures relate only to civilians, and the true extent of any real increase is not reflected in clinic records. Both these reports indicate the activity and vigilance of the public health departments, especially in maternity and child welfare, sanitary administration, and hospital service. The medical officer of health for Manchester says that the hospital services are ripe for co-ordination, reconstruction, and fresh building. The large and important hospitals controlled by the city council

are providing excellent service, but much devotion is required of the medical and nursing staffs to cope with the disadvantages and difficulties of the many unsatisfactory buildings inherited as the result of transfer of hospital functions. Finally, it should be noted that in neither city in the fourth year of war was there a case of plague, of smallpox, or of typhus fever, and the number of notifications of enteric could almost be counted on the fingers.

OESTROGENS AND VAGINAL GLYCOGEN

As a result of numerous experiments, in which Papanicolaou and his colleagues^{1,2,3} played a leading part, examination of the vaginal smears of laboratory animals, and later of women, has been widely used to indicate the approximate amount of oestrogen in circulation and to control oestrogen therapy, though its practical value has been questioned by some. Besides showing a change in cell type, the vaginal epithelium reacts to oestrogens by increasing its glycogen content, the amount of glycogen being directly proportional to the oestrogen stimulus. Thus in the newly born child the vaginal cells contain some glycogen owing to the influence of maternal oestrogen during intra-uterine life. After birth the glycogen quickly disappears, to reappear at pre-pubertal age. During the years of sexual activity the vagina is rich in glycogen, especially during pregnancy. After the menopause the deposit of glycogen wanes, though it persists for a variable period in different women, according to the rate at which the secretion of oestrogen falls off.

Evidence suggests that the vaginal glycogen content is a more accurate indicator of oestrogen stimulation than is the type of epithelial cell, and so vaginal glycogen studies rather than vaginal smears have recently been used in the diagnosis of oestrogen deficiency. Several methods are described—removal of small portions of vaginal epithelium with a punch and staining sections with iodine; addition of a standard amount of Lugol's iodine to the previously collected vaginal discharge; and application of Lugol's iodine direct to the vaginal walls. In all cases the intensity of the brown coloration produced is used as a guide to the amount of oestrogen in circulation. Mack⁴ now reports another technique; this consists in making a vaginal smear and then suspending it over a dish of Lugol's iodine. The staining from the iodine vapour is proportional to the glycogen content of the epithelial cells; four grades of reaction are described. Mack has employed this method not only to indicate oestrogen insufficiency but also to compare the results of the various oestrogens in therapy, and to assess the dose required to yield the full glycogen response. His results confirm that glycogen often persists in the vaginal epithelium many years after the menopause. Whether the oestrogen responsible for this continues to come from the ovary, or from other sources such as the adrenals, is unknown; but Mack suggests that the ovary is probably the source, for the glycogen disappears more quickly and constantly after a surgical than after a natural menopause. But this test for oestrogen sufficiency or deficiency suffers the same disadvantage as all indirect methods of oestrogen assay. It depends on the hormone in circulation being in a biologically active form, and also on the ability of the tissue reagent to react to the hormone stimulus; and the tissues are not always able to do this. Thus in the presence of local infection, such as trichomonal vaginitis, Mack found that the glycogen content of the epithelium was

unaffected by oestrogen administration. Similarly, in debilitated patients suffering from tuberculosis or other general diseases vaginal glycopenia, like amenorrhoea, is common and persists in spite of oestrogen therapy. This is particularly true in febrile conditions. It has usually been suggested that such conditions have this effect on the genital organs because they suppress the secretion of oestrogen. But Mack's results go to show that toxic factors, and especially fever, do not necessarily inhibit ovarian activity, but act rather as "antihormones" and render the oestrogen biologically inactive or, maybe, even destroy it. Constitutional disease might also prevent the mobilization of glycogen by oestrogen.

Such conjectures raise interesting possibilities. In the meantime this simple and rapid iodine vapour test, with its acknowledged limitations, and demanding a certain amount of experience to interpret the reactions, should be of value to those who undertake oestrogen therapy.

TOXOPLASMA IN MAN

Human toxoplasmosis was first identified in America in a case of infantile encephalomyelitis by A. Wolf, D. Cowen, and B. H. Paige,¹ when the protozoon was transmitted to laboratory animals. It has since been recognized as the cause of a milder encephalitis in older children,² and of pulmonary disease in adults.³ Because of the diagnostic importance of chorioretinitis in this disease a full and illustrated account of the ophthalmoscopic range of variation in the lesions found in nine cases has been recorded by F. L. P. Koch *et al.*⁴ The histological basis of these clinical findings is also provided from material obtained at necropsy in four of the cases. Ophthalmoscopically the lesions are focal, bilateral, and often multiple. The macular region is almost invariably involved, but more peripheral lesions are often present, while the remaining portions of the retina and the "vasculature" are normal. The vitreous in all but one case was found to remain clear. The toxoplasmic infection, which takes place during foetal life in the infantile cases, first excites focal oedema, inflammation, and necrosis in the retina and adjacent choroid. This is succeeded by a granulomatous reaction with disorganization of normal structure. The protozoon was identified in these lesions but was rarely found in the choroid. Neutralization tests in rabbits with selected human sera suggest that toxoplasmosis may be more widespread, at all events in North America, than is generally supposed. Thus Sabin⁵ has found that in children with a combination of hydrocephalus or microcephaly, cerebral calcification, and chorioretinitis involving the macular region, a positive reaction was obtained in 10 out of 13 cases and in 8 out of 10 of their mothers. But if cerebral calcification and chorioretinitis were lacking the antibodies were absent. A high proportion of positive tests was also obtained in both older children and adults with chorioretinitis of unknown aetiology but resembling that of toxoplasmosis.

We have yet to learn how this disease is acquired by human beings, and by what means it may be treated. So far, however, it has been found⁶ that sulphathiazole will hold the infection in check in the mouse if the drug is given within five days of inoculation and then maintained. Since the protozoon is of intracellular habit this observation raises an interesting question concerning the mode of action of this drug in such circumstances.

¹ *Amer. J. Anat.*, 1917, 22, 225.

² *Ibid.*, 1933, 32, 519.

³ *Proc. Soc. exp. Biol., N.Y.*, 1935, 32, 555; *Amer. J. Obstet. Gynec.*, 1936, 31, 506.

⁴ *Amer. J. Obstet. Gynec.*, 1943, 45, 402.

⁵ *Amer. J. Path.*, 1939, 15, 657; *J. exp. Med.*, 1940, 71, 187.

⁶ Sabin, A. B., *J. Amer. med. Ass.*, 1941, 116, 501.

⁷ Pinkerton, H., and Henderson, R. G., *Ibid.*, p. 597.

⁸ *Arch. Ophthalm.*, Chicago, 1943, 29, 1.

⁹ *Proc. Soc. exp. Biol., N.Y.*, 1942, 51, 5.

¹⁰ *Ibid.*, p. 19.

POSSIBLE DEVELOPMENTS IN SOCIAL MEDICINE*

BY

JOHN PEMBERTON, M.D., M.R.C.P.

Medical First Assistant and Medical Tutor, Royal Hospital, Sheffield

The war, by increasing the interdependence of each member of the community, has stimulated the development of new social concepts and experiments. The widespread interest of the medical profession in social medicine is symptomatic of this new impulse, and has already been made into a potent force by the inauguration of departments of social medicine in the universities of Oxford and Birmingham.

It has been customary in the past to accept as a working hypothesis the belief that most diseases have a single and specific cause. This belief was fostered by the discovery of bacteria and the demonstration of their specific relation to certain diseases, and was fortified by the subsequent discovery of the specific immunity which often follows infection.

Social medicine extends the conception of aetiology beyond the immediate or specific cause to non-specific and often multiple causes—a point elaborated by Prof. Ryle in the Gilchrist lecture (1942). This conception may be applied to diseases which have a well-defined specific cause—for example, tuberculosis and typhoid—as well as to those with a more indefinite aetiology. It is true that the tubercle bacillus causes tuberculosis and the typhoid bacillus causes typhoid, but it is equally true, and of more practical use in preventing these diseases, to say that overcrowding and undernutrition cause tuberculosis, and that impure water supplies and contaminated foodstuffs cause typhoid.

In addition to these external environmental causes there are individual factors depending indirectly on the external environment. Not all of those who are bacteriologically susceptible to an infective disease will develop it. Other links which must be introduced into the aetiological chain are the subject's state of nutrition, the presence of excessive fatigue, and possibly other influences as yet unknown.

Pavlov (1910) described "equilibration with surrounding Nature" as the "fundamental law of life." It is the disturbance of this equilibrium between man and his environment which produces most physical and mental illness. In congenital and inherited disease the equilibrium is disturbed by agencies within the individual, independent of environmental influences. In most other diseases environmental defects play an important and often decisive part in overthrowing this balance which is health.

Claude Bernard referred to the blood and tissue fluids which bring nutrients to the various organs and remove the waste products as the *milieu intérieur*. The patient's external environment, which consists chiefly of his dwelling, his diet, the conditions of his work, the nature of his leisure, and his relations with his family and fellow men, might be called his *milieu extérieur*. It is the relation of disease to the *milieu intérieur* with which social medicine is concerned.

It would be wrong to assume that the advent of social medicine marks a revolution in medical thought or any break in the continuity of medical progress. What is implied by the new name is, I think, a shift of emphasis. Some doctors have always believed that much disease results from bad environmental conditions. Now many more doctors, perhaps the majority, have come to that conclusion.

Sir Wilson Jameson (1942) has shown how advances in social medicine are stimulated in wartime. The development of mass radiography, the expansion of the industrial health services and rehabilitation schemes, and the introduction of a food policy based on health needs have been accelerated by the stimulus of the urgent needs of war. But the facts on which these advances are based and which compel attention to the social aspects of disease were already established before the outbreak of war. Numerous authors had demonstrated the evil effects on health of an inadequate diet, overcrowding, and unhealthy conditions of work.

One of the most important publications in this country establishing the need for a social approach to the problem of disease is the report of the Registrar-General on Occupational Mortality (1938). This is the first occasion on which mortality rates have been given for different social classes as well as for different occupations, and also the first time that the mortality rates of wives grouped according to the occupation of the husband are given.

The report divides the population into five social classes on the basis of occupation as given in the 1931 census returns. The professions are placed in Class I, skilled workers in Class III, and unskilled workers in Class V, with two intermediate groups. The following facts from the report are among the most significant from the point of view of social medicine. The mortality rates of diseases of the respiratory system, ear and mastoid disease, valvular heart disease, and gastric and duodenal ulcer, and the infant mortality rate increase steadily as the social scale is descended, so that the rates are approximately twice as high in Class V as in Class I. In pregnancy and childbirth the death rate is 50% higher in Class V than in Class I, and in the second year of life the death rate in Class V is five times that of Class I.

The social distribution of some of the commoner forms of cancer is often overlooked, although this report demonstrates a definite relation between social grade and cancer of the "exposed" sites. Death rates from cancer of the tongue, tonsil, jaw, pharynx, oesophagus, stomach, larynx, skin, and uterus are approximately twice as high in Class V as in Class I. Possibly those in the higher occupational groups seek treatment earlier, but this factor can, however, have little effect on the mortality rates of cancer of the stomach, which is almost invariably fatal however early treatment is sought, and in cancer of the stomach there is a steep social gradient in the mortality rates.

The Registrar-General's report testifies to the existence of a mass of preventable disease of social origin. It raises many problems which would appear to be accessible to research in social medicine. It shows, for instance, that there are influences in the environment of the lower occupational groups which produce high mortality rates for all the principal respiratory diseases. What are these adverse factors and how can they be prevented? We know that overcrowding is an important factor in the production of tuberculosis, but we do not yet know for certain why steel workers suffer a high incidence of pneumonia (Registrar-General, 1938), nor what part dust and exposure play in the production of chronic bronchitis and emphysema. It has been shown by Middel Turner (1938) that cancer of the lung is significantly more common in foundry workers and metal workers than in the general population, and Argyll Campbell (1943) has proved that dusts encountered in the heavy metal industries produce a significant increase in the incidence of pulmonary tumours in mice. But the specific agent or agents responsible for the high rates of cancer of the lung or larynx in these industries have still to be established, and methods of prevention devised. The high death rate from valvular disease of the heart in the lower occupational groups is mainly due to the late results of rheumatic fever. Morris and Titmuss (1942) analysed the relation between rheumatic fever and environment, and concluded that rheumatic heart disease was due to some condition associated with poverty, not necessarily overcrowding. Mille (1942) gives evidence supporting the hypothesis that damp houses are the cause of juvenile rheumatism, while Glazebrook and Scott Thomson (1942) found that a supplement of vitamin C prevented the occurrence of cases of acute rheumatism in a group of 335 boys, whereas in a control group of 1,100 there were 16 cases. The problem of the aetiology of acute rheumatism still awaits a complete solution, although it is now certain that environmental factors are of major importance. The infant mortality rate has long been recognized as an index of social conditions. Malnutrition, overcrowding, an infected food are important causes of high infantile mortality rates, but it is not accurately known how these causes operate and to what extent other factors are involved. These are few of the problems that confront social medicine; the list could be extended indefinitely.

* Received for publication July 12, 1943.

Social medicine appears to me to open two new doors in medical practice. The first leads to a new attitude to disease, and the second to a new technique for its conquest. I think that one of the first questions a medical student should be trained to ask himself when confronted with a sick person is, "To what extent has this patient's environment contributed to the aetiology of his disease?" and when the diagnosis has been made, "To what extent will the treatment and prognosis in this case be influenced by environmental conditions when he leaves the hospital?" Because it is a new way of looking at disease it should not become a special branch, but should be welded into the clinical curriculum at all points. Above all, it should not be excluded from the stimulating and vitalizing influence of bedside medicine.

The new technique which social medicine offers is one for an extended study of aetiology. If the maximal results are to be obtained a definite method is desirable. Such a study might consist of the following five stages:

1. An inspection of the vital statistics relating to the aetiological problem under consideration. A possible cause of a high disease rate may be suggested by statistical evidence, but this can only be proved or disproved by a close study of individual cases.

2. The "trace-back" stage, consisting of a detailed study of individual cases of the disease in question with special reference to a detailed environmental history checked by personal observation of the patient's *milieu extérieur*.

3. A survey of an adequate sample of the population exposed to the environmental conditions under suspicion, together with a control group not so exposed. A number of latent or early cases of the disease might be discovered in the exposed group at this stage.

4. An attempt to reproduce the condition in experimental animals.

5. The last stage, in which the hypothesis would be proved or disproved, would consist of modifying the environment of an exposed group of the population by removing or neutralizing the suspected adverse characteristics and noting the effect on the incidence of the disease in question.

The individual worker would find it difficult, if not impossible, to complete such an investigation alone. The collaboration of hospital and domiciliary doctors, research workers, statisticians, nutrition workers, sanitary inspectors, social workers, inspectors of factories, works managers, public health doctors, and local authorities might all be required to carry through to a successful conclusion an experiment of this sort. The human element and the diversity of types and conditions encountered might at times baulk and confuse the inquirer, who would find that there were more variables than he could at first control, but I do not believe the difficulties are insuperable. Moreover, the integration of the medical services, to which we can now look forward with confidence, will facilitate the search for the sources of disease by bringing together in one organization workers in curative and preventive medicine.

REFERENCES

- Campbell, J. A. (1943). *British Medical Journal*, 1, 179.
 Glazebrook, A. J., and Thompson, S. (1942). *J. Hyg., Camb.*, 42, 1.
 Jameson, Wilton (1942). *Lancet*, 2, 475.
 Miller, R. (1942). *Ibid.*, 2, 564.
 Morris, J. N., and Titmuss, R. M. (1942). *Ibid.*, 2, 59.
 Pavlov, I. (1910). *Lectures on Conditional Reflexes*, London.
 Registrar-General (1938). Decennial Supplement, Part IIa. *Occupations Mortality*, H.M.S.O.
 Ryle, J. (1942). *Lancet*, 2, 29.
 Turner, H. Midgley, and Grace, H. G. (1938). *J. Hyg., Camb.*, 33, 90.

BLIND PHYSIOTHERAPISTS

The school of massage for blind men and women, established by the National Institute for the Blind in 1915, is to be enlarged. It will remain in the same building as the Eichholz Clinic in Great Portland Street, London, where another of the extensive floors is to be added to the school premises. During its career the school has undergone sundry changes, but all have been in the cause of progress. As the only training centre in the world exclusively for sightless physiotherapists, the Institute has regarded it a point of honour to maintain a high degree of efficiency, a policy that has established the blind masseur as second to none in the profession. One reason for enlarging the school is the proved success of the "educated" blind and the increase in this category brought about by the growing number of young people passing through the National Insti-

tute's two public schools, Worcester College for blind boys, and Chorleywood College for girls with little or no sight. Worcester was much enlarged shortly before the outbreak of war, but already it is filled to capacity; Chorleywood also is nearing the point where more accommodation will be needed for myopic girls eligible for secondary education. Beyond these sources of potential students for the massage school, account must be taken of blinded war casualties in the fighting Services and civilian population, among whom are bound to be many persons desirous of, and suitable for, training. A matter to which full attention must be given is the demand of the profession itself. The blind practitioner cannot lag behind the advancing technique, and the curriculum at the school must be adjusted accordingly. The present two-year course puts severe pressure on the students, and a longer course will probably have to be introduced soon. It is to meet the challenge of modern developments and to help more young blind persons of ability that the National Institute has decided to embark on the extension scheme.

THE TREATMENT OF WAR WOUNDS WITH PENICILLIN

The following is an account written for us by Prof. L. P. Garrod of a report published by the War Office entitled, "A Preliminary Report to the War Office and the Medical Research Council on Investigations concerning the Use of Penicillin in War Wounds—Carried out under the Direction of Prof. H. W. Florey, F.R.S., and Brig. Hugh Cairns, F.R.C.S., R.A.M.C." This report is for official use only, but we are permitted to publish an abstract of its contents.

This printed report of 114 pages is in two parts: a general account of the investigation and its results by Florey and Cairns, and 12 detailed descriptions of particular classes of case by individual surgeons, including numerous fairly full case histories. The work described was carried out in North Africa during a period of only 3 months last summer, in order to ascertain as quickly as possible how penicillin can be used to the best advantage in treating battle wounds. The best use of very limited supplies involved discovering how to obtain good results by local treatment only, since this is far more economical than systemic administration. No attempt was made deliberately to compare penicillin treatment with any other—a much more formidable project.

Methods of Administration

Penicillin was applied locally either as a solution in distilled water containing 250 units of calcium penicillin per c.cm., as a powder in which calcium penicillin was diluted with sulphamilamide to give a strength of 500, 2,000, or 5,000 units per g. (in a few cases it was used undiluted), or as a cream in a lanette wax base. Systemic treatment was achieved by intramuscular or intravenous injection of sodium penicillin by continuous drip in glucose saline, the daily dose being usually 120,000 units: owing to impurities in some of the batches used injection by the former route caused pain and by the latter febrile reactions and early venous thrombosis. There were no serious toxic effects. A good plan was to give intramuscular injections for 1 day after operation, then start on intravenous drip, and revert to intramuscular injections later if necessary. Some loss of potency occurred, especially in calcium penicillin, owing to climatic conditions and transport: doses stated are therefore maxima and the probable true dose was up to 30% less.

Chronic Wound Sepsis

The first phase of the investigation was the treatment in Algiers by Lieut.-Col. Ian Fraser of a series of septic wounds from 3 weeks to 4 months old. These cases were accommodated in a special 30-bed ward, and full bacteriological control was carried out by Major Scott Thomson. Local treatment with solution, powder, and cream was disappointing: accessible surfaces could be sterilized, but deep-seated infection could not be controlled. Systemic administration was resorted to in 8 cases of septic compound fracture, 4 of which received over 1,000,000 units; this lavish treatment cleared up the infection in 6.

It was concluded from this experience that long-standing sepsis with loculated abscesses and poor general condition was a relatively unpromising field, and that cases should be treated earlier. Almost ideal arrangements for this were possible when the campaign in Sicily opened. Lieut.-Col. Fraser and

Major MacLennan (bacteriologist) proceeded to Sicily, where they examined casualties early and gave preliminary treatment: the men were then evacuated to Tripoli or Sousse, where 10 surgeons in 5 general hospitals who took part in the investigation worked in collaboration with Florey and Cairns. The cases treated were of 2 principal classes.

Recent Soft-tissue Wounds

Of these there were 171, of which 53 were treated by Lieut.-Col. J. S. Jeffrey: they were mostly from 3 to 12 days old (extremes 12 hours and 22 days), and the majority were infected. "... in fact some were purulent and most were clinically dirty. No case was rejected for this reason, and the wounds were closed before the results of the preliminary bacteriological examination were known." Large and difficult wounds were chosen, including 25 of the buttock: 7 cases were amputation stumps. The policy adopted was immediate closure, relying on penicillin applied locally to hold infection in check. The principal method of application was through tubes inserted at the operation for suture. One or more 1/8-in. rubber tubes were introduced through stab holes or through the wound itself, the outer ends projecting beyond the dressing, and through these from 3 to 10 c.cm. of penicillin solution (250 units per c.cm.) was injected twice daily for 4 days. Some cases were also treated by insufflation of powder, either as a preliminary measure in the forward area (which according to Scott Thomson's bacteriological data reduced the frequency of infection with pyogenic cocci on arrival at the forward base from 57 to 26%) or at the base for 3 days before closure was undertaken: powder alone with no irrigation after closure was used in exceptionally clean cases. Complete union was secured in 104 cases, subtotal union—i.e., healing by granulation in some part of the wound—in 60; failures numbered 7. These wounds show little reaction: they may remain dry or discharge "a thin salmon-pink purulent fluid" which turns green on the dressing—this is "Gram-negative pus" containing *Ps. pyocyanea*, and healing proceeds rapidly in spite of its formation. The results as a whole were such that Jeffrey goes so far as to say: "With penicillin the obstacle of infection has been practically overcome," and it is estimated that from 3 to 6 weeks in hospital is saved. Causes of failure or subtotal union were: stitching up so tightly in layers that the solution could not penetrate the whole of the wound; placing sutures too near the skin edge; removing sutures too soon; injecting too much solution (3 c.cm. per tube was found better than 10 c.cm.), since this tended to separate the wound surfaces; and relying alone on powder before suture when this tends to be washed away by blood. The main difficulty in applying this treatment was caused by unduly drastic wound excision in the forward area: it is very strongly emphasized that this should be conservative, skin especially being spared. It is also stated emphatically that suture should not be attempted in the C.C.S., and that at the forward base where it is undertaken the man should remain until healing is complete.

Recent Fractures

A different method was adopted for compound fractures. Of these 36 of these cases, mostly severe comminuted fractures of long bones: they were 5 to 14 days old on arrival at the forward base; 9 had been treated locally with penicillin-sulphanilamide powder and 27 with sulphanilamide only. The aim was to convert to a simple fracture by closure and so prevent chronic infection, and systemic treatment was considered necessary: the standard course was 100,000 units daily (by the 3-hourly intramuscular or continuous intravenous route) for 5 days. Only 31 of the wounds were capable of being sutured: complete union was achieved in 16, subtotal in 10, and there were 5 failures. Of the 6 cases not sutured, 5 healed by granulation rapidly without infection and 1 died of fat embolism. Fractures of the femur gave the worst results, and it is advocated that in future systemic treatment for these should be continued for 7 to 10 days. Inadequate dosage was apparently the main cause of failure, and bacteriological studies showed that pyogenic cocci sometimes persisted after the full course. Closure was too ambitious in some of the large wounds, where drainage even for Gram-negative pus would have been preferable. There were also 2 examples of infection by penicillin-resistant cocci.

Miscellaneous Infections

Smaller numbers of cases were treated in the following categories:

Gas Gangrene.—It was not often possible to get these cases to the forward base before they were moribund, but 7 cases were treated, of which complete histories are given. It is pointed out that the treatment should include full doses of antitoxin to combat the toxæmia, and the excision of all dead tissue, since penicillin cannot reach this. Systemic administration for 3 to 5 days is advocated: local application is useless in treatment, although it may be of great value for prevention. The infection was apparently checked in 4 cases: 3 died from causes apparently outside the control of penicillin.

Head Wounds.—Brain wounds 3 to 12 days old, almost all infected with pyogenic organisms, were excised, cleaned, and closed: a small tube was passed through a stab hole into the brain cavity, and pus was aspirated and solution injected twice daily for 3 to 6 days. Of 23 cases only 3 died—2 of intracranial infection. These results, so far as they go, compare very favourably with those obtained by other methods. Most non-penetrating wounds of the skull and scalp were treated by a single application of powder at the time of suture.

Undiluted Powder and Primary Suture.—During the first 2 days of the Sicilian invasion 13 casualties with wound involving bones or joints in nearly all cases and averaging 40 hours old were operated on in a hospital ship off-shore. About 1 g. (50,000 units) of undiluted calcium penicillin powder was applied by spoon and rubbed into all parts of the wound, which was then closed. Results, so far as they are known, were excellent, but after-histories are not all available.

Some cases of burns were treated by insufflation with "1% penicillin in sulphonamide powder": haemolytic streptococcal infection was thus eliminated which had resisted other treatments. One recent and 9 sulphonamide-resistant cases of gonorrhoea were given not more than 12 4-hourly intramuscular injections of 15,000 units, the effect of which was "like turning off a tap": no relapse was observed during 2 to 4 weeks subsequent observation. (Sulphonamide-resistant gonorrhoea is common in N. Africa, possibly because French M.O.s in charge of brothels give small doses of sulphonamides to prostitute as a prophylactic. The penicillin treatment of gonorrhoea should be restricted at present to highly trained fighting troops such as parachutists, in forward areas.)

Future Policy

Evidence has been obtained that "penicillin can make a substantial contribution to the health of wounded soldiers, with corresponding saving of hospital time." Plans for its use should assume that an average of 750,000 units of sodium penicillin per case is required for systemic treatment and 50,000 units of calcium salt for local. For the time being supplies should be under the control of the Directorate of Pathology at the War Office, and its use "should be mainly concentrated in one theatre of operations." Surgical and pathological penicillin officers should be in charge of treatment, which should be confined to predetermined types of case. The most hopeful field is the early treatment of soft-tissue wounds and fractures. Further experience should lead to improvements in technique, and only when the best method have been defined should a comparison be made with form of treatment not employing penicillin. The appointment of a statistical officer is recommended, to supervise accurate record keeping and a careful follow-up and to assess results. Similar information from an Army group not using penicillin would be valuable: there is an extreme dearth of accurate information about the frequency and duration of sepsis in battle wound and the effects of other measures such as sulphonamide treatment. Among other types of case, gas gangrene requires further study, and penetrating wounds of the chest, which have hitherto been excluded, should be studied particularly with a view to discovering whether pyogenic coccal infection can be controlled by the more economical method of local application.

"There can be little doubt that the prevention of infection with pyogenic cocci or its control in war wounds is within reach, and no criticism with its emphasis on difficulties should be allowed to stand in the way of the attainment of this ideal."

Reports of Societies

EPIDEMIC HEPATITIS: RECENT FIELD INVESTIGATIONS

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on Nov. 26, Dr. J. A. BRINCKER presiding, the subject for discussion was epidemic hepatitis. The CHAIRMAN reminded the meeting that jaundice had shown a steep and rapid rise during the last two years in this country, Europe, and North Africa. The Medical Research Council had appointed a committee on the subject, but its conclusions were not yet available. The present discussion would be confined to field work.

Dr. A. A. LISNEY, Deputy Medical Officer of Health for Leicestershire, said that during the past eight years he had collected 1,017 case records of patients in his county who had developed epidemic hepatitis. The first epidemic to come under his notice was in 1936 (there was an earlier one, recorded in the literature, with 45 cases, in 1933). Another epidemic occurred in 1937-8, a third (without so high a peak) in 1938-9, a fourth in 1941-2, and a fifth in 1942-3. In the last of these the total number of cases in one month reached the high level of 132. Only an isolated case appeared in the interval between the early part of 1939 and 1941. During the last epidemic a number of cases also occurred in the city of Leicester (which was not included in his survey), and there were three deaths—two children and one adult—between Oct. 28 and Nov. 14, 1942.

It had been easy to trace the case-to-case spread of the disease. There were a number of mild, abortive, or atypical cases which did not seem to come to anything. The majority of the cases occurred in children; the age group with the highest incidence was 5-10. The disease did not seem to attack the same village twice over, except for a case or two. There were two distinct types of local outbreak in the villages. For example, in Barlestone 49 cases were grouped in a period of less than four months, and at Burbage 84 within six months, but at Shepshed 30 cases were spread out over eleven months, and the same at Sileby and other places. There was no evidence of the disease being spread by means of milk, water, food, or vermin. It was evidently case-to-case spread, probably by droplet infection. The period of infectivity before jaundice appeared was at least a week, and once the jaundice appeared the infectivity ceased. Coryza was a very common symptom, and, except in the first epidemic, when it did not appear, was found in 39% of the cases. Sore throat was a common factor in three of the epidemics. Rash, mostly urticarial, but in a few cases petechial, was seen. There were three deaths, and there was circumstantial evidence of death in two other cases, but these persons had gone outside the county and could not be followed up. An endeavour had been made, by the collection of nasal washings, faecal material, etc., to isolate the organism, but without success. Complications were very rare. In the cases under review Dr. Lisney could record two cases in which diabetes followed almost immediately an attack of infective hepatitis and three others in which intermittent glycosuria had persisted since. Chronic pancreatitis was noted in one of the fatal cases during an exploratory laparotomy.

Infective Hepatitis in North Africa

Dr. E. T. C. SPOONER, Director of the Emergency Medical (Laboratory) Service at Cambridge, brought forward some collected results from different observers of the occurrence of epidemic hepatitis in the Middle East in 1942. It was stated that during the El Alamein battle the hospital sick admissions were about 50% higher than the battle casualty admissions, and a large proportion of this sickness was due to infective hepatitis. The events of the two previous years and the record of the last war made it possible to predict the occurrence of the 1942 epidemic, although no one could have foreseen that its magnitude would have been so great. The case rate per 1,000 during December for British and Dominion troops reached the high figure of 9. The brunt of the Middle East epidemic was borne by the Eighth Army, which accounted for about one-fourth of the total cases.

Officers were about 4.7 times as prone to infection as other ranks. It appeared from studying the dispositions of the troops that a period of residence in the El Alamein line might be the predisposing cause of the epidemic. Those regiments which spent the longest time in that region were the most heavily hit. It was difficult to explain on the basis of case-to-case spread and the usually accepted incubation period of about one month how the epidemic in an isolated unit could rise to a maximum and fade out again within five or six weeks, as it sometimes did.

The Indian troops and the Maoris, although both occasionally developed jaundice, were much less frequently affected than Europeans. No insect vectors could be incriminated, and there were no grounds for suspecting any, except that flies were particularly abundant in El Alamein in October and November. Two observations seemed to cast some doubt on the hypothesis of droplet infection. One was that among the crews of vehicles, who had to live, travel, feed, and sleep together, there did not seem to be any special tendency for more than one case to arise in any one vehicle. In a field regiment in which there were 59 cases altogether there were eight instances of more than one case occurring in the crew of one vehicle, but in most of these the time interval between the onset of the cases in the same vehicle was a little less or a little more than a week. The other observation was that the disease showed curiously little tendency to spread from prisoners of war captured in November, among whom jaundice was rife, to others who shared the same camps and who had been captured in the previous spring or summer.

Other Experiences

Squad. Ldr. DALMADY said that R.A.F. experience bore out the point that a larger proportion of officers than men was affected. Major CHUTE suggested that this might have something to do with the different feeding habits of the respective ranks. Officers, even during active operations, had their meals in common, whereas the men kept their own individual utensils. Dr. ELI DAVIS mentioned 29 cases which found their way into hospital and were fairly spread over the twelve months from October, 1942, to October of this year. Three of them had been sent in as cases of acute appendicitis. All were in children or young adults. They included three pairs of siblings. One nurse who was treating jaundice cases developed the disease. One boy had acholuric jaundice, for which splenectomy was done, and he recovered, but two of his cousins developed infective hepatitis during the epidemic. Dr. J. C. FORD spoke of an observation of 300 cases in the borough of Wembley in the autumn of last year. The cases spread across the borough at the same rate as measles and chicken-pox. There was a rise in October and a peak in January. At one particular school there were 78 cases of infective hepatitis out of 778 children on the register. Dr. NEWMAN described a small outbreak which had affected a day nursery. The curious point was that it was the attendants who were attacked, and not, to any large extent, the children. The outbreak illustrated the part played by healthy people in spreading the disease. Dr. W. H. BRADLEY mentioned Hallgren's finding (*Journal*, Nov. 27, p. 681) that the infection was water-borne, but Dr. LISNEY said that water supply could be excluded from the Leicestershire cases, and other speakers who had given their experiences agreed that the water could not be incriminated.

ADVANCES IN ORTHOPAEDICS

In his presidential address at the recent annual meeting of the British Orthopaedic Association Mr. G. R. GIRDLESTONE discussed the philosophic and practical considerations which marked the development of orthopaedics and the manner in which it had influenced the treatment of fractures in this country. There were still few general hospitals, he said, with a good accident service, although the case for it had been proved. Some hospitals were quite blind to their shortcomings. Members of the association must be guides and see to it that safe and simple methods were taught, and that, for example, splintage provided freedom from pain, freedom from pins, freedom of the circulation and freedom for its subsequent expansion. Familiarity with the ways of living tissues and the study of the bad end-results of trauma revealed that

the great majority of the latter were due to lack of knowledge, of dexterity, of gentleness, and of sustained interest in the after-care. The strength of the association and of its influence was in the regular meetings of a society of friends, eager to talk "shop" and exchange ideas, to travel widely to see the work of other men at home and abroad, to discuss freely in a spirit of mutual understanding and good will, seeking the truth without fear of offending one another, showing failures and confessing difficulties. Of orthopaedic hospitals he said their mercy must be very practical, but would only be effective if based on skill hardly won and generously given by men and women who had taken pains to acquire an intimate knowledge of their work and were unsparing of time and trouble.

Training, Resettlement, Rehabilitation

Mr. G. GOMME of the Ministry of Labour, reporting on the development of the Ministry's interim scheme for training and resettlement of the disabled, said 100,000 interviews with disabled workmen while in hospital had been completed. Broadly speaking, physical disability was not such a serious barrier to employment as had previously been thought. While 70% of those interviewed were back at work, it was open to question whether many of the wartime jobs arranged were suitable as permanent resettlement. The scheme had not yet been able to cope with that not inconsiderable group who for various reasons (usually psychological) were unemployable.

Mr. W. GISSANE, in describing the Birmingham experiment in accident treatment, referred to "rehabilitation shops" where the injured man could combine necessary treatment with productive work; it was hoped to provide a series to cover Birmingham. Here the hospital-surgeon was concerned with planning jobs and progress in movements, power, and duration of work. In the team also were the factory doctor and the shop manager—who was invaluable in making the work suitable for the more important activity of the factory in which the man was expected to earn his livelihood. The final stage was the direct transfer of the workman out of these shops back to the factory proper. The cycle of treatment was then complete. Major FRANK STINCHFIELD, U.S. Army, described the methods employed in that Army for the rehabilitation of the sick or injured soldier. A motion picture, prepared under the direction of Col. R. L. Diveley, showed the work of a special centre established for this purpose in Great Britain.

Some Orthopaedic Procedures

Major R. SOTO-HALL (U.S. Army Medical Corps) discussed lesions of the articular cartilage of the patella, which were found to have a high incidence scarcely noted in the Anglo-American literature. Fractures in the cartilage of the patella without bone involvement were common, and as a delayed manifestation was chondromalacia patellae. This was believed to be a form of aseptic necrosis and appeared as degeneration of the cartilage matrix. Many patients had little disability if the area involved was small. Of the operations—partial resection of abnormal cartilage, total resection of the articular surface, and patellectomy—the first-mentioned was useful only in small lesions, the second was unsatisfactory, but the third gave good results. He had performed it in five cases: four good or excellent results, the remaining one not improved. Patellectomy care must be taken to restore proper tension in the quadriceps expansion by overlapping the tendon. Major R. PATTERSON (U.S.A.M.C.) emphasized that in fractures of the upper end of the tibia involving the knee-joint excellent results could be obtained by conservative methods: aspiration of the haemarthrosis, reduction by compression or manipulation, and the institution of early motion, the next day passively and at about five days actively, in a Thomas splint with a Pierson attachment and traction. The improved control obtained by the incorporation of the patient's thigh and the upper part of the splint in plaster-of-Paris was also demonstrated.

Wing Comdr. W. D. COLTART, R.A.F., reviewed a series of injuries of the astragalus peculiar to airmen whose plane crashes. He emphasized the importance of complete reduction of the subastragaloid dislocation or subluxation which occurred in so many fractures of the neck of the talus. It was secured by plantar flexion, but might recur when this position was relieved at the end of the first month. Posterior dislocation

of the body was a surgical emergency, and should be reduced at once. The body should be preserved, if possible, even when, in late cases, avascular necrosis was present, for arthrodesis would give better results than astragalectomy, preserving the height of the foot and the leverage of the forefoot. If the whole bone or the body were irretrievable a second-stage fusion of the tibia to the os calcis should be planned. While deformity of the body following avascular necrosis rendered fusion inevitable, it had to be remembered that mere radiographic opacity without deformity could resolve if immobilization of the contiguous joints had been begun before opacity appeared and was continued long enough for regeneration to occur (this might take as long as 37 weeks).

Col. St. J. D. BUNTON, discussing gunshot wounds of the elbow-joint, reported upon 51 such injuries recorded by the M.E.F. during the third Libyan battle in the summer of 1942. Suppurative arthritis developed in 31, and amputation was necessary in two cases. There was no fracture in three elbows; there was severe bony damage in at least four out of every five patients, and the olecranon was injured in nearly half of all the elbows. There was evidence of injury to 16 peripheral nerves, of which 9 had recovered in four months or less; the fate of 2 was not known. He described the type of operation advisable in the forward and base areas, and stressed the advisability of leaving large bony fragments which had attachment, but of removing all small loose fragments lying around the fractured bones. The latter was important when an excision of the joint was performed. The indications for aspiration and delayed arthrotomy by posterior drainage were stated. The splinting employed was plaster-of-Paris, extending from the axilla to metacarpal necks, with the forearm supinated and wrist dorsiflexed. Large dirty wounds often improved by dressing through windows in the plaster two to three weeks after the wound, but usually the plaster was not changed for three weeks. Stiffness of the shoulder and hand was prevented by early active movement of these joints. The loss of the olecranon was not necessarily the cause of poor function. Recurrent osteomyelitis and sequestra formation were not a frequent sequel if the primary operation was well planned. Ankylosis was expected in 17 cases and flail elbows in 4.

Prof. H. J. SEDDON described the epidemic of poliomyelitis in Malta, to which reference was made in these columns on Nov. 27 (p. 657).

During the meeting it was announced that negotiation between the R.C.S. and the B.O.A. were well advanced for establishing the official headquarters of the association in premises of the College at Lincoln's Inn Fields. The advantage to British surgeons of the integration of this and other special branches of surgical science within the domain of the parent body were not least of the many desirable features of such an arrangement.

NUTRITIONAL RELIEF AFTER THE WAR

The scientific and medical aspects of nutritional relief after the war were discussed at a meeting of the Nutrition Society held on Nov. 6 at the London School of Hygiene and Tropical Medicine. Lord HORDER, who presided, opened with a brief review of the functions of the United Nations Relief and Rehabilitation Administration. He said there was a gap in the executive power of the Director-General, who, although empowered to collect food and commodities for export to countries needing relief, was not in a position to order the production of the necessary supplies. A Supreme Economic Council was obviously required. Another defect might possibly arise through inadequate planning for the transference of the responsibility for nutritional relief between the initial military government and U.N.R.R.A.

An Estimate of the Task

Prof. J. R. MARRACK said that the deficiency of food in Continental Europe at the end of 1918 was due much more to failure in production than to the lack of imports. The labour of men and animals was taken from the fields, artificial fertilizers were scarce, reduced crops led to destruction of animals and to further impoverishment of the soil through lack of manure. For the whole Continent cereal production was reduced by one-third; the reduction in livestock varied from 14% in France to over 70% in We Poland, and carcass weights were reduced even more on account of the leanness of the animals. In Germany milk production was only one-third of the pre-war level. Most of the relief was obtained

NUTRITIONAL RELIEF AFTER THE WAR

special credits granted by Governments, particularly that of the U.S.A., and this allowed the importation of some 4,000,000 tons of flour and grain, smaller amounts of pork products, and some miscellaneous and Army foods. The total imports by the official relief systems, which ended in September, 1919, were less than in a corresponding period before the war, and did not make good the deficit in the wheat harvest alone. Less food was supplied to Europe during the whole relief period than was imported into Great Britain in 1918, when our food imports were at their lowest level. Subsequent relief depended upon charity, and mainly took the form of canteen meals supplied to children who showed signs of malnutrition. At peak periods in April, 1920 and 1921, 34 and 24 million children were being fed. In Austria the meals supplied 660 calories, and contained only 5 g. of animal protein, the vitamins A and D of 60 ml. of fresh milk, and practically no vitamin C. A warning of what might happen if relief measures were inadequate was to be found in the famine in the U.S.S.R. in 1921-2, which caused 3,000,000 deaths through starvation and many more from indirect effects. The war also brought an alarming increase in juvenile tuberculosis in different parts of Europe.

It was estimated that the average normal consumer on the Continent was now receiving 1,400 calories a day, which meant a deficit of 600 calories. The deficiency varied from a consumption of 1,000 calories in Greece, Poland, and Spain to a consumption of almost completely adequate amounts in Germany. Slaughter of at least 10,000,000 cattle had led to a deficiency of meat, milk, cheese, and butter. The worst sufferers must be children over 5, because most of the milk was reserved for infants. The effects of the deficiency in first-class protein were found in an increased incidence of tuberculosis. Vitamin deficiencies were not universal: rickets was even less common in Belgium than formerly, due to the distribution of vitamin D, while the addition of vitamin A to margarine had reduced the risk of acute deficiency of potatoes, which also had a high yield of calories per acre. The use of flour of a high degree of extraction made deficiency of vitamin B unlikely except in areas where maize was used.

Surgeon-General EVANG pointed out that the power to allow or deny foodstuffs to occupied countries according to their value in the war effort was a most valuable weapon in Germany's hands, and it was questionable how far Prof. Marrack's estimates of caloric intakes were applicable to the more favoured regions. The criteria of undernutrition were difficult to define; in particular the significance of "hunger oedema" was puzzling, and its supposed relation to protein deficiency was obscured by its occurrence in Norway in persons receiving adequate amounts of good protein in the form of fish. In planning relief first consideration must be given to calories to be supplied as grain and fats. A valuable source of protein could be opened rapidly after the war by supplying fishing equipment to Norwegian seamen.

Dr. GEOFFREY H. BOURNE gave figures for the caloric values of the rations allowed in 1942 in different parts of Europe. Compared with a pre-war level of 3,000 calories the rations in Bohemia and Moravia provided 1,800 calories, in Norway 1,200, Denmark 1,400, Holland 1,800, Belgium 1,000, France 1,000, Serbia 1,200, Croatia 900, Greece 500; in Eastern Poland the Poles received 700 calories and Jews only 400, while in Western Poland the ration was about 1,000 calories. There was severe deprivation in occupied Russia. For the rest of Europe 1,000 to 1,500 calories could be taken as typical, with a tendency for malnutrition to be worse in towns.

How to Secure Relief

Dr. J. HAMMOND, discussing problems of production and relief, said the latter must be carried out in two stages. The first, which would raise nutrition to a level based on minimum requirements for life and health, must be realized in all countries before any one country started on the second phase, which aimed at raising the standard to optimum levels. The first minimum standards would be based on the rations now allowed in this country, but modified according to the pre-war food conditions and habits of the country concerned. Thus the number of calories required would vary from 900 for a child under 1 year to 4,200 for an adult male engaged in heavy work. Milk would be needed at the rate of 300 ml. daily for adolescents of 14 to 21 years old, and of 800 ml. daily for those 6 months to 3 years old and for expectant and nursing mothers. The annual allowance for adults in high-class proteins could be supplied as 30 kg. of meat, 76 kg. of milk, 4 kg. of cheese, 3 kg. of eggs, and 10 kg. of fish. As consumption of animal protein in Southern and Eastern Europe did not reach these levels even before the war, it would not be necessary to provide the full amounts, at least in the first stage.

There were two ways of supplying the relief: (1) by increased production in the country concerned; and (2) by importing food from overseas to make up the main deficiencies of the locally produced diet. Cereal crops in Europe to-day were probably 10% below their pre-war level, though high milling reduced the deficit so far as human requirements were concerned. Farm animals had probably decreased by about 25% in number. To increase crops in the

liberated countries fertilizers and machinery for deep ploughing must be supplied; these would need much less shipping space than the foodstuffs they produced. To get more milk dairy cows and others capable of reproduction should be preserved with the semen of their number increased by artificial fertilization with the semen of pedigree bulls. About three times as much land was needed to feed an individual on a diet rich in animal protein as on a mainly vegetarian diet. To satisfy immediate demands for meat adequate stocks should be accumulated now in canned or dehydrated form. The breeding of pigs and poultry should be started later, since some of their food was fit for direct human consumption. So far as British agriculture was concerned, cereal products would be needed for human consumption on the Continent and in the Far East, so that imported concentrated animal feeding stuffs would probably remain in short supply. For the same amount of fodder the yield of milk was much greater than the yield of meat; therefore available supplies should be mainly devoted to milk production. We should be prepared for a prolongation of the period of meat rationing.

The organization of relief in the Central Council for Refugees. The Russell, medical director to the organization, said it was highly desirable to improve morale to combine relief with a resumption so far as possible of public services. In Spain, where in 1938 the available diet contained only 1,000 calories, the relief organization distributed dried milk, pulses, and fish. Infants were allowed 2 to 3 tins of condensed milk a week. Rickets and famine oedema were common, although plentiful supplies of tomatoes and oranges prevented any danger from scurvy. In Barcelona dried whole milk and cod-liver oil were distributed. In schools dietary treatment was combined with rest and exposure to sunlight, the degree of activity allowed being graded according to the child's fitness. When possible relief should be given to families rather than to colonies of separated individuals, who were often sick persons more suitable for hospital treatment. Care should be exercised in the use of unfamiliar foods. Thus undigested bean caused a severe outbreak of gastro-enteritis. Army foodstuffs were usually more suitable.

Prof. E. NOBEL recalled the feeding of Austria and other prostrated countries in 1919. The provision of meals for children was under the direction of Dr. von Pirquet and extended over three years. A charge of 5d. per child per meal was made, which met the cost of foodstuffs and cooking. The degree of undernourishment was assessed by the ratio of body weight to sitting height, and convenient code words were devised whereby the nutritional state of the children could be expressed. The need for foods familiar to the people was emphasized also by Dr. DAGMAR WILSON, with special reference to the current situation in Bengal, where a rice-eating population had no facilities for cooking the wheat imported to relieve the famine.

Discussing opportunities for nutritional research in the work of relief Miss E. M. M. HOME of the Lister Institute said such opportunities would undoubtedly exist after the present war, but for much shorter time than after the last, because modern knowledge should permit the rapid cure of acute forms of deficiency. Research workers acting in liaison with relief organizations and with full official backing might gather useful information on the incidence of subclinical deficiencies. Data might be obtained of minimum amounts of the various nutrients necessary for health; these would give guidance to the relief organization as to the real need for the very high levels that had been recommended in some quarters. Dr. A. P. MEKLEJOHN predicted that the conditions for nutritional research would be very different from those prevailing after the last war, and suggested the organization of strong reconnaissance groups to examine families at random in regard to dietary history, blood haemoglobin, vitamins C and A in the blood, and vitamin A by the dark-adaptation method.

The opening meeting of the 1943-4 session of the Ulster Medical Society was held on Oct. 21. The outgoing president, Dr. ROBERT MARSHALL, introduced Dr. W. DICKEY to the chair. Dr. DICKEY delivered his address, "A Problem of Race." After quoting the statement that Irish nurses are more susceptible to tuberculosis than those of the rest of Great Britain, he traced the various races of Europe from very early days, and then discussed the theories of heredity. He concluded a very interesting address by saying that there is no evidence of any racial susceptibility to disease.

The number of cases and suspected cases of leprosy in Germany was 24 at the end of 1942 (*Reichsgesundheitsblatt*, 1943, 18, 393). Of these, 12 men and 6 women were under medical treatment; 14 cases in Prussia, 7 in Hamburg, 2 in Württemberg, and 1 in Ostmark. Two new cases occurred in the year: one of these was formerly a sailor and the other was a Ukrainian. Three lepers died during the year.

Correspondence

Epidemic Infective Hepatitis

SIR,—I read your leader on epidemic infective hepatitis (Nov. 27, p. 680) with great interest, as I have been an impotent observer of this condition for almost six years. Dr. Edwards tells me that he saw a case in this sanatorium as early as 1925 and that cases have been occurring since then. Although the main features agree with observations on other outbreaks there have been minor variations.

1. For over four years the disease was restricted to one of our ward blocks, although ambulant patients from all four blocks shared the same dining-hall and entertainments. On a few occasions infection has passed between inmates of a two-bed cubicle. Since 1942 cases have been appearing on one other block. The crops have rarely exceeded two cases. The disease, therefore, does not appear here in epidemic form, and I suggest that this low infectivity in the open-air conditions of sanatorium life supports the theory that the infection is air-borne.

2. Only one member of the staff has been infected (cf. Evans, 1942).

3. As the period of infectivity has not been determined the incubation period is doubtful in cases of continued contact. But as our cases have cropped up fairly regularly at approximately monthly intervals with occasional gaps of two months it has been assumed that they were due to serial case-to-case infection with an incubation period of approximately one month, and that missed cases bridged the gaps as suggested by Newman (1942).

4. In about half of a series of cases the erythrocyte sedimentation rate was markedly slowed when the jaundice was at its worst. At the following monthly estimation the rate had returned to approximately the pre-jaundice level. Any change for the better or worse could be attributed to the tuberculous process (cf. Evans, 1942).

5. There has not been a death in my own series, but a death from acute yellow atrophy in 1933 may have followed infective hepatitis. Only one case in my time has caused serious concern. Pleural effusion developed in the pneumothorax of two cases, but this was probably chance.

6. In the average case the onset has been sudden with slight fever, malaise, headache, and possibly vomiting. Conjunctival icterus appeared within 48 hours.

7. No case of jaundice has been reported among the sanatorium pigs.

I feel that a useful field for epidemiological research has been rather wasted on us because the liver happens to be situated below the diaphragm.—I am, etc.,

Sheshire Joint Sanatorium, Market Drayton. A. CLARK PENMAN.

gnosis of Endogenous (Spontaneous) Hypoglycaemia

SIR,—The diagnosis of spontaneous hypoglycaemia seems to be becoming too popular, and an increasing number of cases are referred to me to decide whether a pancreatic operation or merely diet regulation is necessary. Most have had suggestive symptoms of weakness, dizziness, or even minor "black-outs" some hours after meals, apparently relieved by carbohydrate food, and most patients bring me glucose-tolerance tests after glucose supposed to prove hypoglycaemia. The majority of these curves have been completely normal, and there seems to be a widespread misconception of the range of normal blood sugar (b.s.) on which a few facts may be useful. The fasting b.s. normally ranges between 70 and 100 mg. per 100 c.cm. blood. Most lie between 80 and 95 mg., but figures between 70 and 80 mg. are not uncommon, and unless the level is below 70 mg. per 100 c.cm., either fasting or after glucose, pathological hypoglycaemia is disproved. Indeed, symptoms are not likely to be produced unless the b.s. is 60 mg. per 100 c.cm. or below. Another misconception is to look upon a flat curve that hardly rises from the base line (e.g., 80, 95, 85, 75, 78 mg. half-hourly after glucose) as indicating

hypoglycaemia, though this is not infrequent in healthy students, and merely shows a high "C tolerance" and a well-balanced b.s. regulation. It should be unnecessary to point out that such diagnostic investigations must be carried out with great accuracy and in duplicate; but I get a lot of curious curves which won't repeat.

The ordinary glucose tolerance carried out for 2 or 2½ hours is not a conclusive procedure. The real proof of hyperinsulinism from pancreatic tumours is the progressive fall of the b.s. on fasting. But a b.s. curve carried on for 4 to 6 hours after glucose is, in my experience, a useful test to show the type of spontaneous hypoglycaemia in which the b.s. swings down below 70 mg. per 100 c.cm. blood, sometimes accompanied by symptoms, for a brief period and then recovers spontaneously—e.g., 85 (fasting), 120 (1½ hour), 110 (1 hour), 70 (1½ hours), 60 (2 hours), 70 (3 hours), 85 (4 hours), 85 mg. per 100 c.cm. (5 hours). Such patients require no treatment other than a small carbohydrate meal halfway between the main meals of the day.

I think true endogenous hypoglycaemia of any type is very rare, and overdone at present as an explanation for minor indispositions.—I am, etc.,

London, W.1.

R. D. LAWRENCE.

Industrial Lead Poisoning

SIR,—Industrial health is receiving increasing attention in the medical press. This is a step those of us interested in this branch of medicine very much appreciate. It is important, however, that articles on industrial subjects should be accurate and should not mislead newcomers to this field. These comments are prompted by a recent leading article on industrial plumbism in the *Journal* of Oct. 23 (p. 515). In the first paragraph there are misstatements of figures of case incidence. The peak incidence of lead poisoning cases in 1924 was due to the high incidence both in ship-breaking (131) and in electric accumulator manufacture (101), while the number of cases in 1934 was certainly not due, as stated, to the manufacture of electric accumulators, since in this year the number of cases in this industry had fallen to 12.

This may be passed over as a matter of detail. A much more important fault, however, is that the article fails to differentiate clearly between the diagnosis of lead poisoning and the control of an industrial lead hazard. The former depends upon the clinical picture, aided, perhaps, by certain scientific findings; the latter can be achieved only by scientific aids and by a proper appraisal of clinical findings where these exist. The appearance of symptoms and the production of a clinical picture are evidence of the failure of control. The article quotes recent American work, and accepts uncritically conclusions concerning the place of punctate basophil counts in the control of a lead hazard. These conclusions are based on a very small number of cases. The work, moreover, contains an obvious fallacy. That such an article should receive this added publicity is unfortunate, since your article may throw into disrepute a measure for the control of an industrial lead hazard which has been proved reliable beyond any shadow of doubt.

The great improvement brought about in the largest section of the electric accumulator industry over the last 15 years has been made possible by the use of the following scientific aids: (1) lead-in-air determinations; (2) punctate basophil counts, together with haemoglobin estimations; (3) lead-in-urine determinations. Probably the most useful of these, from a practical point of view, has been the blood examination, not to show the particularly susceptible individual (though this is useful) but to indicate varying degrees of exposure among groups of workers. It would be a great pity if the proper use of this method for the control of a lead hazard were questioned on such evidence as is used in the leading article in question.

A final mistake might also be pointed out. The article states that the blue line indicates severe exposure. This is not so. The presence of a blue line depends as much upon the individual exposed as upon the severity of the exposure. The frequency of blue lines in a group is helpful evidence in estimating and controlling a lead hazard, just as punctate basophil counts or lead-in-urine determinations; but the finding

of a blue line in an individual case has but little significance in itself beyond indicating that lead is being absorbed, and it certainly gives but little idea of the degree of severity of exposure to which the individual has been subjected.—I am, etc.,

Manchester.

RONALD E. LANE.

Malignant Tertian Malaria

SIR,—May I be allowed to register a plea for what I will call the "twentieth case"?

Those of us to whom English mails are a fortnightly, rather than a daily, occurrence tend to read our *Journal* with an assiduity perhaps not always accorded it at home, and on many subjects which do not directly concern us—such as Beveridge plans—we find the contrariness of opinion most stimulating. It inevitably happens, however, that your printed matter touches at times on tropical diseases, which do concern us more nearly. This has been increasingly so of late, since war conditions have enabled a comparatively large number of men—doctors among them—to spend a short while on the West Coast of Africa and acquire that little knowledge which is so dangerous a thing.

It is becoming increasingly apparent, therefore, that cases of malaria in England are being treated by the general practitioner and in general hospitals. Nineteen times out of twenty the patient will recover dramatically, whatever the treatment, and some such cases get reported in your pages. But there is the twentieth case—the one which not so very long ago was principally responsible for the term "the white man's grave"—and this case treated in inexperienced hands is going to prove fatal with a monotonous regularity. It is further unfortunate that not even the most experienced can tell at the onset whether the case seen is going to prove one of those twentieth cases.

My plea, therefore, is that every single case of malaria—and owing to our geographical proximity the majority are infections contracted on the West Coast—should be treated by doctors with considerable tropical experience, preferably in the existing tropical hospitals, but if expense forbids I am sure the Colonial Office, if approached, would be only too pleased to lend the services of some medical officer, preferably from the Colony where the disease originated, who may be home on leave in the area.—I am, etc.,

Accra, Gold Coast.

J. S. MINETT.

Therapeutic Fallacies

SIR,—While in agreement with most of the well-balanced statements by J. W. Linnell and W. A. R. Thomson (Nov. 6, p. 572) I hope that the following critical remarks may be found helpful.

It may be true that there is no evidence that nervous strain can produce hypertension, but there is much clinical evidence that such strain tends to hasten the fatal outcome in an established case. Fatalities due to sudden nervous strain do occur even in the large group of undiagnosed and symptomless hypertension. I would therefore hesitate to take the responsibility of keeping all patients in ignorance of their condition, as the authors recommend.

There is no scientific evidence that hypotension conveys anything like "almost certain immunity" to hypertension. Like others I have seen several cases to the contrary.

The prognosis of paroxysmal tachycardia rests on the underlying condition and not on the location of the ectopic pace-maker. While it is true that ventricular paroxysmal tachycardia is more often seen than supraventricular with coronary heart disease, simple ventricular tachycardia in otherwise healthy subjects is no more dangerous than other forms of ectopic tachycardias. The boggy of ventricular fibrillation in these cases is a textbook one only. It is true that digitalis only exceptionally stops attacks of tachycardia, but I remember vividly a child of 8 almost unconscious with a tachycardia of 308 per minute, in whom a single dose of digitalis intravenously proved life-saving. The action in such cases is by atrio-ventricular block. Full doses of digitalis prove most effective in preventing attacks of auricular fibrillation in certain cases where these attacks are probably due to otherwise latent heart failure. I cannot agree to the unqualified recommendation of quinidine at frequent intervals in congestive heart failure

due to attacks of paroxysmal tachycardia. This drug has a dangerous depressing action on the myocardium, and should only rarely (and then in expert hands) be given before cardiac failure has been checked by digitalis.

Though the use of arsenic in pernicious anaemia is now obsolete, it is incorrect to deny its action in megalocytic anaemia, which has been proved in countless cases before the advent of liver—e.g., in the form of single massive doses.

The authors state the ineffectiveness of the usual expectorants. But do they really believe that steam inhalations, which they recommend, are more than a placebo, as these never reach further than the fauces? There are, however, more active expectorant principles, such as rad. primulae and others though they are less popular. The indiscriminate prescription of digitalis in pneumonia is rightly condemned, but the argument "a poison in an already poisoned heart" is too simple to be true. What about digitalis in the failing heart of toxic goitre?

Finally, a word of warning against the regular use of enemata in chronic constipation. This is widely practised on the Continent, and the effects are hardly less harmful than those of regularly taken aperients. The conditioned defaecation reflex is almost irreparably blunted, and the psychological effects are equally bad. Contrary to the authors' optimistic advice of "constantly decreasing daily enemata," the amounts of fluid used have to be increased as time goes on. Chronic constipation is a most difficult condition to cure, and careful adjustment of the habits of life and individualized though elementary psychotherapy are the essentials of treatment. Prohibition of advertisements for liver-salts and similar laxatives would be a useful prophylactic measure.—I am, etc.,

Stratford-on-Avon.

MAX WINTERNITZ, M.D. Prague.

Sulphathiazole in Impetigo

SIR,—Dr. H. MacCormac's reference to this treatment (Nov. 27 p. 667) is timely, and bears out my own experience in dealing with impetigo in the war factories under my medical charge. During the past two and a half years the infection has a times assumed almost epidemic form. Routine treatment with ammoniated mercury and zinc paste, copper and zinc lotion and ferri perchlor. fortis, all gave fair results, but failed to prevent absence from work in many cases. Sterilized sulph. anilamide powder was then tried with some success, but toxic side eruptions were not uncommon. Four months ago I started using 5% sulphathiazole in 15% zinc and starch paste, as recommended in the M.R.C. War Memorandum, No. 10. The results have surpassed those obtained by any other form of treatment, impetigo clearing up in a few days without loss of working time. The use of the paste has been extended to furunculosis and acne, both of which are common in these war-diet days, and with equally gratifying results. I have not seen a single case of intolerance to sulphathiazole even after it has been rubbed into the skin of acne patients nightly for many weeks; indeed its use in this way eliminates all pimple and blackheads and tones up the skin in a remarkable manner. Strangely enough its continued use on the chin and naso-labial area seems to inhibit the growth of staphylococci also in other areas of the face and neck remote from the site of the inoculation.—I am, etc.,

N. HOWARD MUMMERY,
Aircraft Factory M.O.

Scabies and Impetigo

SIR,—Dermatologists are indeed fortunate, for not only do they enjoy undisturbed nights but their specialty does not seem to involve any tedious considerations of the social background of disease.

I have previously pointed out that scabies is a disease with a social threshold. Those people who sleep in single beds and remove their vests when they put on their pyjamas seldom, if ever get it. The social threshold is less obvious with impetigo, but it undoubtedly exists. One reason, of course is careless tolerance of unsightly blemishes; but another is communal use of towels and washing apparatus. A professional household would provide a bath and face towel for everyone which, allowing for laundry, means at least four towels per head. Actually a household of ten would not consider six

at all excessive. A working-class family of ten might have a dozen towels; I have known as few as four.

When, therefore, we encounter a disease so infectious that its very name means "a rushing on," the first thing to do is to order separate towels. This may sound faddy to some people, but if, instead of thinking in terms of ointments and tablets, we apply our surgical knowledge of infection, the necessity is obvious.—I am, etc.,

Norwich.

FREWEN MOOR.

Stilboestrol in Breast Cancer

SIR.—The account given by Dr. R. Tudor Edwards (Nov. 20, p. 659) of his case of breast cancer treated by stilboestrol is interesting, as the observations on his patient were so carefully carried out. They should encourage those who are interested in the treatment of cancer. Control of this disease cannot come through the use of the knife, by radium, or, I fear, by x-ray therapy. Some substance must be looked for which will cause the destruction of the carcinomatous cell throughout the body, in the primary growth, the infected glands, and the floating cells which are already in the blood stream or have settled in the internal organs.

A word of caution, however, seems needed. No year date is given for the case, so presumably the whole phenomenon took place from January to October of this year. This can hardly be accounted as cure, and a much longer period must elapse before such a claim can be made. No such claim is made by the author, but careless readers might possibly assume it. There are so many instances in the literature which have been "cured" for long periods. It is significant, however, that all such cases have either recurred or been lost sight of (which most commonly happens), or the patients have died of intercurrent disease at no distant date. I am unaware of any cure which has been permanent. Many have received no treatment at all, others have been treated in many and various ways by medical practitioners, and naturally to the treatment they were undergoing the cure is attributed. In some cases quacks have treated genuine cases handed over to them by surgeons, and the "cure" has lasted for upwards of 22 years. These facts are mentioned not to detract from the excellent result referred to, but to urge Dr. Tudor Edwards to keep in touch with his patient and to publish the result, say, at 5-yearly intervals.

I have treated many cases of breast cancer with stilboestrol during recent years, but have not been fortunate enough to meet with any such encouraging result.—I am, etc.,

London, W.1.

DUNCAN C. L. FITZWILLIAMS.

Light Ether Anaesthesia

SIR.—Dr. R. Blair Gould (Nov. 13, p. 607) gives a timely warning against anaesthetists trying to do too much with nitrous oxide anaesthesia, but he does not quite give the answer to the question as to what technique should replace this unsafe proceeding.

After using the Oxford vaporizer on a series of 500 cases I am beginning to appreciate the real value of this machine in producing the lighter planes of ether anaesthesia. There is a very gradual increase in the strength of ether vapour given by this apparatus that one can give an anaesthetic of no more toxicity than nitrous oxide-oxygen, keeping a bright pink patient unconscious with the lid reflex only just abolished. I use a mixture of trilene 20%, ether 80%. If a quick induction is desired this can be carried through with ethyl chloride until consciousness is lost and then on to trilene-ether with the indicator of the vaporizer at "10" or less. (The limitation of the amount of ethyl chloride is important.)

This technique is excellent for old, ill patients—as, for example, the emergency suprapubic drainage—and in such cases I find the patients talk to us before they leave the theatre. Recently I had a case of extra-uterine pregnancy in a woman with profound heart failure. The operation was difficult and took time, but so light an anaesthesia was maintained that she was actually moving her head before the bandages were fixed, and appeared little worse than before operation.

I am satisfied that light ether anaesthesia is far less harmful than attempts to perform an abdominal operation with nitrous

oxide-oxygen only, but it must be really light ether. No old machine I have ever used will give this anaesthesia except the Oxford vaporizer, because no other machine gives such a very gradual increase in ether vapour, which is essential for comfort of the patient and for avoiding coughing and straining.

If the patient is too lightly under, as may be shown by movements of limbs, by merely moving the indicator slowly one can deepen the anaesthetic without the resistance which would result from pouring more ether on to an open mouth. There were such light planes of anaesthesia attempted with the old technique. For the general practitioner the vaporizer appears to me to be the apparatus of choice for anaesthetizing the bad-risk patient. I cannot help noticing with regret how few newly qualified men and women have ever seen a vaporizer. For the full-time professional anaesthetist there is a wide choice of techniques for the bad-risk operation, but the occasional anaesthetist either is, and is likely to remain, the safest anaesthetist. I have certainly not noticed any marked tendency to chest complications after properly administered ether than after local anaesthesia.—I am, etc.,

New Barnet.

JOHN ELAM

Adjuvants to Nitrous Oxide Anaesthesia

SIR.—I have read with great interest Dr. R. Blair Gould's article on nitrous oxide anaesthesia (Nov. 13, p. 607). I am in complete agreement with him on the supreme necessity of avoiding anoxia in this or any other type of anaesthesia. I agree that where nitrous oxide-oxygen is used alone it is usually difficult to avoid anoxia, except in the case of short operations not requiring relaxation. I think, however, that it is feasible to avoid this consequence of nitrous oxide-oxygen anaesthesia by supplementation with other agents. For that purpose the commonest adjuvants are as follows:

1. Ether, trichlorethylene, chloroform. Of these ether takes pride of place, particularly in inexperienced hands. In many cases, however, the anaesthesia is purely due to the ether, nitrous oxide-oxygen simply serving as a vehicle for conveying the ether vapour. The latter is irritant, toxic, explosive and liable to give rise to unpleasant sequelae. It should therefore, where possible, be avoided. Trichlorethylene is only slightly toxic, non-irritant, and non-explosive, but it does not give adequate relaxation where this is required. In order to avoid tachypnoea and cardiac irregularities a high percentage of oxygen is necessary, so that, again, the anaesthesia is nitrous oxide-oxygen supplemented by trichlorethylene, rather than is mainly accomplished by the trichlorethylene. Chloroform has all the disadvantages of ether (except irritability and explosibility) in addition to certain grievous effects peculiar to itself, such as its toxic action on the cardiac muscle or the ever-present possibility of sudden death in the early stages of anaesthesia. The indications, therefore, for chloroform as an adjuvant to nitrous oxide are practically non-existent.

2. Cyclopropane. This is an exceedingly efficient supplement to nitrous oxide-oxygen, particularly where relaxation is required. The disadvantages are expense (or the necessity for a closed circuit apparatus with carbon dioxide absorption) and explosibility.

3. Spinal anaesthesia. For the longer abdominal operations on comparatively fit subjects a "high spinal," whereby suprapubic relaxation of the abdominal muscles is combined with quiescence of the viscera, is ideal, the patient being kept unconscious by means of a light nitrous oxide-oxygen anaesthesia. Nevertheless, the well-established contraindications to spinal anaesthesia, if abused, trouble will result and an otherwise useful technique will fall into disrepute.

4. Continuous pentothal sodium anaesthesia. This forms an excellent supplement to nitrous oxide-oxygen, though again there are definite and well-defined contraindications to be observed, as well as certain cases in which particular care is necessary. The simplest method of administration is a 5% solution contained in a 20-c.cm. syringe strapped to the arm, the needle being retained in the vein throughout and the solution injected as required. Continuous pentothal sodium-nitrous oxide-oxygen forms a pleasant combination from which there is absence or diminution of those after-effects which, while not dangerous, are so trying to the patient in the post-operative period.

5. Local anaesthesia. This is the method *par excellence* in all cases which may be classed as poor surgical risks. For abdominal work, as in the case of a "high spinal," relaxation is obtained by means of injection of the anaesthetic agent while the patient is kept unconscious by nitrous oxide-oxygen anaesthesia given with abundant oxygen. Many techniques are available and are described in the literature on the subject. Contraindications are injections through septic areas or scar tissue; these may be overcome by avoiding local infiltration and hitting off the nerves at a distance, as in intercostal nerve block. The disadvantage is that the injections are time-consuming compared with any of the other means of obtaining anaesthesia; but this, one feels, is a matter of small importance, at any rate when dealing with the very sick, feeble, or aged subject.

The above, then, are the chief methods of obviating the anoxia inherent in pure nitrous oxide-oxygen anaesthesia. It is only by consideration and evaluation, one against the other, of the four factors present at any operation—i.e., the condition of the patient, the experience and capabilities of the anaesthetist, the type of operation, and the likes and dislikes of the surgeon—that one can assess and judge which of these methods is best in a particular case.—I am, etc.,

London, N.W.3.

HELEN BOWER ALCOCK.

Anaesthetist's Third Hand

SIR.—The appearance of a description of an "anaesthetist's third hand" has for me a semi-historical interest. I had occasion to design a similar device some years ago. The idea occurred to me during a discussion with some aeronautical experts on the possibilities of development in aviation afforded by the new plastic processes, and in particular that of bonding rubber to metal. A rubber-to-metal bond was incorporated in the device, which was of the following construction.

Support for the chin was provided by an oval concavo-convex rubber pad mounted on an oval stainless steel hoop. The patient wore a rubber skull cap similar to those commonly used during a tonsillectomy. To the vault of this cap was attached a rectangular metal plate. The attachment was by the rubber-metal bond referred to above. The metal plate was placed in an antero-posterior position and slightly curved on the flat, in order to fit fairly closely to the head.

Mounted at the posterior end of the plate was a slightly curved corrugated spring. The composition of the steel used for this spring required careful selection in order to obtain the necessary degree of resilience and flexibility without producing early fatigue in the metal. In use, the chin pad having been adjusted, the direction of pull was obtained by choosing a suitable notch in the corrugations of the spring. The strength of pull was varied by the small adjuster screw at the base of the spring.

Although I designed this instrument while a resident anaesthetist giving some twenty anaesthetics every day, and using an endotracheal tube several times daily, the device was primarily intended for use with an "open method." Consequently, the following refinement was added. To one lateral curve of the steel hoop, a hollow tube was welded. Anteriorly the tube curved over, to approximate the end of the tube to the corner of the mouth. The other end of this tube was connected to an oxygen supply, usually a small cylinder of oxygen clamped under the head of the operating table. A tap in this tube enabled one to turn on oxygen without even looking away from the patient at what might be a critical moment. Not unnaturally, to my confusion and dismay, the device was thereafter referred to as "Jackson's gas ring!"

It is my impression that, apart from other aspects, there are three fundamentals required in every anaesthetic. The first is the establishment of confidence and assurance in the patient. This requires that the anaesthetist should see his patient before—preferably the day before—the "anaesthetic occasion"; the second is the establishment of anaesthesia, usually the only consideration. The third consideration is the establishment of an airway—which will require no further interference. Although I am opposed to multiplication of apparatus and complications in anaesthetics, I feel that there is scope for a "third hand" which will provide constant and even support for

the jaw; in fact I feel that some device which is artificially steady is needed to maintain the establishment of a good airway. Furthermore I consider that a support for the jaw is an advantage if it avoids the trauma of an endotracheal tube.

I should add that I do not advocate the use of any form of "third-hand" apparatus either of the "Heyworth hook" or "gas-ring" variety except under conditions in which inexperienced interference will not be encountered.

—I am, etc.,

Monkseaton.

J. NOEL-JACKSON, M.B., B.S.

Congenital Jaundice in a Man aged 77

SIR.—From the short data given in my letter printed on Nov. 27 it appears that the present case is one of congenital idiopathic hyperbilirubinaemia—the bilirubin in the blood being, of course, "blood bilirubin," which is probably the same as what Virchow called haematoidin—differing, however, from the hyperbilirubinaemia of the well-known cases of familial haemolytic (acholuric) jaundice, notably by the absence of excess of urobilin or urobilinogen in the urine. I suggest that the blood bilirubin in this case is in some way "dammed back" in the circulating blood, as if the threshold for its elimination or catabolism were high. The mere excess of blood bilirubin in the blood, of course, does no harm, though it makes the blood plasma too yellow and produces the jaundice and causes a highly positive indirect van den Bergh reaction. Is it possible that this hyperbilirubinaemia in our present case is the sole obvious result of a new gene mutation of germ cells, which has not (yet) manifested itself in the children and grandchildren because it is not a Mendelian dominant like ordinary familial haemolytic (acholuric) jaundice is?—I am, etc.,

London, W.1.

F. PARKES WEBER.

Arsenicals in Vincent's Infection

SIR.—As a dental surgeon I am disturbed to see in Major John Davis's letter (Oct. 9, p. 464) mention of "the pain and discomfort attendant upon a large number of local treatments" for Vincent's infection. One cannot help wondering what can have been the nature of this so painful local treatment. All who have given local treatment to a large number of cases know well the immediate relief afforded the patient by the simple application of chromic acid and hydrogen peroxide as described in Squad. Ldr. Jewesbury's article (Sept. 18, p. 360), or, in the worst cases, by careful swabbing of the ulcerated areas with pure carbolic acid. The patients invariably express gratitude, for the disappearance of the pain is quite spectacular. Scaling is only begun when the gingivae are no longer painful. On the other hand, it is not my experience that intravenous N.A.B. alone produces any such beneficial effect.

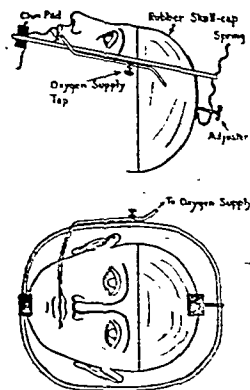
So dogmatic a statement concerning "pain and discomfort" from local treatment is not only misleading but decidedly harmful, for if taken at its face value might do much to discourage resort to oral hygiene, the value of which has been so abundantly proved.—I am, etc.,

SELWYN HOLMS,
Flight Lieut., R.A.F.V.R.

Misuse of Vasoconstrictors in Coryza

SIR.—Is it not time the general public was given a word of warning on the use of ephedrine preparations and volatile vasoconstrictors in acute rhinitis? In general practice during the last few years, and latterly since joining the R.A.F. Medical Service, I have seen an increasing number of patients suffering from sinusitis, Eustachian and post-nasal catarrh following the common cold; in these cases I frequently get a history of relief being sought by the use of some form of vasoconstrictor. Further, from my own personal experience I believe that on more than one occasion I have caused a lower nasal infection to spread by shrinking up my nasal mucosa before any active immunity to the infection has been achieved.

It seems reasonable to suppose that Nature, by the swelling of the turbinates in the early stages of infection, cuts off the intricate upper nasal passages from the lower; shrinking of the turbinates with vasoconstrictors opens up the sinuses and ethmoidal cells; after this, blowing of the nose forces infected material into the upper air spaces, and so causes sinusitis, ethmoiditis, and even middle-ear troubles. By counteracting the natural method of germ destruction—i.e., inflammation—one



Illustrating the jaw support

surely prolongs the infective state, and for the sake of a few minutes' comfort and relief from the oppression caused by nasal obstruction one risks serious complications.—I am, etc.,

T. M. DAVIE,
FJO, R.A.F.V.R.

Treatment of Symptomless Pulmonary Tuberculosis

SIR,—Dr. E. Weatherhead's helpful letter (Nov. 13, p. 621) regarding the treatment of symptomless pulmonary tuberculosis in adolescents, as outlined in the report of the work of the Brompton Hospital Research Department, has served to show that there are some points in the report which require a fuller explanation.

The report evidently gives the impression that after a patient has been found to have radiological evidence of pulmonary tuberculosis artificial pneumothorax treatment is "resorted to forthwith." This is far from the actual procedure. In the first place, by keeping the patient under clinical and radiological observation, great care is taken to make sure that the diagnosis is a correct one. After this has been established, further careful observation is carried on over a period of weeks or months before collapse is decided upon. We have found, however, that there is a danger here; sudden unpredictable exacerbation of the disease may take place, in which event collapse therapy becomes a palliative and not a curative treatment.

With regard to shallow artificial pneumothorax as against complete collapse of the lung, it is quite realized that a shallow pneumothorax gives only a partial relaxation or splinting of the lung, but it appears from our experience that this is all that is necessary to enable early lesions to heal. It also has the advantage, again in our experience, that it is less likely to be followed by complications.

The phrase "as yet it is impossible to assess its value" should read, "as yet it is impossible to assess its full value."

Although the work of the Research Department has been going on for a period of 14 years, that period is not long enough for us to have followed a sufficient number of these cases to provide the data necessary to give conclusive statistical information about the behaviour of these cases. Our results are admittedly incomplete, but we considered it would be helpful at this time to put forward our suggestions for treatment by a shallow pneumothorax as a "reasonable alternative" to other methods, which, from our observations, have not given satisfactory results.—I am, etc.,

Brompton Hospital, S.W.3. A. MARGARET C. MACPHERSON.

Treatment of Septic Hands and Fingers

SIR,—I read with interest the letter from Mr. Charles Romer (Oct. 30, p. 556). While it is impossible to discuss, without specific figures, the matter of "over-ripe" septic fingers that arrive at hospital, I feel that a few comments from another recent junior house-surgeon would not be amiss.

(1) I was one of two working in a casualty department in a London hospital. The total number of patients seen was out 1,200 per week, and I am happy to say that I saw only one "over-ripe" finger. I did, however, see a large number the stage of invasion, and I am surprised that Mr. Romer's only 5% at this stage. Could this be due to premature incision? I had no cases of necrosis of the terminal phalanx.

A G.P. usually sends a patient to hospital for incision an infected finger, and so long as this is done efficiently he is quite willing and competent to supervise the after-care of the finger—a service for which he is paid in the case of all N.H.I. patients. If only the house-surgeons would realize this fact they would reduce the numbers of patients attending their out-patient departments, thus saving much of the patients' time and giving themselves more time to deal with the cases that need hospital treatment. Furthermore, the hospital funds would not be wasted by treating cases that an equally competent doctor is already paid to treat. (3) I venture to point out that Mr. Romer is running true to form as a newly qualified junior house-surgeon by inferring that the majority of G.P.s are nincompoops whose clinical judgment is valueless.

Again I wish to emphasize that I am a newly qualified house-surgeon and not a general practitioner.—I am, etc.,

A. G. S. BAILEY.

Bourne End, Bucks.

Psychiatry at the Cross-roads

SIR,—I am appalled to read the letter of Dr. J. Stephen Horsley under this heading (Nov. 13, p. 620). He states that medical superintendents appoint as medical officers not colleagues but "yes men." I am now working in my fourth mental hospital (fifth if a neurosis hospital is included) and I have not yet found this glib assertion to hold a particle of truth. I have experienced only kindness, interest, and eagerness to assist in any treatment the medical officers have thought of value in the interest of their patients. I have never seen any need to consider the interests of my chiefs, who I am sure would soon have dispensed with my services had I done so to the detriment of my clinical work. They have expected hard and good work from their assistant medical officers, and when it has resulted in an unexpected improvement they have never grudged a "Well done." I have never seen a keen and efficient medical officer snubbed, and as for rivalry between superintendent and his assistant medical officers I am at a loss to understand this statement.

It may be that Dr. Horsley has been unlucky in the superintendents he has met, or that he is exhibiting a mental mechanism, or that I have been exceptionally lucky. I should have thought, however, that four gave a pretty accurate cross-section of medical superintendents as a class. Anyhow, I am proud to look back on my ex-superintendents as my teachers, co-operative colleagues, and my present friends.—I am, etc.,

Wallingford.

R. E. M. COKE HARVEY.

Medico-Legal

CONDITIONS IN DETENTION BARRACKS

Public misgivings about cruelty or unnecessary hardship in military prisons and detention quarters will be allayed, if not wholly set at rest, by the report of the Prime Minister's Committee of Inquiry presided over by Mr. Justice Oliver.¹ The misgivings had their origin in the trial at Maidstone in the earlier part of this year of two non-commissioned officers for the manslaughter of a private under detention, ending in their conviction and sentence to 18 and 12 months' imprisonment. The committee of inquiry (whose medical member was Dr. H. E. A. Boldero, Dean of the Middlesex Hospital, in place of Lord Moran, who was originally appointed and found himself unable to serve) has carried through its work with commendable speed, visiting thirteen military prisons, detention barracks, and naval detention quarters in the course of five weeks, and holding more than two hundred individual interviews with detained men. The committee is satisfied that there is not at present, nor has there been for some time past, any calculated brutality or so-called "Gestapo methods" in these establishments, as has been alleged by sections of the Press, though it is less assured as to conditions prevailing in the early part of the war; and it is quite clear that in matters of staffing and in some details of hygiene and sanitation the conditions at present obtaining ought to be improved.

Inherent Difficulties

The difficulties attaching to what is in effect a prison system for men in the fighting Services—though detention does not carry quite the stigma of imprisonment—must be appreciated. Civil prisons no doubt stand in need of reform, but they have a selected, trained, and disciplined staff of warders. The men corresponding to these in the Army prison service are N.C.O.s who have received little or no training for such work, and are unlikely in many cases to have the patience, skill, tact, and firmness which the work demands. Moreover, most of the men under detention are not of the kind customarily found in civil prisons. The majority are men who, while they do not get into trouble with the authorities in civil life, are unequal to the additional liabilities and submissions which a member of the fighting Forces must undertake. Many of them are difficult people—men with grouses, trouble-makers, and determined on antisocial conduct—but there are others whose transgression is

¹ Report of the Prime Minister's Committee of Inquiry into Detention Barracks, 1943. Cmd. 6484. H.M. Stationery Office. (6d.)

due to family trouble or other pressure and who during a period of detention ought to be educated and encouraged. Among them also are men of another type, conscientious objectors, many of whom are of the highest character and of exceptional intelligence, but their considered, though perhaps polite, refusal to submit to orders may be more infuriating to a certain type of subordinate officer than the insolence or occasional violence of others. It is noteworthy that the only two witnesses with whose demeanour the committee says that it was "very favourably impressed" were conscientious objectors. Both told stories of violence which they had witnessed, and which presumably the committee believed, but the stories related to 1940, and to a state of affairs which, it is hoped, has since passed away.

Medical Care

The medical officers concerned seemed to the committee to be well suited to their work, but some of the quarters are served only by part-time officers, and there was some apprehension as to whether they might be quickly available in emergency, though no instance of non-availability was reported. The committee thinks it desirable that a whole-time medical officer should be appointed to each detention barracks, that he should be changed not too frequently—though it is obvious that this is not the kind of work to which a young man should be consigned year after year—and that he should have an aptitude for this rather specialized and difficult employment. If aptitude for the work means an interest in it we imagine that such men may not be easy to find, for it is difficult to imagine a less engaging environment. The medical officer is the natural target for complaint by the men who plead some disability as the easiest way of being excused the harder parts of their routine and find him not so ready to give credence to them as they had expected. At present the time a man spends sick or in hospital counts as part of his sentence. The committee thinks that the task of medical officer would be easier if it did not. The short accounts of ninety or more of the interviews which the committee had with men who complained of grievances make a melancholy recital, sometimes of malingering, but more often of exaggeration of physical defects and infirmities. Many of the assertions of the men were capable of immediate disproof, and when the medical officer was implicated in the complaint and the facts could be tested the committee in every case, after inquiry, upheld his decision. Some of the men showed ingenuity in describing their ailments, and a familiarity with medical terms. Thus one of them complained of "urethritis," though the committee found there was no substance in the complaint. Another said that he had had "arthritis foot"; it was found that he had had gonococcal arthritis, but there was no evidence of disability remaining. Another said that he had "asked to be psychiatrized and had been refused," but it was ascertained that he had already been sent to a psychiatrist.

Sick Quarters, Sanitation, and Food

On two points the committee makes important recommendations. In every such place there should be a room or rooms which can be used for cases of minor sickness. It is undesirable that such cases should be cared for in the usual sleeping quarters, and the use of a neighbouring hospital is not an ideal solution. Another matter on which men made several complaints, and which the committee endorses, concerns the sanitary condition of the sleeping quarters. The men are locked up in their rooms from late afternoon or very early evening until next morning, and the only sanitary arrangements in the rooms consist of buckets, and sometimes only one, sometimes two, closet seats. These are in many cases in the sleeping rooms themselves, without any flushing arrangements, and sometimes not even screened. This is a real hardship, and the committee calls for steps to be taken to provide water-closets outside the rooms and with their own ventilation. Four detention barracks are named where these conditions need immediate attention.

On the question of food the committee makes no recommendations. The food appeared to be of good quality and well cooked, maintaining the men in good health, as evidenced by their appearance and by the fact that the majority gain in weight while under detention. The overriding consideration, as in all prisons, is that "durumc vile" must be made less attractive than the conditions under which the men would otherwise be living, or else the object of the penalty is defeated.

The annual report of the Chief Native Commissioner for Southern Rhodesia for 1942 recommends the provision of landing grounds near native clinics in the Native Reserves, especially in remote areas. This would enable serious cases to be transferred rapidly to main centres for skilled hospital treatment. The doctors, he says, should be provided with air transport. The breaking down of the African's prejudice against the "white man's magic" is shown in demands for medical facilities from even the most primitive tribes. The native population is estimated to have increased by 40,000 during 1942, to 1,298,000.

Obituary

TOM BATES, M.B., B.S., F.R.C.S.

The death of Mr. Tom Bates, senior honorary surgeon to the Worcester Royal Infirmary, occurred on Nov. 21 at his residence, 44, Foregate Street, after a very short illness. He was born in Worcester in 1878, being the elder of the two sons of Mr. Tom Bates of Worcester, and was educated at the Worcester Cathedral King's School. He entered St. Bartholomew's Hospital and obtained the M.R.C.S., L.R.C.P. diplomas in 1904 and the F.R.C.S.Eng. in 1905. He obtained the M.B., B.S.Lond. in 1907. He was house-surgeon to Mr. C. B. Lockwood at Bart's and then joined his father in practice in Worcester. His father was appointed honorary surgeon to the General Infirmary (later Royal) at Worcester in 1879 and held that office until 1909 and the appointment of consulting surgeon until 1916, when he died after coming out of retirement to take on the work of his two sons, who had joined the R.A.M.C. Tom Bates succeeded his father as honorary surgeon at the Worcester Infirmary in 1909 and had held that office ever since. His brother, Mark Bates, F.R.C.S., was honorary surgeon for 14 years and is now honorary consulting surgeon and M.O. Venereal Diseases Department. He also was at Bart's.

Tom Bates not only gave untiring service as a surgeon at the Infirmary but his opinion and surgical skill were very highly valued by the practitioners in Worcester and surrounding districts. He never allowed his private practice to interfere with his regular and punctual attendance at the Infirmary to carry out his duties there. The Infirmary and its welfare were truly the pivot of his life, and he gave unstinting service to the patients and to the general running of the medical and surgical services. He was a very regular attendant at all the important committee meetings and was the Infirmary representative on the Hospitals Contributory Schemes Association and chairman of the Area British Hospitals Association. He was not a great talker at meetings and was somewhat impatient with those who liked to hear their own voices. When he spoke, after listening to others, he summed up the salient points in a few words which were devoid of frills. He was an ardent supporter of proposals to improve the nursing profession and was largely instrumental in pressing the claims at committee meetings. He was responsible for starting prizes at the Infirmary for practical and theoretical work of the nurses. He was the representative of the honorary staff on the Infirmary Committee and did all in his power to present its problems to the meetings with justice and equity. He was a staunch and loyal friend to his colleagues and his patients, and his advice was never sought in vain by any of them. His personal integrity was beyond reproach, and he did a lot of good in a quiet way in helping his less fortunate friends and patients. He was very embarrassed by expressions of gratitude for anything that he had done on behalf of the Infirmary or in other ways. He was most hospitable and always welcomed any new colleagues and invited them to partake of his hospitality, and he was at his best when so entertaining. He was keen on bowls and played a good game of bridge, and was always good company and had a subtle humour. He was a regular attendant at the local meetings of the B.M.A., and had been president of the Worcestershire and Herefordshire Branch. He was a keen advocate of clinical meetings and practically always brought cases of interest before the meeting. He took a great interest in making arrangements for the celebration of the bicentenary anniversary of the foundation of the Worcester Infirmary, which is due to be held shortly. One of the Infirmary wards is dedicated to one of the founders, Bishop Maddox.

The colleague and friend from boyhood who wrote the above memoir adds: The death of Tom Bates has left a very great gap in the life of the city of Worcester and district and in the counsels of the Royal Infirmary. He had spent practically the whole of his life in Worcester and was undoubtedly a true citizen. The sympathy of all who knew him is extended to his widow, daughter, and two sons in their great loss. His younger son is now surgical registrar at Bart's in the E.M.S. Chest Unit. A memorial service held at Worcester Cathedral was attended by a very large number of people on Nov. 25.

The death of Dr. FRED PHILLIPS on Oct. 20 is reported from Boksburg, Transvaal. He was born in Newcastle-upon-Tyne in 1887, and from school he embarked upon a classical course, taking residence at Hatfield Hall, Durham, and ultimately attaining his M.A. degree of that university. Medicine

then attracting him, he graduated M.B., B.S. Dunelm through the Newcastle-upon-Tyne School of Medicine in 1912, subsequently serving as house-surgeon and resident medical officer at the Durham County Hospital. There he developed radiology as a specialty, and in that capacity took over to France one of the first mobile x-ray units during the early part of the last war. With the rank of captain R.A.M.C., T.F., he remained in x-ray work until the cessation of hostilities. General practice at Lanchester, Co. Durham, during the years 1921-2 failing to please him, he went to live at Parkstone, Dorset, whence he migrated to Buenos Aires and ultimately to South Africa. There an intractable surgical malady overtook him.

MR. WALTER HERMAN KIEP, honorary ophthalmic surgeon to the Bradford Eye and Ear Hospital, died suddenly at his home in Apsley Crescent, Bradford, on Nov. 21, at the age of 58. A native of Glasgow he studied medicine in that city, graduating M.B., Ch.B. (with commendation) in 1908. He served for a time as assistant surgeon to the Ophthalmic Institution of Glasgow and honorary oculist to the Royal Hospital for Sick Children. During the last war he held a commission in the R.A.M.C. as a specialist in ophthalmology at Malta 1915-19. After the war he was for a short time professor of ophthalmology in the Egyptian Government Medical School at Cairo. He went to Bradford twenty years ago, and in addition to his post at the Royal Eye and Ear Hospital served also as honorary consulting ophthalmic surgeon to the Victoria Hospital, Keighley, and the Hartley Hospital, Colne. Mr. Kiep was ophthalmic referee under the Workmen's Compensation Act, and had been president of the North of England Ophthalmological Society. He joined the B.M.A. in 1910.

We regret to announce the death in Edinburgh on Nov. 22 of Major JOHN GILMOUR, formerly president of the International Quarantine Board, Egypt, and for the past 15 months temporary inspector under the Cruelty to Animals Act. Born on Sept. 25, 1884, he was educated at George Watson's College and Edinburgh University, graduating M.B., Ch.B. in 1906, and taking the F.R.C.S. Ed. in 1909 after holding house appointments. He joined the R.A.M.C. in 1910 and served throughout the last war, being gazetted brevet major in 1918 after winning the Military Cross. He retired from the Army in the following year, and in 1929 became president of the International Quarantine Board at Alexandria. Major Gilmour held the Insignia of Grand Officer of the Order of the Nile and of the Order of Ismail; he was also a Commander of the Order of George I of Greece and a Chevalier of the Legion of Honour. He was created C.M.G. in 1934. He published a report on the sanitary conditions in Persia in 1924 and annual reports on the pilgrimage to the Hedjaz to the International Health Office, Paris, from 1928 to 1939. During this war he worked in the Department of Health for Scotland until his temporary appointment under the Home Office.

MR. GORDON WILSON THOMAS, consulting surgeon to the Clayton Hospital, Wakefield, died on Nov. 26. He was born at Llanelli on June 18, 1881, and was educated at the Friends' School, Bootham, York, leaving in 1898 to study medicine, first at Leeds and later at the London Hospital. He graduated M.B., B.S. Lond. in 1905 and took the F.R.C.S. Eng. in 1910 after four years in resident appointments at the General Infirmary at Leeds. Settling in practice at Wakefield he became senior honorary surgeon to the Clayton Hospital. Mr. Thomas was an active member of the Leeds and West Riding Medico-Chirurgical Society and held office as chairman of the Wakefield, Pontefract, and Castleford Division of the M.A. in 1930-2. When he retired from work on account of ill-health he made his home at Guildford.

By the death of Dr. LOUIS BEER the medical profession loses a really remarkable personality. Born in Amsterdam he was brought to his father's home in the Hampstead Road at the age of 6, and from that time till his death 73 years later he occupied the same house. In the early 'eighties he entered the Middlesex Hospital Medical School and had as fellow students Essex Wynter and John Bland-Sutton, the three becoming lifelong friends. Beer qualified in 1886 and carried on his work as a general practitioner till the day of his death. His gifts were exceptional. He was a most accomplished linguist and was reputed to be able to converse in seven European languages. His mother was of French extraction, and it was said, by those able to judge, that his mastery of the French language was superb. Owing to this ability he had a very extensive practice among foreign residents in all parts of London. His mind was built in a philosophic and logical mould, and I have rarely come across such an acute clinical observer or a more accurate diagnostician. It was a privilege and a pleasure to listen to

his preliminary description of the patient whom one was about to see. The salient features were emphasized and a lucid and brilliant picture of the case was presented with a simplicity and directness of language which were remarkable. His descriptions were so faultless that they might well serve as classic models of what clinical summaries should be. The effect produced on the listener was as if he were being shown a piece of sculpture, so clean and clear was the outline. Nor can I recall a single occasion on which I detected an error either of observation or in the logical deduction drawn from the data. Like most old physicians his diagnosis was based upon his knowledge of morbid anatomy, and curiously enough it was at a post-mortem examination that I first made his acquaintance 42 years ago. Practising in the neighbourhood, he frequently sent patients into the Middlesex Hospital, where, among the members of the hospital staff, he had a crowd of friends and admirers. His whole life was spent among his patients, and to them his passion will be irreparable. To poor and rich alike he was always the same. He found his reward in the quality of his work and in the confidence and devotion he inspired in his patients. I was a member of the British Medical Association and for seven years he held an appointment as clinical assistant to the St. Mary's Hospital for Women, gynaecology being a branch of medicine in which he was always interested. He died, as he would have wished to die, in harness. He was making an emergency call when he was stricken and the end came within a few hours. *Quis scit, an adjiciant hodiernae crastina summae tempora superi?*—C. E. LAKIN.

JOHN NIGEL STARK, consulting surgeon to the Royal Samaritan Hospital for Women, Glasgow, died at his home, Murrayfield Gardens, Edinburgh, where he lived after retirement from active practice in 1928 and travelling abroad. Dr. Nigel Stark received his medical education at the University of Edinburgh, graduating M.B., C.M. in 1884, and proceeded to the M.D. (with commendation) in 1900. He was elected a Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow in 1890, after his appointment as assistant obstetric physician to the Glasgow Royal Maternity and Women's Hospital and assistant surgeon to the Royal Samaritan Hospital. Dr. Nigel Stark was a Fellow of the Edinburgh Obstetrical Society and had been president of the Glasgow Obstetrical and Gynaecological Society. He joined the B.M.A. in 1888. He was the author of *An Obstetric Diary of William Hunter, 1762-1776 with Notes*, published in 1909.

Dr. WILLIAM FOGGITT CHRISPIN of Castleford, Yorks, who has died at the age of 80, practised in that town for 44 years until his retirement in 1942. He studied medicine at Leeds and took the L.S.A. in 1898, and when the title of the diploma was changed became L.M.S.S.A. in 1907. Dr. Chrispin had a long career in public service: he was M.O.H. for Castleford for 12 years and later was a member of the urban council for 9 years, and chairman in 1936-7. Since 1930 he had been a justice of the peace and took his place regularly on the Castleford Bench until a few weeks ago; he was also a church warden for many years, serving altogether under five rectors. He joined the B.M.A. in 1905 and remained a member until he gave up active work.

Dr. M. J. Fenton writes: In the *Journal* seventeen years ago (1926, 2, 548) Dr. ERIC PRITCHARD wrote: "Exactly the same feeding [i.e., as given to his first child] had fatal consequences in the case of my second child—through no fault of the laboratories, but solely owing to my own incompetence—and it was that never-to-be-forgotten experience that determined me to devote my life to a study of the means of obviating such disasters in the future." The devotion and the study the late Dr. Eric Pritchard gave to this subject brought untold pleasures to the world at large and to mothers in particular. Another instance of the profession's gifts to mankind through personal experience.

We regret to announce the death of Dr. EDWARD WILLIAM DACRE HARDY, M.C., consulting anaesthetist to the Royal Victoria and West Hants Hospital and to the Hants and Bournemouth Children's Clinics. He was born on July 7, 1878, son of Dr. W. G. Hardy of Bournemouth, and from Haileybury College went up in 1897 to Christ's College, Cambridge, and thence for his clinical course to St. Bartholomew's Hospital. After qualifying M.R.C.S., L.R.C.P. in 1906, he was house-surgeon at the Royal Berks Hospital at Reading, and then returned to Bournemouth to take up general practice with anaesthesia as a specialty, which occupied more and more of his time. His first appointments at the Royal Victoria and West Hants Hospital were those of anaesthetist, junior assistant physician, and registrar. During the war of 1914-18 he served in the R.A.M.C. with the temporary rank of captain and was

awarded the Military Cross. Dr. Hardy joined the B.M.A. in 1917, was chairman of the Bournemouth Division in 1925-6, and vice-president of the Section of Anaesthetics at the Bournemouth Annual Meeting of 1934, serving also on the Local General Committee. More than a year ago he had to give up practice owing to ill-health. He was a most kindly and charming companion and an all-round sportsman. He enjoyed lawn tennis, swimming, golf, sailing, and fishing, and bred wire-haired fox terriers.

The following appreciation of Mr. JOHN LEVIS comes from Dr. C. E. S. Flemming: The first thought at the news of the death of John Levis must have been one of deep grief at the loss of a great friend, a loss seemingly irreparable not only to ourselves but to the profession, the hospitals he worked for, and the public throughout a large district. Medical men, patients and friends, and the public each and all obviously felt how great had been their loss. Simplicity and absolute sincerity, invariable good temper, native Irish humour and kind words, unselfishness, never failing to help when wanted, and the success of his work—all these inspired great respect and a very real affection. It was not only patients but the medical profession who valued his skill in diagnosis and treatment, for the demand on his services was great and the work he did must have been prodigious. I remember, about four years ago, that after a visit to a meeting of surgeons in Paris and then a hard day's operating in Trowbridge Hospital he was so tired that when driving home he felt ill and could not go on till someone found him in his car and had him driven home. A memorial service in Trowbridge Parish Church, which was filled with old patients and friends and all the medical men of the district, was a striking evidence of the feelings of the public towards what the local newspaper called "a beloved surgeon." His great success as a surgeon must have been largely due to the high esteem in which his work was held by his colleagues, for he spoke little at meetings and wrote hardly at all.

The following appreciation of Dr. W. BURTON WOOD comes from T. H. S.: Those who knew Burton Wood can only regret that contact with this generous and stimulating personality was not more widespread. A philosopher in the widest sense of the term, his conversation left his hearers with a feeling of profound benefit and satisfaction that was derived from a rare blend of wisdom and humour. Wider audiences will recall his lectures and addresses with lively gratitude, and patients will realize how much they owed to the personality and advice of the physician. His approach to chest work was essentially conservative, but as soon as a good case could be fully made out for any radical change in treatment his support and encouragement were unfailing. His illness over the last few years depicted the man he was: an omnivorous reader and thinker, a writer of fascinating letters, an optimistic though no visionary builder for the future. His was truly a spirit for which death could not spell "finis."

An obituary notice of Mr. GEORGE COWEN, M.S., F.R.C.S., appeared in the *Journal* of Nov. 13. Dr. R. Vaughan Thomas writes from Birkenhead: As an old senior house-surgeon at the Royal South Hants Hospital, Southampton, may I be allowed to pay a tribute to his memory. He was much beloved and respected by staff and patients alike. By nature kind and gentle, unassuming and possessing a keen sense of humour, ever ready to lend a helping hand to a timid and hesitant house-surgeon, he helped many along surgical paths. An indefatigable worker, a most thorough and profound clinician, and a dexterous operator, he would have been an asset to any teaching school. His surgical skill and knowledge knew no bounds; he was master of his art in any branch of surgery. His knowledge was founded on a wealth of clinical experience, gathered over many years by his long association with the two hospitals at Southampton. Mr. Cowen represented in every sense the finest type of British provincial surgeon. He was one whom it was an honour and a privilege to serve. He will be long remembered with affection by many who had the good fortune to work with him at Southampton.

We regret to announce the death of Dr. ROBERT LINDSAY, to whose memory a colleague sends the following tribute: One who, by his cultured mind, courage, devotion to duty, and modesty, did much to maintain the respect in which our profession is held died at Southport on Nov. 4 in the person of Dr. Robert Lindsay of Cupola House, Folkestone. He was first in the open bursary list when he entered the University of Glasgow from Kilmarnock Academy in 1908. Before commencing the study of medicine he had taken the M.A. with honours in classics. He had many distinctions in medicine. Graduating M.B., Ch.B. in 1916 he immediately entered the R.A.M.C. and

saw service in Mesopotamia and in France, being medical officer with the 1st Battalion of the Grenadier Guards at the signing of the Armistice. He started practice in Radcliffe, Lancashire, in 1920, but in 1935 his health broke down and he had to give up work for eighteen months. On his partial recovery he took up practice in Folkestone, hoping that limited activity in the mild climate of the south would help him to recover his strength. Though he was unfit when war broke out, he refused to leave Folkestone, where he felt his duty lay. For repeated acts of gallantry he was awarded the George Medal in 1940. Six months ago he had an acute exacerbation of his illness and from this he never recovered. Robert Lindsay retained his early love of Latin and Greek and was an accomplished classical scholar. He was the kindest-hearted of men and the warmest of friends, and he was fortunate in finding great happiness in his home. His modesty prevented him from exploiting his brilliant gifts as he could, perhaps should, have done. To his devoted wife, his son, who is a student of medicine, and his daughter we offer sincere sympathy.—D. C.

Many members will learn with regret of the death of Mr. S. COULSON, who was chief clerk of the British Medical Association from 1908 until he retired on account of ill-health in 1937. Mr. Coulson rendered loyal and efficient service to the medical profession as the senior member of the clerical staff of the Secretarial Department for so many years.

Dr. Philip A. Maplestone writes from Lachlan Park Hospital, New Norfolk, Tasmania: I received to-day the issue of the *Journal* dated May 8 in which are some tributes to the late Prof. WARRINGTON YORKE, hence this somewhat belated communication. There is an important aspect of his career and of his character that does not seem to have been appreciated, and one that I think should be placed on record. If one glances through the publications of those numerous workers (including myself) who collaborated with him, I think it will be agreed that in many instances their best work has been done while in association with him. This occurs too often to be a coincidence, and although, with his typical fair-mindedness, he would never admit this to me, I think it is clear to many of us who were fortunate enough to have worked in his company that we, to a large extent, owe such successes as we have later achieved to this association.

Medical Notes in Parliament

Royal Commission on Birth Rate

Mr. ATTLEE announced on Dec. 1 that the Government had decided to set up a Royal Commission to investigate the birth rate and trends of population, and that Lord Simon, the Lord Chancellor, had accepted the chairmanship. Other members of the Commission would be announced as soon as practicable. Their terms of reference would be: "To examine the facts relating to the present population trends in Great Britain; to investigate the causes of these trends and to consider their possible consequences; to consider what measures, if any, should be taken in the national interest to influence the future trend of population; and to make recommendations."

The Government had also decided to set on foot immediately a number of inquiries of a technical kind, the scope and character of which would be determined in consultation with the chairman of the Commission. The results would be made available to the Commission as soon as possible. It was expected that in the meantime the Commission would find it practicable to explore and to take evidence upon more general issues connected with the subject. Inclusion in the Commission of a housing expert would be considered. Mr. Attlee hoped that the Commission would report as quickly as it could.

Forthcoming White Paper

During the debate on the address in reply to the King's speech in the House of Commons on Nov. 30, Sir HENRY MORRIS-JONES said that there was no mandate from the country with regard to a State Medical Service. He doubted whether in time of peace any Government could possibly introduce legislation of such an immense character without securing a mandate beforehand. He was glad that the King's speech referred to proposals which would come before the House for discussion. Whatever shape or form it might take, such a scheme would mean great evolutionary and revolutionary changes in the country affecting everyone. It was only right that before submitting legislation to the House the Government should wish to hear the feelings and desires of the House and the country in regard to such a great reform.

Mr. LYTTELTON, in reply, said he quite understood that the House might be impatient on the subject of the social security scheme. He would have been so himself if he had not been a member of a Ministerial committee which had to deal with that question. The complexity of it had to be seen to be believed. If they took part of it, say workmen's compensation or the comprehensive medical service, they would become involved in administrative problems of the very greatest difficulty, requiring not only an encyclopaedic knowledge of the background, but very great administrative experience in solving present problems. The bulk of the problem had been tackled. The White Paper was now being drafted, and would be laid before Parliament. It would show that the Government had very definite proposals over a large part of the field, but that there were some subjects on which they were undecided and wished to take the opinion of members and to make soundings. He saw nothing reprehensible in that. Did anyone realize that a matter like the comprehensive medical service involved altering the number of those entitled to a comprehensive medical service from 18,000,000, the present insured population, to the whole population of 44,250,000?

Patulin

In an answer to Colonel Evans on Dec. 2 Miss HORSBROUGH referred to recent trials of the use of patulin. She said the Medical Research Council had accepted an invitation to undertake the organization of controlled clinical trials on a considerable scale. Arrangements were in hand for instituting these immediately. For the time being the use of patulin in the treatment of the common cold must be regarded as still in the experimental stage. Preliminary trials had not given consistent results, although some of these had been promising. It was uncertain what value the drug would eventually prove to have. It would necessarily take some months to collect adequate information on this point, and as regards the best methods of administration, the proper dosage, and the conditions under which the drug could be used with safety. It would be inadvisable to take steps to make patulin generally available until there was sufficient evidence on these questions.

Medical News

The Nuffield Provincial Hospitals Trust, at Lord Nuffield's suggestion, has offered the University of Oxford £8,000 a year for ten years towards the cost of establishing and maintaining a plastic surgery unit in the University of Oxford. The University has accepted with gratitude the offer of the Trust and has appointed Mr. T. Pomfret Kilner, F.R.C.S., as the first director of the plastic surgery unit with the title of Nuffield Professor of Plastic Surgery. The Radcliffe Infirmary will provide hospital facilities for the unit, and these will be supplemented by the Ministry of Pensions.

Prof. T. P. McMurray will open a discussion on "The Late Problems of War Surgery" at a clinical meeting to be held at 2.30 p.m. on Dec. 16 in the Ministry of Pensions Hospital, Woolton Road, Liverpool, 16.

Mr. R. Watson-Jones will speak on "A Surgeon's Impressions of Soviet Russia" at the annual general meeting of the Anglo-Soviet Medical Council on Friday, Dec. 17, at 4.30 p.m. at the Royal Society of Medicine.

A meeting of the Fever Hospital Medical Service Group will be held at Tavistock House, Tavistock Square, London, W.C.1, on Friday, Dec. 17, at 3 p.m., preceded by a meeting of the Group Council at 2.30 p.m. Subject for discussion: "Control of Cross-infection"; to be opened by Dr. R. B. Bourdillon, Dr. Joyce Wright, and Dr. H. Stanley Banks.

At the Royal Society of Medicine on Dec. 15, at 2 p.m. for 2.15 p.m., the Section of Comparative Medicine will hold the second of its discussions under the heading of "The Limitations and Uses of the Comparative Method of Medicine." The subject on this occasion will be animal ecology and genetics; openers: ecology, M. A. C. Hinton, F.R.S.; genetics, Dr. H. Grüneberg.

The Agricultural Group of the Society of Chemical Industry will meet on Tuesday, Dec. 14, at 4 p.m. in the rooms of the Chemical Society, Burlington House, Piccadilly, W., when a paper on livestock deficiency diseases and their treatment will be presented by Dr. S. J. Watson, Director of Research, Jealotts Hill Research Station.

The following meetings of the British Institute of Radiology will take place in the Reid-Knox Hall, 32, Welbeck Street, London, W.: Friday, Dec. 17, at 2.30 p.m., meeting of medical members. Saturday, Dec. 18, at 2.30 p.m., ordinary meeting, at which papers will be read on chronic intussusception in children by Dr. F. H. Kemp, and on instantaneous stereography by G. L. Rogers, Ph.D.

At a meeting of the Eugenics Society on Tuesday, Dec. 14, at 5 o'clock, at the rooms of the Royal Society, Burlington House Piccadilly, W., Dr. J. A. Fraser Roberts will speak on "Population Problems in the Light of Differential Fertility." All interested in the subject are invited to attend.

The Finney-Howell Research Foundation announces that applications for fellowships for next year must be filed in the office of the Foundation, 1211, Cathedral Street, Baltimore, Maryland, by Jan. 1, 1944. Applications received after that date cannot be considered for 1944 awards, which will be made on March 1. The Foundation was provided for in the will of the late Dr. George Walker of Baltimore for the support of "research work into its cause or causes and the treatment of cancer." Fellowships, carrying an annual stipend of \$2,000, are awarded for the period of one year with the possibility of renewal up to three years; special grants of limited sums may be made by the Board of Directors to support the work carried on under a fellowship. Application forms will be furnished by the secretary or any member of the Board.

An American-Soviet Medical Society has been founded in New York to meet an increasing demand for information about its results and achievements of Soviet medicine. The president of the society is Dr. Walter B. Cannon, emeritus professor of physiology at Harvard University; and Dr. Henry E. Sigerist, director of the Institute of the History of Medicine, Johns Hopkins University, is the editor of its journal, *The American Review of Soviet Medicine*. The temporary offices of the society are at 130, West 46th Street, New York City.

Service medical officers in this country are to be allowed, so far as their military duties permit, to help civilian doctors during the present epidemic. Hard-pressed general practitioners needing help are advised to apply to the secretary of their local Medical War Committee forthwith.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on Nov. 20 the following medical degrees were conferred:

B.M., B.Ch.—J. Badenoch, *A. H. Torrance.
*In absentia.

UNIVERSITY OF CAMBRIDGE

At a Congregation held on Nov. 19 the following medical degrees were conferred:

M.D.—J. B. Murray, *D. D. Evans, *E. T. D. Fletcher.
M.B., B.Chir.—*F. M. Delington.
*By proxy.

The Services

Major (temp. Lieut.-Col.) R. McL. Gordon, D.S.O., D.F.C., R.A.M.C., has been awarded the George Medal in recognition of gallant conduct in carrying out hazardous work in the Middle East in a very brave manner.

Lieut. B. Browncombe, R.A.M.C., has been awarded the George Medal in recognition of conspicuous gallantry in carrying out hazardous work in a very brave manner.

The following appointments, awards, and mentions have been announced in a *Supplement* to the *London Gazette* in recognition of gallant and distinguished services in the Middle East:

C.B.E. (Military Division).—Brig. (temp.) R. W. Galloway, I. R.A.M.C.

O.B.E. (Military Division).—Cols. (temp.) F. R. H. Mollan, M.C.; J. G. Morgan; Lieut.-Col. R. MacL. Savege, M.C.; Majors (temp. Lieut.-Cols.) C. W. Arnot, M.C., D. W. Jolly, A. N. B. Odbert, P. J. Richards, H. S. Ward, R.A.M.C.

M.B.E. (Military Division).—Capt. (temp. Major) A. J. C. Latchmore, R.A.M.C.; Subedar M. Singh, I.M.D.

M.C.—Capt. D. Rumney, R.A.M.C.

Mentioned in Dispatches.—Capt. E. F. Ridley, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Wounded.—Temp. Lieut.-Col. M. J. Kohane, M.C., R.A.M.C.; Temp. Acting Surg. Lieut.-Cmdr. S. W. Maxwell, R.N.V.R.

Prisoners of War.—War Subs. Capt. F. E. de W. Cayley, Capt. R. M. J. Franks, War Subs. Major A. C. King, Capt. J. Ledingham, Acting Major T. M. Pemberton, War Subs. Capt. J. Richardson, War Subs. Capt. P. G. Seed, and Temp. Lieut.-Col. J. H. Strahan, R.A.M.C.

Reported Missing.—Surg. Lieut. R. McF. Kirkpatrick, R.N.V.R.
Died on Active Service.—Major W. H. Purves, M.B.E., R.A.M.C.

EPIDEMIOLOGICAL NOTES

Influenza

The returns for the week ending Nov. 27 show another large rise in the deaths from influenza in the 126 great towns—375 as compared with 106 in the week ending Nov. 20 and 46 in the week ending Nov. 13. In the week corresponding to that ending Nov. 27 in the six previous years the number of influenza deaths varied between 25 and 52. The notifications of acute pneumonia (including primary and influenzal) during the six weeks up to and including week ending Nov. 27 were: 579, 576, 676, 781, 978, 1,647.

Discussion of Table

In England and Wales during the week scarlet fever notifications fell by 138, those of diphtheria by 114, and those of whooping-cough by 36. The incidence of measles remained at the same level for the third consecutive week. There were 197 more cases of acute pneumonia, and 18 more of dysentery.

There was less scarlet fever in the North; in the South the situation was unchanged. The rise in pneumonia and the fall in diphtheria were general throughout the country. There was much variation in the local trends of whooping-cough; the largest decreases were in Yorks West Riding by 53 and in Staffordshire by 30; the greatest increases were in Derbyshire by 34 and in Lancashire by 32 cases.

There was no fresh outbreak of dysentery, the increase being due to small-rises in existing centres of infection. The largest totals were in London 49, Middlesex 23, Kent 16, Lancashire 13, Yorks West Riding 11. After a week's interval a further 8 cases were reported from Bedfordshire, Biggleswade R.D.

In Scotland notifications of scarlet fever were down by 47, of dysentery by 28, of measles by 19; primary pneumonia was up by 39 and whooping-cough by 13. On Nov. 30 Mr. Johnston informed Mr. McNeil that notifications of cases of pulmonary tuberculosis between June 1 and Nov. 1, 1943, were 3,073. The corresponding figures for the same period in 1942 was 2,633; in 1941, 2,361; and in 1940, 2,118.

In Eire notifications of diphtheria rose by 18, and those of whooping-cough by 40. Whooping-cough was concentrated in five areas, where 52 of the 61 cases were reported.

Smallpox

A case of smallpox and 2 suspected cases were removed from a ship at a West of Scotland port. A conference of health authorities was held, and all necessary steps to organize precautions were taken. The 3,000 passengers were moved to an isolation centre, to be detained there for fourteen days. The patient, a soldier aged 23, is stated to be improving, and the suspects have been found not to suffer from the disease. No further developments are expected.

Scotland's Health

Dr. Andrew Davidson, Chief Medical Officer of the Department of Health for Scotland, stated at a recent Press conference that the nation's health at the beginning of the fifth winter of hostilities was surprisingly good, but that there was no lack of health problems. The incidences of tuberculosis, of infant mortality, and of venereal diseases have risen since 1939. A recent inquiry among the insured population showed that, although the incidence of sickness had risen sharply, there was a remarkable drop in the average duration of sickness for both males and females. The biggest of the immediate problems was tuberculosis, which had risen by 17% during the war. But for the shortage of nurses and domestic staff, 300 more beds could be put into commission. The waiting list for treatment has doubled during the past year, and about 1,000 pulmonary and 200 non-pulmonary tuberculosis patients were on the list. Dysentery of a mild type had increased since the war. Diphtheria mortality had fallen following the campaign for immunization; but there were still nearly half a million children unprotected, and unless a sense of urgency in prevention could be maintained there was a danger of losing the benefits they had already achieved.

The Week Ending November 27

The returns of the notifications of infectious diseases in England and Wales during the week included: scarlet fever 3,157, whooping-cough 1,800, diphtheria 732, measles 518, acute pneumonia 1,647, cerebrospinal fever 43, dysentery 147, paratyphoid, 2. The deaths from influenza in the 126 great towns numbered 375.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov. 20

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	51	2	26	3	2	68	—	21	3	3
Deaths ..	1	1	1	—	—	—	—	4	—	—
Diphtheria ..	705	40	175	135	27	1,001	49	262	86	26
Deaths ..	10	1	3	1	—	26	3	3	1	—
Dysentery ..	176	49	59	—	7	117	18	67	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute ..	2	—	—	—	—	2	—	—	—	—
Deaths ..	—	—	—	—	—	—	1	—	—	—
Erysipelas ..	—	—	50	13	5	—	—	69	17	2
Deaths ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years ..	—	—	—	24	—	—	—	—	62	—
Deaths ..	39	1	11	13	2	57	10	12	14	4
Measles ..	556	49	48	43	5	8,816	362	428	38	40
Deaths ..	—	—	—	—	—	7	1	1	—	—
Ophthalmia neonatorum ..	74	3	20	1	—	83	4	19	—	1
Deaths ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever ..	4	1	2	—	—	5	2	1	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal* ..	978	73	20	6	1	645	36	7	—	12
Deaths (from influenza) ..	106	10	32	—	3	1	1	1	—	—
Pneumonia, primary ..	—	48	298	21	11	—	40	226	49	13
Deaths ..	—	—	—	—	—	—	—	—	—	—
Polio-encephalitis, acute ..	—	—	—	—	—	1	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute ..	8	1	1	1	—	15	1	1	25	2
Deaths ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever ..	—	1	18	1	—	—	3	17	2	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia† ..	134	7	13	—	3	137	4	13	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever ..	3,098	258	356	35	90	2,914	166	430	75	66
Deaths ..	1	—	—	—	—	2	—	—	—	—
Smallpox ..	—	—	—	—	—	—	—	3	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever ..	8	—	2	15	2	6	—	4	11	4
Deaths ..	—	—	—	—	—	—	—	—	—	—
Typhus fever ..	—	—	—	—	—	—	—	—	8	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough ..	1,866	151	233	61	20	1,246	92	33	79	25
Deaths ..	111	21	2	4	—	9	1	—	2	—
Deaths (0-1 year) ..	323	37	64	51	31	342	42	65	4	14
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) ..	4,934	742	727	228	137	4,439	710	589	231	124
Annual death rate (per 1,000 persons living) ..	—	16.4	15.0	4	—	—	13.3	15.4	—	—
Live births ..	5,562	685	809	284	274	5,742	670	705	369	253
Annual rate per 1,000 persons living ..	—	16.5	18.7	4	—	—	14.6	24.6	—	—
Stillbirths ..	216	27	20	—	—	183	21	27	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	24	—	—	—	—	37	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. If reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Members' subscriptions should be sent to the Secretary of the Association.

TELEPHONE NO.—B.M.A. and B.M.J.: EUSTON 2111.

TELEGRAPHIC ADDRESSES—EDITOR, *Alliology Westcent*, London; SECRETARY, *Mediscera Westcent*, London.

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Influenza

Q.—I would be grateful for any suggestions on the prevailing epidemic of influenza, in which the predominant symptoms are pyrexia, hyperpyrexia, petechial haemorrhages of uvula, palate, and fauces, persistent cough, sometimes with moisture in lungs. Is this true influenza, 1918-19 type? If so, what is the line of treatment?

A.—In their studies of epidemic influenza in 1936-7, much of which was due to influenza virus A, Stuart-Harris and his colleagues¹ recognized three clinical forms of the infection: simple influenza, influenza with bronchiolitis, and influenzal pneumonia. A typical case of simple influenza began suddenly with headache, followed by shivering, aches in the limbs and back, and a short, dry, persistent cough; temperature rose quickly to 102°-103° F., and by the second day the infection was at its height with severe headache, muscular pains, glistening injected throat, and upper respiratory symptoms. By the fifth day temperature was normal; the patient was rather weak, but was fit for discharge by the ninth or tenth day. In influenza with bronchiolitis, the pulmonary symptoms (rales and rhonchi, particularly at the bases) dominated the picture; the patient was more ill, with some cyanosis, and pyrexia lasted longer, sometimes with a short afebrile interlude. The chest signs either accompanied the initial fever or were associated with a secondary relapse.

In the third group with pneumonia the consolidation might develop with surprising rapidity—the typical influenzal pneumonia which was common in the 1918 pandemic—or it occurred as a post-influenzal complication. The early influenzal pneumonia is characterized by the so-called "heliotrope" cyanosis, abundant frothy (sometimes blood-stained) spit, physical signs of a bronchiolitis or basal pneumonia, and in severe cases a rapid worsening of the patient's condition, with death within 2 to 3 days. It is not yet known whether this pneumonia is due to the virus itself or to a secondary bacterial invader. The post-influenzal pneumonias are mostly caused by bacterial infection; the staphylococcus, haemolytic streptococcus, Pfeiffer's bacillus, and the pneumococcus have all been incriminated, one or other of them usually being predominant in outbreaks in different localities, which suggests a case-to-case spread of these organisms.

The symptoms described in the question would fit either simple influenza or influenza with bronchiolitis, but for absolute proof that an illness of this kind is "epidemic influenza" either influenza virus must be isolated from the patient's throat or the appearance of specific antibody in the patient's blood must be demonstrated. As

with epidemic influenza virus A is now being found in parts of the country, the chances are that the condition is influenza. However, febrile catarrhs (not due to an virus) and atypical pneumonia may give a somewhat similar

In the latter infection x-ray examination usually reveals a characteristic picture and "cold-agglutinins" develop in the patient's blood.

The treatment of influenza is early confinement to bed, preferably at home, with full ventilation of the room, alleviation of the presenting symptoms with appropriate remedies, and a careful convalescence. The sulphonamide drugs have no effect on the primary virus infection, but should be used at the first signs of a secondary bacterial complication.

Chronic Pancreatitis

Q.—Fourteen months ago a man aged 53 became deeply jaundiced, with some attacks of abdominal pain. Six months after its onset a cholecystgastrostomy was performed, and at this time no apparent neoplasm of the pancreas was found. The diagnosis previously made had been carcinoma of the head of the pancreas. The pancreas was, in fact, diffusely hardened with some nodular formation. Some such nodule apparently had caused occlusion of the bile-duct by

¹ *A Study of Epidemic Influenza*. M.R.C. Spec. Rep. Ser., No. 228, London, 1938.

direct pressure. No section was taken for biopsy. Nothing abnormal in the liver. Jaundice disappeared, and with it the steatorrhoea and icterus, etc., but after three months the clay-coloured stools returned, and this has since persisted. Three months ago the patient developed sternal pain of gradually increasing severity, accompanied by much vomiting of bile-stained fluid and undigested food. On admission to hospital he was dehydrated and wasted. There was complete duodenal stenosis, and a gastro-jejunostomy was performed. Stomach greatly distended, but again no evidence of neoplasm in the abdomen. The pancreas still presented the same nodular hard thickening, but the cause of the duodenal obstruction was not discovered; it was apparently due to some form of mechanical kinking and/or pressure of the hardened pancreas. This operation was followed by rapid amelioration of symptoms, and the patient made a good recovery. Just before his discharge, weight 6 stone, however, an accidental blood-sugar estimation revealed a figure of 0.392 mg. per 100 c.cm., and he was put on insulin soluble 5 units twice daily. His present weight is 8 st. 7 lb. Is this a true case of chronic pancreatic fibrosis, to what would you attribute his present steatorrhoea, and what treatment, if any, would you suggest? His intense hunger soon after quite a good meal is, I presume, a diabetic symptom accompanied by the effects of rapid gastric emptying following the gastro-jejunostomy.

A.—The question asks for diagnosis at a distance, which is not a procedure to be encouraged. In any event the differential diagnosis between carcinoma and chronic inflammation of the pancreas may often be almost impossible during life. The sequence of events is clearly related to the effects of pressure by the indurated pancreas (biliary and duodenal obstruction), and to the disturbance of pancreatic function (hyperglycaemia and steatorrhoea). The intense hunger after meals is more likely to be due to faulty absorption of fat and protein than to the hyperglycaemia or rapid gastric emptying. The length of the history suggests that this is a case of chronic fibrosis of the pancreas, but the possibility of a slowly infiltrating neoplasm must still be considered. Was a biopsy taken at the time of the operation? X-ray examination for pancreatic calculi might also be of value, and it would be of interest to know the fat and nitrogen content of the stools, the diastase content of the urine, and the blood count. Treatment is difficult, but the regime prescribe for sprue—namely, a high-protein and low-fat diet with parenteral administration of liver extract—might be worth a trial. At the same time the caloric content of the diet should be as high as possible in order to restore the normal weight.

Lactation and Hormones

Q.—With further reference to the treatment of small breasts in multiparous woman dealt with on July 25 and Sept. 4, can one attempt any treatment for that condition in a patient who is already pregnant, in order to improve the chances of breast-feeding? In the two previous pregnancies breast-feeding was started and then severed with, but eventually had to be abandoned. There appeared to be quite a fair secretion of milk, but a great deal was lost between feeds, apparently through too small a "storage capacity." Pregnant is now in the fifth month.

A.—The mechanism of milk production is almost certainly not a factor of the oestrogenic stimulation of the breast such as was discussed in the original questions. Lactation is probably due to the release of lactogenic hormone of the anterior pituitary by means of a sort of trigger-action, admittedly acting on breasts which are already primed by the relatively large quantities of oestrogens and progestogens which are circulating in the blood stream during pregnancy. It is therefore unlikely that the apparently limited "storage capacity" of the breasts is due to the insufficient exhibition of oestrogen and progestogen during pregnancy. At parturition the breasts have every opportunity of being fully stimulated by oestrogen and progestogen. Inadequate milk-yields in the puerperium may be due to ineffective lactogenic stimulation, and the administration of lactogenic hormone has been reported to be effective in some cases. Inadequate storage does not, however, seem to be a condition which can be treated by endocrine therapy. Administration of oestrogen would, if anything, tend to decrease the milk secretion, and it has not been suggested that progestogen increases the milk storage capacity of the breasts. One of the most important factors in maintaining adequate lactation is, of course, efficient suckling.

Measuring Surface Area

Q.—What is the formula connecting stature (sole-vertex length and surface (skin) area in a normal human being? Would it be applicable to the foetus with expectation of trustworthy result? Could such surface-length formula be correlated with that for right-cylindrical-surface area = $2\pi R \cdot L$, where R = radius of base and L = length?

A.—For a spherical body, taking L to represent any linear dimension and W to represent the weight, we can write surface area (S.A.) = $k_1 L^2$ and $W = k_2 L^3$, whence $S.A. = K \sqrt{W}$. But this is no satisfactory formula connecting sole-vertex length and S.

the human being. "Normal" human beings are of very different builds and definite body types are recognized. A tall thin man and tall robust man have very different S.A.s, but both men are "normal" for particular body types. Delafield Du Bois attempted to overcome these difficulties by introducing the so-called "linear formula," which treats separate parts of the body as approximations to cylinders. Lengths and circumferences of different parts are measured and the areas calculated. The sum of the separate areas of the parts gives the surface area of the body. The error, as judged by comparison with direct measurement of S.A., is $\pm 2\%$ in cases which included a baby, a tall thin man, and "a short, almost lobular, woman."

The better-known formula of E. Du Bois— $S.A. = W^{0.725} \times H^{0.725}$ —takes different body builds into account by making an allowance for weight. The simplest formula relating S.A. and otheromatic measurements is that suggested by Meeh— $S.A. = 12.3 \times \sqrt{W}$, although more recent authorities regard the constant as being too high. Using Dreyer's formula, which relates W to trunk length, $V = 0.38025 \times 0.319 \sqrt{L}$, where L = trunk length, S.A. can be related to trunk length. For the foetus, Lissauer's modification of the Meeh formula is $S.A. = 10.3 \times \sqrt{W}$, and Scammon gives $W = (0.26L)^{1.034}$, where W = weight (g.) and L = crown-heel length (cm.). L can also be estimated according to the age of the foetus from $T = 2.3 + \frac{2.5L}{78}$, where T = menstrual age in lunar months. The Du Bois height-weight formula is usually taken to be applicable to the foetus. No simple application of the right-cylinder formula would be applicable except in the way used by D. Du Bois, once differentiation of form had commenced in the foetus.

I. Sandiford (*J. biol. Chem.*, 1924, 62, 323) gives useful graphs relating age, height, length, and S.A. for the foetus, and J. Needham (*Chemical Embryology*, Vol. I, Part III) gives much information about the rate of growth.

Umbilical Hernia

Q.—I have been perturbed in my midwifery practice by the apparently high incidence of umbilical hernia in the newborn. An unhelpful reference in a textbook to "errors in technique of dealing with the cord" has only served to worry me further. Is there any reason to suppose that umbilical hernia may be prevented by killed handling of the cord? If so, what are the principles to be followed?

A.—When every care is taken to avoid traction on the cord during the birth of a child and during the time of ligation before dividing the cord, it is still not uncommon to find umbilical hernia occurring when the infants are examined either before departure from hospital or a week or two later, when the mother reports for post-natal examination. There would seem, therefore, to be a considerable incidence of hernia irrespective of the care used at birth. Most of these cases, however, can be satisfactorily treated if from the earliest days any attempt at protrusion of the umbilical stump is overcome by padding a penny and using it as a splint. It can be kept in place by adhesive tape or a binder.

Koilonychia

Q.—A woman aged 45 has had atrophic hollowed nails for the past year. What are the aetiology and treatment of this condition?

A.—The commonest cause of atrophic hollow nails (koilonychia or spoon nails) in a female of 45 is iron deficiency. This will probably be associated with other signs of iron deficiency, such as hypochromic anaemia, angular stomatitis, glossitis, or dysphagia. The predisposing cause may be menorrhagia, and gross lesions such as ibroids should be excluded. Treatment is by iron by mouth—e.g., *ab. ferri sulph.* gr. 3 t.d.s., p.c., or *mist. ferri et ammon. cit.* N.W.F., 1/2 oz., q.d.s., p.c. Koilonychia is always aggravated by manual work, and it may occur as an occupational disease unassociated with iron deficiency in those who handle strong acids and alkalis, chemical glues, etc. A rare familial and hereditary form of koilonychia has also been described.

Sulphonamides for Bronchiectasis

Q.—Has sulphonamide therapy been of any value in the treatment of bronchiectasis—or alternatively the use of autogenous vaccine? One case which has prompted this question has typical sputum showing a mixed flora of *Micrococcus catarrhalis*, *diphtheroids*, and scanty *streptococci* and *pneumococci*. Operation cannot be considered.

A.—Whether bronchiectasis can be alleviated by any such measures depends on the nature of the lesion and in particular on whether the bronchial mucosa is intact or destroyed. In advanced sacular bronchiectasis with cavities lined only by granulation tissue it is obviously hopeless to expect that efforts to eliminate infection will have any permanent effect. "Typical" sputum in this form of the disease is purulent, liquid, and usually foul-smelling, with a mixed flora, including anaerobes. In the type with an intact mucosa it consists

of muco-pus which is not offensive, and usually contains only a single micro-organism—often *H. influenzae*—in significant numbers. It is not clear from the question to which category this case belongs, or what significance to attach to the sputum findings.

The sulphonamide treatment of chronic infections is in general less satisfactory than that of acute, but a course of, for example, sulphadiazine (1 g. 5 times daily for a week) would be worth trying if the organism mainly responsible were of a susceptible species, such as a pneumococcus. The possible success of an autogenous vaccine is also conditional on identifying a causative organism from which it can suitably be made, and from the information given any decision made on this point in this case would appear to be dubious.

Insulin Lipodystrophy

Q.—What is the cause of insulin lipodystrophy? How can it be prevented? I have two patients under treatment who have developed it. Both are severe diabetics. One is a girl aged 15 who has developed it both with soluble and zinc-protamine insulin. The other is a woman aged 45 who is having injections of soluble insulin.

A.—The exact cause of insulin lipodystrophy is not known. Clinical observation relates it to the giving of many injections of insulin in one small area. This, however, is a common practice in diabetics, and only a minority of those who indulge in it get this trouble. There must therefore be another factor in the matter making for sensitivity. It does appear now quite clear that infection and preservatives do not enter into the question, nor does the purity of the insulin, because it has been observed in crystalline insulin solutions. There is, however, an impression that it is less frequent with protamine insulin than with ordinary insulin. If no further injections are given anywhere near the affected area it can be expected that in two to four years the condition will disappear. In the management of the case, therefore, the physician should draw up a map of the body, and he should indicate on it the situations where insulin should be injected on the different days (remembering that insulin can be injected into any part of the body that is not covered with hair). No injections should be put anywhere near the affected part.

Greatest Age of Conception

Q.—What is the greatest recorded age at which conception has taken place? Does the law accept a limit to the child-bearing age?

A.—W. A. Brend notes that many instances are reported of delivery in women over 50 years of age, some of whom have ceased menstruating several years before conception. He cites from Depasse the case of a woman who ceased to menstruate at 50 and gave birth to a healthy child at 59. More or less well authenticated instances of parturition at 60 or over are, he says, on record. Gilbertson (*B.M.J.*, 1917, 1, 378) recorded the case of a woman whose last child was born when she was 50 years and 7 months old. Kennedy (*Edinb. med. J.*, 1882) recorded a case in which a woman gave birth to her twenty-second child when she was 63 years old, after which she still continued to menstruate. A case in which pregnancy and abortion in a woman of 55 gave rise to serious trouble is recorded in the *B.M.J.*, 1903, 2, 325.

No limit to the child-bearing age is known in English law, but if the question arises it is treated as a matter of fact to be proved by medical and other evidence. Conveyances, however, often include in settlements a condition implying that a woman whose interest in property would pass to her offspring shall be considered infertile on reaching the age of 50. The age, until a short time ago, used to be 54; doubtless experience showed 50 to be quite safe. If such interests, vested in a woman under a settlement, are unduly hindering the potential interests of persons in whom they would vest if she had no children, and the settlement contains no such condition, the court will sometimes make an appropriate order, but only with the consent of all the interested parties.

Paul-Bunnell Test in Infectious Mononucleosis

Q.—What is the Paul-Bunnell test? And what is its rationale? At what stage in infectious mononucleosis should it be applied, and what reliance should be placed upon it? Is there any evidence that infectious mononucleosis is commoner than formerly?

A.—1. The Paul-Bunnell test depends on the presence in the serum of patients with infectious mononucleosis of agglutinins for sheep red blood cells. For the test, 2 to 3 c.m. of the patient's blood is withdrawn, the serum is separated, mixed in falling dilutions with a 2% suspension of sheep blood cells (preferably a week old), incubated at 37° C. for 2 hours, and the result is read after standing overnight at room temperature or in the refrigerator.

2. These agglutinins come into the category of heterophil antibody—that is, they are evoked not by sheep cells but by the causal agent, presumably a virus, of glandular fever. This apparent anomaly is similar to the phenomenon, first described by Forssman, of the production of antibody to sheep cells by injection of guinea-pig organs into a rabbit.

3. The reaction becomes positive about the end of the first week of infection, but may be delayed till the third week or later. As a

rule it becomes negative fairly early in convalescence. As some normal sera give positive reactions in low dilutions, it is essential to establish the diagnostic titre (usually 1/50 to 1/100) with the particular technique used. False-positive reactions may also result from the injection of foreign protein. Now, many cases, because of the exudate on the throat, are diagnosed as diphtheria and given antitoxin. If the Paul-Bunnell test is done 7 to 10 days later a positive reaction may be due to the injection of the horse serum. Fortunately these false-positive agglutinins can be removed by absorption of the serum with an emulsion of guinea-pig kidney, which leaves the true agglutinins unaffected. Most cases of glandular fever with a typical blood picture (leucocytosis of 12,000 to 18,000 white blood cells, with 50 to 70% abnormal mononuclear cells) have a positive Paul-Bunnell reaction, but other clinically similar syndromes with a lymphocytosis fail to give a positive reaction.

4. There has been an increased incidence of glandular fever since the war, presumably because of the opportunities for spread among susceptible young adults brought together in the Services. Many cases are misdiagnosed—those with a rash as rubella or scarlet fever or paratyphoid; the more common anginous type with throat exudate as diphtheria.

INCOME TAX

Purchase of Remainder of Practice

G. M. bought his former partner's half-share in May, 1942, and became sole proprietor of the practice from that date. He is advised to claim "cessation and recommencement." What difference will that make to his liability to tax?

* On whatever basis he is assessed, G. M. is liable to account for tax on the whole income of the practice as from May, 1942. If he does not claim cessation the basis of assessment will remain unaltered—i.e., it will be the amount of the profits of the practice (not of his share only) for the previous year. If he does claim cessation, he will be treated as starting a new practice as from May, 1942, and will pay on the basis of the actual earnings of the period to April 5, 1943, and, for 1943-4 and 1944-5, on the amount of the profits for the year to May, 1943. (He has, however, a right to have the assessments reduced to the actual profits if they should be less.) It will be seen, therefore, that "cessation" will be beneficial if the profits of the practice tend downwards (e.g., because of increased expense for assistance) and the adverse if the profits rise after May, 1942.

Life Assurance—Wife's Interest

D. H. inquires as to the effect of a whole-life policy on death duties—(a) if the benefit of the policy remains in his estate, and (b) if it is made over to his wife.

* It has to be remembered that a life policy grows in value from year to year, and that value belongs to someone—e.g., in this sort of case either to the husband or to the wife. If the individual to whom it belongs dies, the value at that date (the "surrender value" in the case of the wife) forms part of the deceased's estate and is accordingly liable to carry death duty. D. H. should decide whether he wishes his wife to own the benefits of the policy. If he does he can either have the policy drawn up to provide for that or "assign" the policy to her. Either of these methods is preferable to giving her the money with which to pay the premiums, because the last-mentioned procedure lacks the definite legality and clearness which the other methods provide. In short, life assurance is a method of saving money. The money so saved creates an asset, and when the owner of that asset dies it is part of his or her estate. The income-tax allowance would not be affected by assignment to the wife or by payment of the premium by her.

Payment for Wife's Services

R. S. pays his wife £50 per annum for secretarial work in connexion with the practice. The inspector of taxes declines to agree to a deduction of more than £26.

* An inspector of taxes is not entitled to say that some expenses are greater than they need have been, and if the payment of £50 is made bona fide for secretarial work the whole amount is allowable. On the other hand, however, if the £50 is clearly excessive for the value of the services rendered—which is presumably not the case—our correspondent might be well advised to compromise rather than take the point to appeal before the Commissioners.

J. R. pays his wife £80 a year for assistance as secretary, etc. What relief is the result?

* The £80 can be deducted as an expense of the practice, thereby reducing the assessment on the profits by that amount. No tax is due from the wife as the amount is covered by the special allowance for wife's earnings. If the payment had been £100, the profits would have been reduced by £100, and the wife's income would have been liable to tax on £100—1/10 of £100=£90, less £80—i.e., on £10.

LETTERS, NOTES, ETC.

Nail Trephining

Surg. Lieut. J. W. HALL writes: Dr. H. M. L. Murray (Oct. 2, p. 527) describes trephining the nail in cases of subungual haematoma by an ordinary twist drill. Even this instrument has a simple modification which is most successful in subungual haematoma and subcuticular whitlow. A short length of stiff wire filed to a point is heated to red heat and rested perpendicularly upon the nail. A sensation of apprehension at the cloud of smoke is all the patient need suffer if the wire is removed as soon as the nail is pierced. The release of blood or pus is as spectacular as it is gratifying. I claim no originality for this advance in surgery, as I first saw it performed by a Naval colleague who had the opportunity to perfect the instrument by the facilities offered by one of H.M. Dockyards.

Resuscitation by Rocking

Dr. A. R. NELIGAN (2nd Worcs. Home Guard) writes: There is a similar but simpler and cheaper gadget than Major Bowma's Edgar's (July 24, p. 119) which works well. Lengths of 1 in. are cut from 1½-in. angle iron (many could be got from the frame of an old bedstead). Two are screwed under each pole of the Army stretcher about 3/4 in. on either side of the centre, angles toward the handles. It would be easy to fit these stops to a number of stretchers, or at any rate to have them at hand, cut and drilled. This is important when dealing with several cases at the same time—on board ship, for instance, as Dr. Keevil points out (Aug. 7, p. 179). An orderly made them for us, as well as a very good trestle from old 1-in. water-piping; but this is a luxury for teaching purposes. We can use our stretchers anywhere.

Dr. W. ST. AUBYN HUBBARD, of Mylor Bridge, Falmouth, writes to say that after reading Dr. F. C. Eve's last article in the *Journal* he had a stretcher and folding trestle constructed with a few special features. The rocking stretcher is only 7 ft. long, thus avoiding high trestle and making it more convenient for transport. It has a bandaged figure in the Schäfer position outlined on the balloon fabric used instead of canvas. It has small cleats underneath which make it easy to bind the patient quickly and securely without knots or to sling the stretcher from the near-side handles of a car. The whole apparatus can be made for about £3 by any competent carpenter. Instructions should be placed near the quays, stressing the importance of using the Schäfer method until the stretcher arrives and the patient is actually upon it. Dr. Hubbard also suggests the similar small boat-cleats beneath the poles of Army stretchers would prove a godsend to stretcher-bearers and R.A.M.C. personnel in forward areas. Stretcher-bearers under fire have no time to lose and a quick method of securing casualties to the stretcher may save lives, especially when the carry is over rocky country.

Tossing the Needle

Dr. ALASTAIR BAIN (Upminster, Essex) describes the insertion of a hypodermic needle in such a way as to cause a minimum of pain. He writes: The syringe is duly loaded and with needle attached is held as in the correct method for throwing a dart in the game known as darts. The range is about three inches, but the syringe hardly leaves the hand. In other words the hand follows through and the syringe is thrown like a dart at the target area. The patient like it, preferring it to the more orthodox method of pressing in the needle, stretching the skin at the same time. In the method here described it is desirable but not necessary to stretch the skin with the left hand. The idea—which is, no doubt, not new—was suggested to me by the technique of Dr. Katz, who recently acted as locum tenens for me. When I came home a patient told me that Dr. Katz actually tossed the needle at her for a hypodermic injection, then attached the syringe to the needle. I have not tried this mainly because I like to have the needle attached beforehand, but the patient fully approved of the method of Dr. Katz.

Retrieving Foreign Bodies

Dr. W. E. McCULLOCH (Kingston, Jamaica) writes: Dr. Richard Fawcitt's memorandum on the cotton-wool sandwich (March 21, p. 352) prompts me to send you this note. My practice has been to make the cotton-wool more palatable by mixing it with a generous portion of butter. It is more easily swallowed that way, and is great advantage with children. It is astonishing how few houses have cotton-wool available at an emergency. In the case of my own nephew, who had swallowed a carpet tack, a reel of cotton thread cut into two-inch lengths and well mixed with butter was passed in twenty-four hours as a bolt in the centre of which was the tack. The most curious accident in my experience was that of a female patient who had put a pin in her mouth when she prepared for examination. An ungentle thumb on a pathological gall-bladder caused a sharp intake of breath and pin. Cotton-wool, butter, an entire confidence reassured the patient and she brought me the cocoon of the pin two days later.

THE TREATMENT OF SCIATICA

AN ESSAY IN DEBUNKING

BY

Sir ARTHUR HURST, D.M., F.R.C.P.

Consulting Physician to Guy's Hospital

"The best time to be called to a case of sciatica is when the patient is beginning to get well."—HALE-WHITE, 1917.

"Heaven help the unsuspecting individual who wanders into orthopaedic out-patients these days and admits having sciatica."—ANONYMOUS SURGEON, quoted by Campbell Golding, 1939.

What is Sciatica?

By sciatica is meant pain in the distribution of the sciatic nerve. It was formerly thought to be almost invariably caused by inflammation of the perineural sheath and interstitial tissue of the sciatic nerve, except for a small number of cases of referred pain from disease of the hip-joint. Later, inflammation of the nerve roots was regarded as equally common. Many neurologists still believe neuritis and radiculitis to be the most frequent cause. Since Love in 1939 described how protrusion of the nucleus pulposus of the fourth and fifth lumbar intervertebral disk causes sciatica by exerting pressure on the fifth lumbar or first sacral nerve root, all neurosurgeons and some neurologists consider this to be a common condition and true neuritis and radiculitis to be rare. Symonds (1942, 1943), for example, recently stated that his experience with Service patients has convinced him that prolapsed disk is by far the most frequent cause, and he is unaware of any pathological evidence that true sciatic neuritis ever gives rise to sciatica. "The vision of an inflamed and swollen sciatic nerve so confidently stated to be the cause of the syndrome in question has never yet been granted to human eyes." It is somewhat surprising to read in an Army Medical Bulletin published in Oct., 1942, that fibrositis is the commonest cause of sciatica. According to Good (1942) the pain in the vast majority of cases, both in soldiers and in civilians, is referred from disease of the quadratus lumborum, glutei, and tensor fasciae latae muscles; it very rarely arises in the roots or trunks of the sciatic nerve.

The most recent theory concerning the pathogenesis of sciatica is that of an ex-president of the British Orthopaedic Association, who has expressed his conviction that spinal arthritis is by far the commonest cause (Bankart, 1943). Like Good, he does not even mention intervertebral disk prolapse as a possible alternative. He believes that the inflammation spreads from the joints to the spinal nerves in the intervertebral foramina and so causes neuritis. In his experience most cases respond to heat, massage, and exercises with or without manipulation, but persistent or recurrent pain calls for removal of the lateral intervertebral joints, an operation which "rarely, if ever, fails to cure the sciatica."

It is difficult to reconcile these divergent views, but a review of some of the many forms of treatment which have in turn been popular during the last 50 years suggests the likely explanation.

Treatment of Sciatica, 1901 to 1943

"For immediate relief the deep injection of morphine over the nerve is the most effectual treatment. Not infrequently we see suffering which has been almost intolerable thus removed as by magic, within a few minutes" (Fagge and Pye-Smith 1901). After mentioning this treatment, and also the injection of chloroform into the nerve, Osler (1912) adds: "It is remarkable how promptly, in some cases, the injection of distilled water will relieve the pain." Osler also advised a trial of acupuncture: "the needle should be thrust deeply into the most painful spot for a distance of about two inches, and left for from 15 to 20 minutes." This treatment is still sometimes used. Walshe (1941) writes that "acupuncture of the nerve with a series of specially designed needles is a useful and ancient remedy which acts by puncturing the sheath of the nerve and allowing the escape of inflammatory exudation."

A popular treatment in the early 'twenties was injection into the nerve trunk of 50 to 80 c.cm. of normal saline solution. The effect of this, according to Wilfred Harris (1926), was "to cause it to swell up in an egg-shaped form, separating the nerve bundles and bursting asunder laterally any adhesions that have been formed." Soon it became apparent that equally good results were obtained when the nerve root was missed and the saline solution was injected somewhere in its neighbourhood, when there could be no question of breaking down adhesions.

I do not know who first suggested substituting oxygen for saline solution, but this treatment was widely practised for a few years. Kinnier Wilson in his *Neurology* (1940) ascribed the benefit which followed to the provision of "a sort of air cushion for the inflamed nerve"—a quaint variation from the earlier notions about breaking down adhesions.

In 1930 William Evans reported the results of treating 40 cases of "primary, idiopathic, essential sciatica" by the intrasacral injection of about 80 c.cm. of fluid into the epidural space. As normal saline solution was as effective as novocain, and as pain was often experienced in the course of the nerve during the injection, it was presumed that it acted by stretching the nerve roots; and this was found to occur by experiment on the cadaver. Complete relief was obtained in 60% of cases and considerable benefit in 13%. For a time this method was widely used, but as it was more difficult to carry out without being any more effective, it was gradually replaced to a great extent by the older methods of injecting in or near the nerve trunk.

Good (1942), believing that the origin of the pain in sciatica is almost always muscular, states that he obtained permanent relief almost instantaneously by injecting procaine into each "myalgic area" in all but one of 65 cases, the one exception being not unnaturally assumed to be a malingerer. In striking contrast with Good's claims of permanent recovery following injection, Hyndman, Steindler, and Wolkin (1943), who were apparently unaware of his work, published results which seem to prove that his success must have been the effect of

suggestion and of nothing else. "Out of the fog of ignorance which has hung for so long over the subject," they write, it has become clear that all cases are due either to direct pressure by a herniated intervertebral disk or to a reflex neuralgia from a small well-localized painful area in the fibrous tissue of the lower part of the back. Apparently every case of disk pressure was subjected to operation, as there is no mention of any alternative treatment, and the possibility of spontaneous recovery with rest is not mentioned. In the fibrositic cases injection of procaine into the tender focus completely abolished both local and radiating pain. *"The patient was warned that with the wearing off of the procaine effect in from several hours to several days the pain, both local and radiating, would return worse than ever. Having enjoyed a brief spell of complete relief, he keenly resented the return of his complaint."* Treatment by immobilization (traction, plaster, brace, cast, and occasionally operative), hot packs, massage, cathartics, and aspirin then led to gradual recovery.

Soldiers are even more easily suggestible than ordinary people, so that when they are sent to "the man who cures sciatica" they have their minds well prepared for his particular form of suggestion therapy. As Good finds myalgic points in 100% of soldiers with sciatica it is obvious that he must produce them by unconscious suggestion in at least 50%—a minimum estimate of the proportion caused by pressure on the roots or inflammation of the trunk of the sciatic nerve. Having suggested a myalgic point it is immaterial how he suggests it away, and an injection of novocain is as good a method as any other, although no doubt an injection of morphine, saline solution, air, or nothing at all would do equally well so long as there is a prick, as with the older forms of unconscious suggestion therapy by injection into or near the trunk or roots of the sciatic nerve. It is inconceivable that the analgesic effect of novocain could have any direct action, because the anaesthesia it produces is very evanescent, as Hyndman and his colleagues' patients found to their cost, and it could not influence the inflammation or other changes in the tissues which are supposed to produce the myalgic spots. The whole story is reminiscent of Babinski's method of curing hysterical paralysis. He had proved by a long series of investigations that hysterical anaesthesia is always the result of unconscious suggestion by the observer, and had no difficulty in inducing cutaneous anaesthesia in the paralysed limb by gross suggestion. He then cured the hysterical anaesthesia by painful faradism, at the same time suggesting that the associated paralysis would disappear, which it invariably did.

Hugh Wingfield, who had a great reputation for his success as a hypnotist about 25 years ago, invented a treatment of sciatica, a description of which was published in 1917 by Sainsbury, as Wingfield was too modest to do so himself. The treatment consisted in painting the skin over the course of the sciatic nerve with fuming hydrochloric acid; the skin was left uncovered till the fluid had completely evaporated. Although it would burn a hole in linen, it produced little or no irritation of the skin, so did not act by counterirritation. Wingfield obtained uniformly satisfactory results even in the most chronic cases, and Sainsbury also was much impressed with its value. I used it a number of times myself, and there was no doubt it often led to the rapid disappearance of the pain. The cases were so unpleasant that one had to protect one's eyes and nose during the application, and I have little doubt that the psychological effect of having the fuming fluid applied to the painful area was the cause of the success of the treatment.

Rational Treatment of Sciatica

Civilians engaged in hard manual labour and soldiers ought to be particularly easy to cure, because they are unable to carry on with their duties from the first day of an acute attack and so seek medical help at the earliest possible moment, just when treatment by rest gives the best results. Rest in bed from the onset of symptoms leads to rapid improvement, and often to complete recovery in two, three, or four weeks. Complete immobilization by splint or plaster is not often required, as the patient keeps sufficiently quiet and is far more comfortable if allowed to choose his position and vary it slightly from time to time. In exceptionally severe cases, however, fixation by means of a plaster spica, as "advocated

30 years ago by Hurst, is more successful than any other method" (Symonds, 1943). The patient should throughout be encouraged to expect rapid recovery, complete enough to allow a return to full duty within a fortnight of getting up. It will then be unnecessary to employ any of the forms of suggestion hitherto in use—injection into the nerve by the neurologist, the intervertebral space by the expert, or as near the nerve as he can get by the less expert, into the myalgic spots by those who believe in them, manipulation or a plaster case by two rival schools of orthopaedic surgeons, removal of herniated intervertebral disk by the neurosurgeon and of the lateral intervertebral joints by Bankart, or the application of fuming hydrochloric acid by the magician. Complete rest should be maintained until there has been no spontaneous pain for five days. The patient should then be given active movements in bed and should be allowed up a day or two later. At the same time any abnormality in his posture on standing and in his gait on walking should be promptly corrected by explanation, persuasion, and re-education. With such treatment very few patients will be unable to return to full duty within two months from the onset of symptoms. Without the simple psychotherapy involved in promoting the expectation of rapid recovery, followed by rapid rehabilitation, there is a great tendency for the pain and disability with the abnormal gait and posture to be perpetuated and exaggerated as a hysterical symptom. This is especially likely to occur in the Services, where a man may subconsciously see in his illness a way of escape from an uncongenial life to the comparative comfort and safety of home, and among civilian manual workers, who subconsciously see in it a holiday and possible financial benefit.

Hysterical sciatica, with the associated hysterical posture and gait, may last for weeks or months until it is ultimately cured by the gross suggestion unwittingly given by the believers in the various forms of treatment I have already discussed, helped in the soldier by discharge from the Army and in the civilian worker by a successful claim for compensation. It can also be cured by simple psychotherapy in the form of explanation, persuasion, and re-education when its hysterical nature is recognized—often with great rapidity, even in very long-standing cases, as we found in the many cases of the kind in soldiers which we treated at Seale Hayne Hospital during the last war.

It is important to remember that a diminished or lost ankle-jerk and wasting may persist long after the complete disappearance of active disease. Their presence does not therefore indicate that persistent pain is due to organic disease, although it shows that organic disease must have at one time been present.

The few patients who do not get well after a month of complete rest in bed are among those who give a history and show physical signs of root pressure. A further period of complete rest may still lead to recovery, but if there has been little or no improvement they should be referred without further delay to a neurosurgeon, who will cure them by removal of the herniated intervertebral disk. Pennybacker (1942, 1943), who has verified the lesion at operation in over 150 cases in the past three and a half years, believes that the clinical syndrome of prolapsed disk is characteristic enough for a diagnosis to be made without recourse to lipiodol injections, which may set up a troublesome irritant reaction in the theca. All cases are probably traumatic in origin, but the injury may be trivial and no more than a strain. This is followed by low back pain, often diagnosed as lumbago, which may be severe or nothing more than slight discomfort. The incident is often forgotten, and not related by the patient to the subsequent sciatica; and, as Pennybacker points out, even in cases in which the sciatica follows close on the lumbago, the memory of the latter may be swamped in the more severe existing sciatic pain.

Symonds is convinced that, so far as Service patients are concerned, operation, even in the best hands, has proved so unsuccessful in getting men back to duty that a prolonged period of immobility should be advised, and when this fails to render a man fit for duty within a reasonable time he should be invalided. On the other hand, from my limited experience I have no doubt that, in severe cases in which complete rest has failed to cure, the results of operation are very satisfactory, as the patient obtains immediate relief from pain and is soon able to return to full activity. It is, however, just as important after operation as during treatment by rest to encourage the

patient to believe that his recovery will be rapid and complete, as there is a considerable tendency for a minor degree of pain or weakness to persist as a hysterical condition after the organic cause has been removed. This is especially likely to occur in patients who have already been disappointed at the failure to gain relief from prolonged treatment by rest, physiotherapy, and perhaps injections of one kind or another.

REFERENCES

- Bankart, A. S. B. (1943). *Proc. roy. Soc. Med.*, 36, 329.
 Evans, W. (1930). *Lancet*, 2, 1225.
 Fagge, C. H., and Pye-Smith, P. H. (1901). *Text-Book of Medicine*, 4th ed., p. 566, London.
 Good, M. G. (1942). *Lancet*, 2, 597.
 Harris, W. (1926). *Neuritis and Neuralgia*, p. 129, London.
 Hyndman, O. R., Steindler, A., and Wolkin, J. (1943). *J. Amer. med. Ass.*, 121, 390.
 Love, J. G. (1939). *Proc. roy. Soc. Med.*, 32, 1697.
 Osler, Sir W. (1912). *The Principles and Practice of Medicine*, 8th ed., p. 1063, London.
 Pennybacker, J. (1942). *Proc. roy. Soc. Med.*, 35, 510.
 (1943). Personal communication.
 Sainsbury, H. (1917). *Lancet*, 1, 911.
 Symonds, C. P. (1942). *Proc. roy. Soc. Med.*, 35, 511.
 — (1943). *Med. Ann.*, 61, 310.
 Walshe, F. M. R. (1941). In *Price's Text-Book of Medicine*, 6th ed., p. 1773, London.
 Wilson, S. A. Kinnier (1940). *Neurology*, 1, 362, London.

EFFECT OF PREGNANCY AND PARTURITION ON PULMONARY TUBERCULOSIS

BY

RAYMOND C. COHEN, M.D.Lond., D.P.H.

Deputy Medical Superintendent, Essex County Council Hospital,
Black Notley

A voluminous literature has not provided any clear decision on the vital question of the effect of pregnancy and parturition on the phthisical woman. From the middle of the nineteenth century there was an increasing tendency to regard pulmonary tuberculosis, even when quiescent or arrested, as an indication for therapeutic abortion, and, though more recently the pendulum has tended to adopt a neutral position, the fear of the effect of pregnancy on the tuberculous still leads to many such operations. Surely it is time our ideas on this subject should have crystallized out? Moreover, in the last 20 to 25 years improved methods of treatment, and the hard-won skill medicine has gained in applying them, call for reconsideration of therapy which was in danger of being decided by custom. I have had the opportunity of studying this problem from personal experience, and this paper records the results of pregnancy and labour in 100 consecutive cases which have been confined in Black Notley.

The Maternity Unit at Black Notley Sanatorium

In July, 1937, the Essex County Council, in building additional wards at their sanatorium at Black Notley, provided a small maternity unit attached to one of the pulmonary wards. This was designed for the supervision and treatment of pregnant tuberculous women. Much of the success of this novel venture has been due to the advice and guidance of the late Dr. W. Burton Wood, consultant physician to the Essex County Council, whose clinical experience, and help in the solution of problems new to sanatorium administration, have been invaluable.

Any woman resident in the county of Essex who suffers or has suffered from pulmonary tuberculosis is eligible for admission. A number of cases of non-pulmonary tuberculosis have also been confined in this unit, but they are not included in this paper. As a general rule, quiescent cases are admitted 6 to 8 weeks before confinement, but a woman suffering from active disease would of course be admitted as soon as possible after the diagnosis of tuberculosis was made, and retained for treatment as indicated after the labour. A follow-up has not yet been made of the babies born, and this paper is concerned only with the effect on the mother; but it may be said here

that none of the offspring revealed any evidence of tuberculous infection; neither has it yet been reported that any child subsequently developed tuberculosis, with the exception of one who was admitted to the sanatorium at the age of 2½ years suffering from tuberculous cervical glands.

Management of Cases

As regards the management of the expectant mothers, quiescent cases are encouraged to live what one may term an active sanatorium life—i.e., to walk up to two miles daily and perform the little daily tasks which form part of the normal life of such cases in a sanatorium. Progressive cases are managed in accordance with the extent and activity of their pulmonary disease, and on the usual sanatorium lines, including, where necessary, active treatment such as collapse therapy. During labour forceps are not applied as a routine in the second stage, as has been advocated, but only when a definite indication exists. As a general rule, however, no woman was allowed to go more than two hours in the second stage without their use being considered, and if there were signs of maternal fatigue without satisfactory advance of the head they would be applied. For anaesthesia, Minnitt's gas-and-oxygen apparatus is used for normal labours, and chloroform or gas-and-oxygen for any manipulation.

It was found that an artificial pneumothorax did not cause any embarrassment to the mother during labour; neither was it ever necessary to give a refill immediately after labour in order to compensate for the alleged fall in intrapleural pressures which has been thought to occur as a result of the descent of the diaphragm.

It must be emphasized that the results here reported are obtained under sanatorium conditions and only the immediate effects of the pregnancy and labour are available, but it is these which have so often been cited as the dangerous results of pregnancy.

The cases have been divided into three groups: (1) *arrested and recovered cases*—those in which there has been no clinical or radiological evidence of active disease for over two years; (2) *quiescent cases*—those in which the disease appeared to be quiescent on their admission to hospital for confinement; (3) *progressive cases*—those in which there was clinical or radiological evidence of active disease on admission to hospital for confinement.

Results

Any sign of retrogression, however slight, revealed by laboratory or x-ray examination has been accepted for the present purpose as being due to the pregnancy and labour, and, including all such cases, the results may be summarized thus:

TABLE I

Class of Case	No. of Cases	No. showing Retrogression
Arrested and recovered ..	46	3
Quiescent ..	22	2
Progressive ..	32	7
Totals ..	100	12

Increased pulmonary disease was observed in 7 out of 25 progressive cases, but only in 5 out of 75 quiescent, arrested, or recovered cases. The latter is probably no higher a proportion of breakdowns than might be expected to occur in 75 women of similar phthisical history and age group. Further, it would be misleading to assume that these figures indicate that the actively tuberculous show a significantly worse effect than the quiescent cases, as there is no reason to assume that the disease in the former would not pursue its steady and relentless course.

The following points were also brought out by study of the case histories:

1. Of the 3 "arrested and recovered" cases which retrogressed 2 subsequently improved; of the 2 "quiescent" cases 1 improved; and of the 7 "progressive" cases 2 improved.
2. The 12 cases which appeared to suffer as a result of pregnancy and labour all had normal labours. On the other hand the 23 cases which had forceps applied or other intra-uterine manipulations did not appear to suffer as a result.

3. Only 2 women had premature labours: in one of these the pulmonary disease was "recovered," and in the other "progressive."

4. The influence of age and previous pregnancies cannot properly be assessed on only 100 cases, but Table II summarizes the facts available, considering the cases which retrogressed:

TABLE II

	Arrested and Recovered Cases		Quiescent Cases		Progressive Cases		All Cases
	Under 30	Over 30	Under 30	Over 30	Under 30	Over 30	
Primiparae	2	1	2	0	1	2	8
Multiparae	0	0	0	0	3	1	4

Two-thirds of the patients showing retrogression were under 30 years of age, and two-thirds were primiparae. This does not support DuBois' famous remark: "If a woman threatened with phthisis marries she may bear the first accouchement well, a second with difficulty, a third never." The primipara has not had repeated pregnancies to threaten her general health; on the other hand, she is usually younger and in an age group which has a less favourable prognosis for her tuberculous condition than that of the average multipara. It seems probable that this is a more important factor than the number of babies she may bear.

Conclusions

The deductions based on this study of 100 cases of pulmonary tuberculosis complicated by pregnancy are probably accurate for cases of similar social circumstances. It is recognized that much larger figures must be produced before anything approaching statistical accuracy can be reached. None the less, enough experience has been gained to establish certain well-defined clinical impressions, and I have come to these conclusions:

1. Pregnancy and labour *per se* rarely exert any harmful effect on the progress of a woman known to have suffered from pulmonary tuberculosis.

2. It follows that therapeutic abortion is not a procedure to be resorted to simply because a woman is known to have suffered from pulmonary tuberculosis.

3. Active pulmonary disease is seldom accelerated by pregnancy and labour, and I have found that in such cases, treated under favourable conditions, pregnancy has been little more than an incident in their tuberculous career.

With these conclusions in mind, it is possible to counsel the tuberculous woman with greater confidence on the advisability of pregnancy or on the desirability of its termination if already established. It is not meant to imply that a woman suffering from active pulmonary tuberculosis should be encouraged to become pregnant; and there are, of course, other factors to be considered. In the above I have been considering the later stages of pregnancy and confinement supervised in a fully equipped sanatorium, and I am well aware that other considerations may have to be taken into account. There is the immediate and grave risk of infection to which the offspring may be exposed; there is the additional work, there are the disturbed nights, and sometimes the financial strain which may be imposed on the mother; and it may be distressing to a woman with advanced phthisis to endure the added discomforts and fears incidental to pregnancy. In some cases of advanced or very active disease the extra strain of pregnancy might be a precipitating factor to determine a devastating breakdown, and in such cases, if seen early enough in pregnancy, therapeutic abortion should be considered. On the whole, however, this investigation, though limited in numbers, indicates that so long as the tuberculous woman is placed under favourable conditions the risk of pregnancy to her progress has been exaggerated, and in the majority of cases it may safely be allowed to proceed to term.

I wish to express my appreciation of encouragement given by the late Dr. W. Burton Wood in the preparation of this paper, and my thanks to Dr. W. A. Bullough, County Medical Officer, and Dr. M. C. Wilkinson, Medical Superintendent, for permission to publish the results; and particularly to Mr. Alan Brews for his generously given advice and help in obstetrical problems.

DIFFERENTIAL DIAGNOSIS OF CHRONIC SCIATIC PAIN

A NOTE, WITH A SHORT ANALYSIS OF 100 RECENT CASES

BY

W. P. U. JACKSON, M.B., B.Ch., M.R.C.P.

Kellgren (1941) remarks that the term "sciatica" signifies a syndrome of deep pain and tenderness down the back of the leg and thigh, of varying distribution, and it is plain that this is a true statement of current usage. This being so, a diagnosis of "sciatica" without qualification is no more illuminating than a diagnosis of "abdominal pain." Three years ago Love (*Proc. roy. Soc. Med.*, 1939) made a similar remark, but nevertheless the term is still used as a complete and final diagnosis. An excellent War Office publication (*Army Medical Department Bulletin*, 1942) begins by calling for "a greater familiarity on the part of medical officers with the common causes of sciatica in the Army and of their corresponding clinical features."

Aetiological Analysis

Kellgren (1941) divides cases of sciatic pain into, first referred pain from fascial structures in the back or round the hip, including also bone and joint disease, which, he states accounts for three-quarters of all. The rest, except for occasional tumour or similar lesion, he believes to be cases of ruptured intervertebral disk. Bankart's topographical analysis presupposes direct involvement of the sciatic nerve, dividing cases into those with lesions of the cord, nerve roots, foramina trunks, lombo-sacral plexus, or peripheral nerve. Douthwaite (1933) divides cases into primary and secondary, and proceeds further to analyse primary ones into peripheral and central on clinical grounds which I find very difficult to follow. Symonds (*Proc. roy. Soc. Med.*, 1939, 1942) believes that the great majority of chronic cases are due to damaged disk whereas analysis by Henderson (*Proc. roy. Soc. Med.*, 1931) of a large series from the Mayo Clinic showed the disc syndrome in 2% of all cases of low back or sciatic pain. Goo (1943) claims that the vast majority (64 out of 65 consecutive cases!) arise as referred pain from "myalgic spots."

The cases here cited were all chronic or recurrent, most of which had been treated in several hospitals previously. The great majority were admitted to the neurological or neurosurgical unit of an E.M.S. hospital during 1942 as unselected cases of "sciatica" mostly from the Services and resistant to ordinary treatment elsewhere. They represent in general the mixed cases of chronic sciatic pain occurring in increasing number, especially in the Services. All cases were examined by at least two doctors while in hospital, and the final diagnosis was approved by Dr. W. Russell Brain or Mr. D. W. Northfield. I have divided this series as follows:

Diagnosis	Number
Doubtful	21
Fibrositis (local)	20
Ruptured intervertebral disk	18
Hysteria	10
Fibrositis and neurosis	8
Congenital bony abnormality	4
Fibrositis (generalized)	3
Sciatic neuritis	2
Malingering	2
Sacro-iliac strain	2
Lumbo-sacral strain	1
Spinal osteo-arthritis	1
Bony infection	1
Neoplasm of cauda equina	1
Polyradiculitis	1
Secondary carcinoma	1
Disseminated sclerosis	1
Spastic paraplegia (? aetiology)	1
	100

Of the doubtful cases, seven were probable but unproved damaged disk, and the rest were mostly seen in the later stages of a pain from which recovery was occurring and which gave insufficient evidence for a positive diagnosis. These included doubtful cases of zoster, radiculitis, sacro-iliac strain and fibrositis of the ligamentous strain type. There was a probable case of spinal arachnoiditis and one of thicker ligamentum flavum, in which no disk damage was discovered at operation. Others were obscure, and often so rendered superadded neurosis. The ruptured disk cases were all proved at operation.

The Importance of Neurosis

This aspect of the sciatica problem has been largely under-stressed. A knowledge of its frequency, mode of development, and clinical features is of paramount importance—in acute cases for prevention, and in chronic cases for recognition and prompt action. In the present series 10 cases were purely hysterical by the time we saw them. Eight cases of mild fibrositis had a gross overlay of neurosis, while the neurotic element was definitely present in a further 6 cases, classified here under the primary disease. Wilson (*Proc. roy. Soc. Med.*, 1942) also remarks upon the frequency with which neurosis occurs in "sciatica."

Symptoms and Signs

The various groups have been further analysed as regards their history and examination (Tables I and II).

stages, increasing the importance of early and thorough examination. One reason for this overlapping is the frequency with which the various aetiological factors are combined.

There may well be a history of injury to the back in cases other than those of damaged disk; nor is this even the usual thing in this condition (in this series, though Love and Walsh (1938) report such a history in 83%). Similarly, intermittence of the pain, though usual in the disk syndrome, is common throughout the series. Bilaterality of symptoms virtually excludes sciatic neuritis, but nothing else. Suddenness of onset seems more common with fibrositis, while the site of the first pain is more often the buttock in fibrositis and the low back in ruptured disks. Pain on coughing is usual in all groups. Sphincter disturbance, if not hysterical, points to a space-occupying lesion.

TABLE I.—Symptoms

Diagnosis	Onset		Injury to Back		Inability to Straighten Up	Site of Primary Pain								Coughing		Onset associated with Febrile Illness	Pain Bilateral	Pain Intermittent	Sphincter Disturbance	Occupation: Driver of Heavy Vehicle	
	Sudden	On Waking	Lifting	Other		Low Lumbar	Sacral	Buttock	Hip	Groin	Calf	Thigh	Ankle	Shoulders	Pain						No Pain
Doubtful	6		1	3	8	2	7				3			18	2	2	3	16 (6? disk)		6	
Fibrositis (focal)	2	1		3	3	2	10	1			2			14	4	2	4				
Ruptured intervertebral disk	1		1	3	9		1	1			2	1		9	2	2	2		1	1	
Hysteria	1	1		2	3		1	1	1		1			3	4	4	1				
Fibrositis + neurosis			1		2	3	1				2			6	2	2					
Congenital bony abnormality	1				1	1		2	1					3	1				1		
Fibrositis (generalized)				1	1	2								2							
Sciatic neuritis					2	1							2								
Malingering							1			1				3			1				
Sacro-iliac strain				1		2															
Lumbo-sacral strain	1		1		1		1							1			1				
Spastic paraplegia											1										
Spinal osteo-arthritis					1						1						1		1		
Caudal neoplasm											1						1				
Bony infection														1							
Polyradiculitis								1								1					
Secondary cancer											1										
Disseminated sclerosis												1									
Total	16	4	4	14	11	35	8	25	2	2	1	14	2	2	61	16	8	14	62	3	9

TABLE II.—Signs

Diagnosis	Weakness			Wasting			Sensory Manifestations		Complete Absence of Tenderness	Lachrym Test Negative	Ankle-jerk Diminished		Back Deformity		X-ray Abnormality		Cerebrospinal Fluid	
	Functional	Ankle Only	Gross	Total	Moderate	Gross	Including Quadriceps	Paresthesia			Anaesthesia	Unilateral	Bilateral	Scoliosis	Flattened Lumbar Curve	Total	Of Definite Diagnostic Value	Protein over 50 mg. per 100 c.c.m.	Other Findings
Doubtful	3	4		10	3		1	Both ? disks	5	5	3	6	1	4	3		6	One block at L 4-5
Fibrositis (local)		2		2				7	5				3	1			4	
Ruptured intervertebral disk		4		4	2	2	1	7	5			7	3	3				
Hysteria	6	1	1	6				2	1	1				1	1			
Fibrositis + neurosis	4	2		5				3	3			1	1	2				
Congenital bony abnormality				1				1	1	2	1		1	1	4		2	
Spondylolisthesis																		
Fibrositis (generalized)										1								
Sciatic neuritis		1	1	3	2	1			2		2			2			1	
Malingering																		
Sacro-iliac strain																		
Lumbo-sacral strain					1			1										
Spinal osteo-arthritis				1	1		1			1				1	1		1	
Bony infection				1	1		1			1				1	1			
Caudal neoplasm		1	1	1		1				1								
Polyradiculitis				1			1					1	1				10 lymphocytes	
Secondary carcinoma																	5 lymphocytes	
Disseminated sclerosis				1														
Spastic paraplegia									1									
Total	13	15	3	37	9	4	5	13	20	8	12	21	6	12	7	15	6	16
13																		
27																		

Notes based on the Tables

Overlapping.—The first thing which emerges from a consideration of a number of cases of sciatic pain is the realization of a complete absence of a single clear-cut group. The majority of all the symptoms and signs may occur in any group, and no one is pathognomonic. This overlapping is a cause of difficulty in the accurate diagnosis of the "sciaticas," and means that there must be a number of "doubtful" cases. The more characteristic signs are most likely to be present in the early

To be of real value true weakness or paresis must be at least moderate in degree, since, even allowing for the reluctance to move caused by pain, it seemed clear that uncomplicated fibrositis often produced evident, though never severe, weakness of the affected part, or even distant from this (e.g., eversion of the ankle in gluteal fibrositis). Such patients may show mild, but certain, wasting of the muscles involved, perhaps due to disuse in these cases of long standing. Paraesthesia and sensory loss occur only in direct involvement of the sciatic nerve or as hysterical phenomena. Postural loss in the toes was here

found in one patient only, who had a ruptured disk severe enough to produce almost complete spinal block.

Postural deformities of the back are non-specific, and Lasègue's test (straight leg raising) is valueless on its own in diagnosis, though useful in assessment of severity and progress. The result of the test should be compared with the patient's ability to touch his toes, and, in organic cases, these two will correspond. The foot plantar-flexion and dorsiflexion modifications of this test seem to be of no diagnostic value. A raised protein in the cerebrospinal fluid signifies an organic lesion, and is common in, but by no means confined to, cases of ruptured-disk. Symonds remarks that in any "long-standing sciatica" the protein may be raised to between 40 and 100 mg. per 100 c.cm.

Tendon Reflexes.—Diminution or absence of ankle-jerk is significant as indicating an organic lesion of the sciatic nerve. Bilateral absence or equal diminution may, however, be congenital or be due to coincident disease. Further, an absent ankle-jerk on one side is not necessarily evidence of present disease, since it may remain permanently depressed after an attack of sciatic neuritis from which recovery has otherwise been complete. In one case of doubtful aetiology, in fact, the reflex was absent on the side opposite from the pain, being brisk on the same side. Bilateral depression of the reflex usually indicates a space-occupying lesion (six cases in this series).

The Value of Straight Radiographs.—In this series abnormalities were revealed by radiographs of the lumbo-sacral region in 16 cases, but in only six were these considered of primary significance. There were included two cases of spondylolisthesis, three of unilateral sacralization of the fifth lumbar vertebra, one of bilateral sacralization with absent twelfth ribs, one spina bifida occulta, two of osteo-arthritis, and a further probable osteo-arthritis with an enormous osteophyte protruding from the body of the fifth lumbar vertebra. This osteophyte, however, and one of the sacralized vertebrae also were on the side opposite to the affected limb. Considerations of this sort must make one chary of accepting x-ray evidence as a diagnostic criterion *ex cathedra*.

A Type of Fibrositis.*—Some of the cases of fibrositis appeared to be associated at their onset with a febrile illness resembling influenza, in which aches and pains were felt first in the back (as is, of course, common in influenzal chills) or in the back and round the shoulders, and then, instead of going away in a few days, remained present, becoming chronic and recurrent. If significance is to be attached to these eight cases, then it would seem either that influenza or influenza-like illnesses should be added to the list of causal factors in fibrositis, or else that fibrositis itself may at its inception be a febrile illness.

Conclusion

Some people still consider "sciatica" synonymous with "sciatic neuritis," and then, calling all cases with pain in the back of the leg "sciatica," make these, *ipso facto*, cases of sciatic neuritis. It is generally agreed that "true sciatica" or sciatic neuritis is uncommon in young people. If there are signs of involvement of the sciatic nerve itself then a ruptured disk is more likely.

Ruptured intervertebral disk, fibrositis, and neurosis are the three states of greatest importance in the causation of chronic sciatica in young people; they correspond with the three types of sciatic pain—namely, neural, referred, and functional—into one of which latter groups all cases of sciatic pain should be placed as a preliminary step in accurate diagnosis.

I should like to thank Dr. Russell Brain and Mr. Northfield for their advice and permission to make use of the material supplied by their patients, and also Mr. R. L. Galloway, medical superintendent of Chase Farm Hospital, for his permission.

REFERENCES

- Army Medical Department Bulletin (1942). Oct., No. 16, War Office.
Douthwaite, A. H. (1933). *Treatment of Rheumatoid Arthritis and Sciatica*, H. K. Lewis, London.
Good, M. G. (1943). *Clin. J.*, 72, 66.
Kellgren, J. H. (1941). *Lancet*, 1, 561.
Love, J. G., and Walsh, M. N. (1938). *J. Amer. med. Ass.*, 111, 396.
Proc. roy. Soc. Med. (1939). 32, 1697.
(1942). 35, 505.

* Since this was written a somewhat similar suggestion has been made by Lieut.-Col. W. S. C. Copeman in an article in the *Journal* of Aug. 28, 1943, p. 263, which he has developed more fully.

THYMECTOMY FOR MYASTHENIA GRAVIS

BY

MAURICE NELLEN, M.R.C.P.

Medical Registrar, St. Mary's Hospital

The association of an enlarged, persistent, or cystic thymus gland with myasthenia gravis has long been known. The removal of a thymic cyst in a patient with myasthenia gravis was reported by Blalock *et al.* in 1939. The patient had been operated on four years before, and had apparently remained cured for that period. Since that report the operation of thymectomy for this disease has been performed, sometimes successfully, by different surgeons.

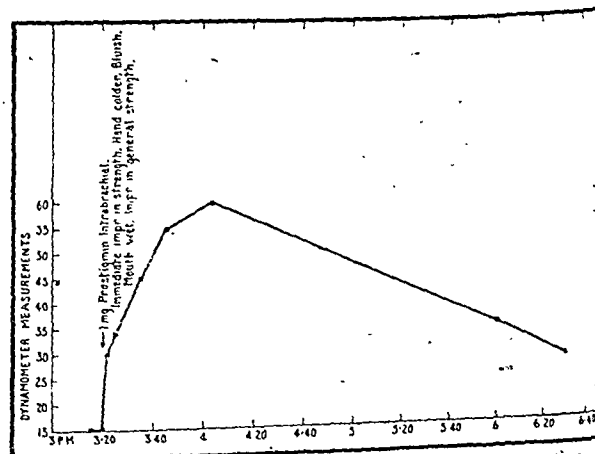
Blalock, Harvey, Ford, and Lilienthal (1941) recorded six cases of thymectomy for myasthenia gravis, with one post-operative death. Of the remaining five cases, three after a varying period were cured and needed no more prostigmin; two were improved but still needed prostigmin. More recently, in England, James Carson (1943), in a report on nine cases of thymectomy for myasthenia gravis, stated that three of these patients had died after operation; three had recovered and needed no prostigmin, and remained well for three, six and nine months after operation. Three showed no improvement. Russell Brain (1943) reported three cases of myasthenia gravis in which he had recommended thymectomy, but none of these cases had improved as a result of the operation.

Case Report

A nurse in a London hospital, aged 23, first attended Dr. Wilfred Harris's out-patient clinic at St. Mary's Hospital on May 19, 1942. She gave a history of having been quite well until the beginning of March, when, after a bad cold, she began to have difficulty in swallowing, nasal regurgitation of food, and diplopia. These symptoms were becoming progressively worse, and for the preceding two weeks she had noticed weakness in the arms as well. The symptoms were always worse at the end of the day.

Examination disclosed weakness of the soft palate and weakness of eye and lip movements. The patient had obvious ptosis and diplopia, and also a myasthenic facies. She was at once admitted to the wards, and responded dramatically to 2 mg. of prostigmin subcutaneously, being able to eat normally for the first time for two months. She could now close her mouth, whereas this was impossible before the injection. Her prostigmin requirements increased throughout the period of her first stay in hospital from two injections of 2 mg. a day to one injection of 2 mg. in the morning and 30 mg. by mouth four times a day. She was discharged on June 13 on this dosage.

She was readmitted on June 27 needing about the same amount of prostigmin, but her requirements rose from this time until, about two months later, she was receiving 225 mg. daily to control her



GRAPH 1.—Showing increase of strength of hand contraction after 1 mg. of prostigmin into brachial artery.

weakness. On July 2 1 mg. of prostigmin was injected into the patient's right brachial artery. This rapidly increased the strength of the right hand, which was maintained for over three hours. Graph 1 illustrates this increase of strength. F. R. Fraser *et al.* (1937-8) by injecting prostigmin into the femoral artery showed the resulting increase in strength in the limb. Harvey and Lilienthal (1941) found that if 0.5 to 1 mg. of prostigmin is injected into the

brachial artery of a myasthenic patient strength of the hand is maintained or increased, whereas the hand of a non-myasthenic becomes weak and the muscles fasciculate.

On July 6 Mr. Dickson Wright removed a portion of the thymus gland through the suprasternal notch, using a suprasternal incision in the neck. She appeared to improve very slightly after this operation, but soon relapsed. On July 29 Dr. Courtenay Gage gave deep x-ray therapy to the thymus gland. The patient did not seem to improve after this therapy, and was discharged on Aug. 24, being treated with prostigmin as an outpatient.

On Sept. 16 she was urgently readmitted, being almost bedridden. At this time she was needing an injection of 2.5 mg. of prostigmin at 6 a.m. and 225 mg. during the rest of the day. On Sept. 21 Mr. Dickson Wright removed the rest of the thymus gland by splitting the sternum. The gland was as usual bilobed, and on the right side went quite deep between the mediastinum and pleura. She made an excellent recovery from the operation, but for the next six weeks required as much prostigmin as before the operation. From the middle of November onwards she began to need less and less, and in Feb., 1943, received only 30 mg. a day, and in March about 15 mg. (Graph II). Since June 7 she has not required any prostigmin at all, and she feels as fit and as strong as she "has ever felt in her life."

Pre- and Post-operative Treatment for Thymectomy

The onset of an upper respiratory infection often accompanies the onset of myasthenia gravis or causes an exacerbation of the condition. It is therefore very important to prevent any infection in the pre- and post-operative periods. Blalock and others (1941) recommend the following regime. They advise against operation if there has been a history of infection for the preceding ten weeks. The patient's blood should be cross-matched with a donor. Enough sulphadiazine should be given to maintain a blood level of 5 or 6 mg. per 100 c.cm. Thirty minutes before induction of anaesthesia 1.5 to 2.5 mg. of prostigmin, 0.6 mg. of atropine sulphate, and 0.6 gr. of morphine are given subcutaneously. At the end of the operation, usually one to one and a half hours after induction, 1 to 1.5 mg. of prostigmin and 0.6 mg. of atropine are given. The post-operative dose of prostigmin is based on the dose required pre-operatively—usually 1 to 1.5 mg. every two hours for the first day; after this 30 to 45 mg. by mouth two- to three-hourly. Often there is an increased need for the first two days following operation, and only after a few weeks does the requirement lessen. In the present case the prostigmin requirement was less only after about six weeks, which is longer than in previously reported cases, and more time was needed for completion of treatment.

It is well known that myasthenia gravis is characterized by remissions. Dr. Wilfred Harris in a personal communication has informed me of a case of his that appeared to be well for 20 years, and then relapsed. It may be that thymectomy effects a remission and not a permanent cure. There, however, seems enough evidence now to warrant a thymectomy in every case of myasthenia gravis.

Although Mr. Dickson Wright in this case operated in two stages, he informs me that he has since employed a one-stage sternal splitting method. It is generally agreed that the latter is the method of choice.

Rationale of the Operation

Norris (1936) stated that 50% of the reported cases of myasthenia gravis coming to necropsy have shown some form

of thymic involvement. Half of these reveal what have been regarded as benign tumours of the thymus. Norris interprets these as conditions of extreme epithelial hyperplasia. The other half he interprets as conditions of moderate epithelial hyperplasia. In our case Prof. W. D. Newcomb reported on the thymus as follows:

"Thymus with hyperplastic lymphoid tissue. Small Hassall's corpuscles, very little fat. In view of her age of 23 the organ is certainly hyperplastic." Harvey and Lilienthal (1941) state that it seems reasonable to assume that some inhibitor substance released into the circulation in varying amounts might be responsible for the functional defect in myasthenia gravis. They further state that there is much evidence which points to the thymus as a possible source of this hypothetical substance.

Adler (1938) claimed to reproduce the disease in dogs with grafts and saline extracts of calf thymus, but his work has not been confirmed.

Summary

A successful case of thymectomy for myasthenia gravis is reported. Other successful cases recorded in the literature are mentioned. Pre- and post-operative treatment is discussed. A brief summary of the rationale is given.

REFERENCES

- Adler, H. (1938). *Dtsch. Z. Chir.*, 250, 614.
Blalock, A., Harvey, A. M., Ford, F. R., and Lilienthal, J. L. (1941). *J. Amer. med. Ass.*, 117, 1529.
—, Mason, M. F., Morgan, H. J., and Riven, S. S. (1939). *Ann. Surg.*, 110, 544.
Brain, Russell (1943). *Proc. roy. Soc. Med.*, 36, 142.
Carson, J. (1943). *Ibid.*, 36, 140.
Fraser, F. R., McGeorge, M., and Murby, G. E. (1937-8). *Clin. Sci.*, 3, 77.
Harvey, A. M., and Lilienthal, J. L., jun. (1941). *Johns Hopk. Hosp. Bull.*, 69, 547.
Norris, E. H. (1936). *Amer. J. Cancer*, 27, 421.

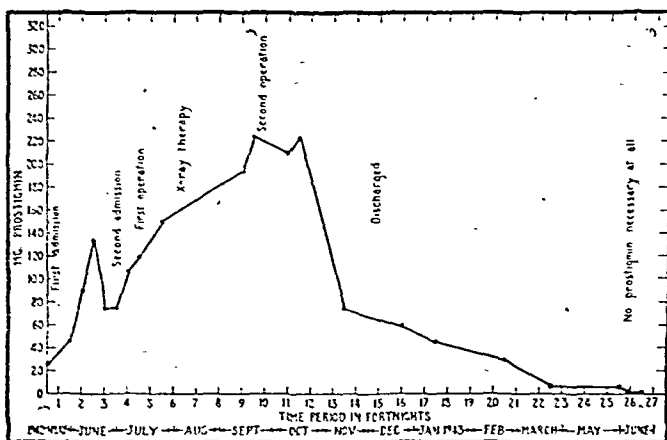
THE EFFECT OF CHEMOTHERAPY ON THE MORTALITY FROM PNEUMONIA IN GLASGOW

BY

THOMAS ANDERSON, M.B., Ch.B., F.R.C.P.Ed.

Physician-Superintendent, Knightswood Fever Hospital, Glasgow

In certain infectious diseases it has not been difficult to show that the introduction of sulphonamides has had a good effect upon the general mortality. Martin (1942) in a straightforward comparison was able to demonstrate that in cerebrospinal fever and puerperal sepsis a definite change had occurred coincidentally with the introduction of these drugs. In his examination of pneumonia, however, he noted that "although there has been an undoubted decrease in the mortality rate . . . an estimate of its extent is rather speculative," and suggested that in the period 1939-41 the expected deaths might have been 10% higher than those actually recorded. This can scarcely be regarded as a tremendous achievement, especially since the clinician has recorded reductions in case fatality rates to about a third of their former level. Further, chemotherapy has the particular merit of simplicity of administration, so that in a general way it should be as effective at home as in hospital. It has been shown (Anderson, 1943) that the efficiency of sulphyridine is impaired in those over the age of 40 years. Since pneumonia is more severe in the older age groups it seems possible that the apparently slight reduction in general



GRAPH II.—Showing decreased need for prostigmin after thymectomy for myasthenia gravis.

mortality might be caused by a continuing high mortality in those past middle life. The purpose of this analysis is to study such a possibility.

Since 1922 the Medical Officer of Health for Glasgow has encouraged the notification of cases of pneumonia, and has annually made available a considerable amount of accommodation for their treatment in hospital. Smith (1928) estimated that about 75% of the cases occurring in the city are notified. As he pointed out, the fact that the notified cases represent only three-quarters of the total incidence makes the figures of little value in estimating mortality rates. Despite the validity of this criticism, the notification figures presumably reflect the prevalence of the disease, and they therefore have a value in assessing the fluctuations in annual incidence. A further inference, however, may be drawn—namely, that from year to year the practitioner will notify similar types of case, and, of immediate importance, that the age-grouping of the notifications will reflect the age-grouping of the disease in the community. Although he may tend to notify more cases from those age groups in which the disease is more severe, it seems reasonable to suggest that such a tendency will remain fairly constant from year to year.

Now, a crucial difficulty in assessing pneumonia mortality is the lack of figures expressing the incidence of the disease. If the present argument is sustained, however, it should be permissible to compute the ratio of deaths to notifications for different age groups in two periods of time, and, by comparing them, to assess any changes which had occurred between the mortality of these age groups. The accompanying table shows

Table showing Notifications and Deaths from Pneumonia in Glasgow, 1922-41

Age Group (Years)	1922-38			1939-41			Ratio B x 100 A
	Notifica- tions	Deaths	Deaths per 100 Notifica- tions (A)	Notifica- tions	Deaths	Deaths per 100 Notifica- tions (B)	
0-1	18,234	8,920	49.02	3,088	1,135	36.76	75.0
1-10	46,693	6,795	14.45	5,630	375	6.67	46.2
11-20	8,777	586	6.67	1,314	31	2.36	35.3
21-30	13,759	3,760	27.33	2,280	264	11.58	42.3
31-40	12,640	9,038	71.53	2,910	1,318	45.29	63.3
All ages	100,103	29,099	29.09	15,222	3,123	20.51	70.5

the relevant figures for the pre-sulphonamide period 1922-38 and for 1939-41. In column 8 the ratios of deaths per 100 notifications in 1939-41 have been expressed as a percentage of those encountered in 1922-38. It is clear that the change which has occurred in the last three years is more marked in certain age groups than in others, the fall under 1 year and over 45 years being less striking than it is between these ages. It is justifiable to conclude that the cause of the reduction in mortality noted in 1939-41—presumably chemotherapy—has been less effective in those extreme age groups. The table indicates too, as one would expect, that the ratios for the total figures in the two time intervals show a fall of less than a third in the 1939-41 period: in other words, the poor results at the extremes of life do mask the benefits sustained in the middle age groups.

Discussion

In the first place there is no doubt that the consolidation is more usually bronchial in distribution at the extremes of life, whereas a lobar pneumonia is the more characteristic lesion in middle life. As Cruickshank (1943) has recently pointed out, bronchopneumonia affects primarily the mucous membrane of the bronchial tree. Actual invasion of the lung parenchyma is less in evidence; while a more generalized invasion (as judged, for example, by the occurrence of bacteraemia) is much less common than in lobar pneumonia. This places the organism in a situation almost, as it were, outside of the body and so less liable to the action of sulphonamides. In lobar pneumonia, on the other hand, the very invasion of the lung parenchyma places the organism not only in a position more accessible to the drug but also (again in contrast to bronchopneumonia) to the action of the phagocytes.

Such an explanation invites the further question as to what influences the form of the consolidation. The modern concept

regards bronchopneumonia as an autogenous infection, and before autogenous infection can occur the individual resistance has presumably been considerably reduced. Despite this lowered resistance of the host the organisms are of such low virulence or invasiveness that tissue invasion is not a prominent feature. The pneumococci isolated from cases of lobar pneumonia, on the other hand, usually belong to the more invasive Types I, II, V, and VII—types which are rarely isolated from normal throats. Here, one may assume, the individual resistance is not so low as to permit infection by the commensal strains of low virulence. Such a conception suggests that lobar consolidation is the mode of reaction of the individual whose basic resistance to pneumococcal infection is high; whereas bronchopneumonia is the reaction of the individual whose basic resistance is poor.

The importance of this element of non-specific or native resistance in the pathogenesis of pneumonia is further emphasized by the well-established relationship between high incidence and bad social and environmental factors. That these factors possibly operate more harshly at the extremes of life might be suggested from the curve of case mortality with its peaks at the extremes of life. Britten (1942) has recently reported a valuable analysis of the incidence of pneumonia as recorded in the National Health Survey carried out in America during 1935-6. Although the analysis in respect of economic status shows a correlation with each age group (except those over 75 years) the effect is most marked in infants and young children. Similarly in respect of overcrowding (although here the cases are only divided into three broad age groups) the effect is most pronounced in the two outside age groups and least between 15 and 24 years. Smith (1928), too, showed that the mortality under 5 years of age was closely related to environmental conditions.

That these are necessarily the only factors operating to produce the apparently poorer results at the extremes of life is unlikely, but their restatement is perhaps timely. The present tendency is to emphasize two main aspects of chemotherapy—namely, the susceptibility or resistance of the pathogen to the drug, and the rapid attainment of what is usually termed an optimum level of drug in the blood stream. It is not sufficiently stressed that the most successful achievement of bacteriostasis still requires the host not only to cope with the destruction of the bacterium but to restore the inflamed tissues to normal. The capacity of the host to react aggressively to his infection is clearly an essential element in his recovery; and consideration of the results of chemotherapy in pneumonia would suggest that in the absence of this resistance the infection may not be stemmed in individuals who are unable to fulfil their part of the bargain.

To define what is meant by non-specific resistance is not easy. The study of natural resistance has been neglected mainly because our present picture of acute infections lays so much emphasis upon the bacterial cause and the specific immune reactions to which it gives rise in the host. The failure of specific antisera and vaccines to enhance the effect of the sulphonamides in pneumonia—and perhaps in cerebrospinal fever (Beeson and Westerman, 1943)—suggests that those who now die do not die because of any lack of specific antibody. It may be advanced that knowledge of what will increase non-specific or tissue resistance is required if the results of chemotherapy are to be improved.

Summary

The success of chemotherapy in hospital clinical trials has the danger of inducing complacency regarding the problem of pneumonia control. When it is realized that the fall in general mortality is comparatively slight, there is clearly little room for satisfaction. Figures are presented which suggest that sulphonamides are less effective in the treatment of pneumonia at the extremes of life; and the possibility that this relative failure is due to a lack of non-specific resistance is discussed.

REFERENCES

- Anderson, T. (1943). *British Medical Journal*, 1, 717.
Beeson, P. B., and Westerman, E. (1943). *Ibid.*, 1, 497.
Britten, R. H. (1942). *Publ. Hlth. Rep., Wash.*, 57, 40, 1479.
Cruickshank, R. (1943). *British Medical Journal*, 2, 159.
Martin, W. J. (1942). *Ibid.*, 2, 540.
Smith, C. M. (1928). *J. Hyg., Camb.*, 27, 328.

Medical Memoranda

Immediate Blood Transfusion in Obstetric Shock

The following record shows the value of immediate blood transfusion in a case of obstetric shock with normal labour and without excessive haemorrhage.

CASE HISTORY

Mrs. B., a primipara aged 28, started labour pains in the early hours of July 28, 1943. Uneventful first and second stages of labour resulted in the normal birth of a female child at 9 p.m. under short terminal chloroform anaesthesia. The fundus uteri, easily palpable at about the level of the umbilicus, soon began to contract, and expulsion of the placenta by Credé's method was attempted without success. The patient's condition was quite good; she had come out of the anaesthetic, her pulse was regular—about 90 beats a minute—and her total blood loss was less than one pint. At about 9.30 p.m., however, she turned very pale and her pulse accelerated to about 120. Abdominal palpation revealed a hard rounded fundus uteri below the umbilicus; there was no visible haemorrhage per vaginam. The placenta was still *in utero*. There was no doubt this was a case of obstetric shock, so the usual anti-shock measures were adopted: the foot of the bed was raised, hot-water bottles were applied, both legs were bandaged, and 1.5 c.cm. of nikethamide (coramine) was injected. No improvement was registered in the patient's condition, and very soon her skin became cold and moist, her lips and gums blue, the pupils dilated, the pulse more rapid (about 180 a minute) and of low tension. Glucose-saline was then given rectally, and St. Bartholomew's Hospital was telephoned with a request for its "flying squad" for immediate blood transfusion. On returning from the telephone the patient was found to be unconscious; her pulse was only just perceptible, and Matron reported that breathing had actually stopped for a short time. Fortunately, the rectal glucose-saline was being retained, and, to my relief, in less than an hour the "flying squad" arrived. It comprised a surgical specialist, an anaesthetist, and a house-surgeon. Very quickly, quietly, and efficiently they set to work and transfused two pints of universal whole blood. The result was incredible. When only one pint had been introduced the patient regained consciousness and the pulse volume increased appreciably, while at the end of the transfusion the pulse was about 100 and had quite good volume. Later, under anaesthesia the placenta was easily expressed with practically no blood loss. With the exception of a rise in temperature on the second day, and a slightly accelerated pulse which persisted for a few days, the patient made an uneventful recovery.

COMMENT

In a case of prolonged labour, or in a difficult forceps delivery, one would not be surprised to find some degree of obstetric shock comparable to that normally observed in surgical trauma. In a normal labour, however, without excessive haemorrhage, post-partum collapse as described above must be rare indeed. In fact, this is the first case I have seen in the course of over 20 years' practice. It would be interesting to know the cause of such a sudden collapse. It has been claimed (Matthews, 1939) that the parturient is especially predisposed to shock, owing to a hypersensitiveness of the nervous system, which is said to be markedly developed during pregnancy. Can it be explained as a result of an intra-abdominal vascular change due to the sudden emptying of the uterus, or as a result of venous stasis, produced in the abdominal cavity by some action of the splanchnic vasomotor system, comparable to the shock occasionally seen after the administration of a large dose of pituitary extract? Has it anything to do with the retention of the placenta?

With regard to the treatment of the condition, the value of an immediate blood transfusion has to be seen to be believed. Yet from an analysis of 765 blood transfusions for obstetric conditions causing haemorrhage and shock conducted at the Glasgow Royal Maternity Hospital, Sheehan (1942) concluded that, whereas the mortality from haemorrhage had been much reduced by transfusions, the mortality from shock was unaffected by them, the general conclusion being that "the value of blood transfusions in shock is doubtful." The discrepancy in the results is, I submit, due to the delay in performing the blood transfusion. This must be given early, as otherwise a condition of "irreversible shock" is reached. As Levinson (1942) says, "early shock in most instances responds very favourably [to blood transfusion], but if the condition has existed for any appreciable time little or no effect is observed."

As the time factor is of such vital importance I would stress the value of blood transfusion "flying squads" and of providing plasma and plasma-transfusing apparatus in nursing homes and the maternity wards of hospitals.

London, N.10.

I. S. Fox, M.B., Ch.B.

REFERENCES

- Levinson, S. O. (1942). *West. J. Surg. Obstet. Gynec.*, 50, 388.
Matthews, H. B. (1939). *J. Amer. med. Ass.*, 113, 1153.
Sheehan, H. L. (1942). *Lancet*, 1, 616.

Reviews

ENVIRONMENT AND INFANT MORTALITY

Birth, Poverty, and Wealth. A Study of Infant Mortality. By Richard M. Titmuss. (Pp. 118. 7s. 6d.) London: Hamish Hamilton Medical Books, 1943.

The object of Mr. Titmuss's study is to show (1) that, in spite of the general fall of infant mortality during the last 30 years, the relative advantage of the economically most prosperous class over the least prosperous class has been maintained or even increased; (2) that environmental rather than congenital or hereditary factors are responsible for social-economic diversity.

In analysing the data of 1911 the General Register Office first attempted a social-economic classification, five classes being formed. In successive censuses the classification has been improved, with the inevitable result that comparability has been disturbed. Taking the figures as they stand the rate of infant mortality classified by social-economic class of father in 1911 was twice as high in the lowest as in the highest class. In 1930-2 it was 2.35 times as large; over the period the rate of mortality had fallen from 153 per 1,000 to 125 per 1,000 in the worst social-economic class, from 76 to 53 in the highest class. Mr. Titmuss, aware of difficulty of comparison, made a selection of clearly defined occupations, and his figures make the ratios 2.9 and 2.62 respectively—namely, some but not very much improvement. The official figures show a slight improvement between 1921-3 and 1930-2. A comparison is also made of special occupations. It is possible that Mr. Titmuss is over-anxious to prove a deterioration; a lack of improvement is ample basis for his general argument.

The author then examines the death rates in different sections of the first year of life, reaching conclusions in agreement with those of official commentators—namely, that the social-economic difference is least in the first month of post-natal life, but that even here much of the mortality is preventable. Mr. Titmuss argues strongly against the opinion that heredity is almost everything and environment goes for very little in the determination of infant mortality rates, and also condemns the light-hearted view that a high rate of infant mortality is for the good of the race because it eliminates the "unfit." For the most part Mr. Titmuss is forcing an open door here, and may, perhaps, have gone a little too far in his depreciation of hereditary factors. It is surely true that, under equally favourable environments, selective breeding effects a good deal in producing valuable physical qualities in farm stock or race-horses. However, over-enthusiasm can be forgiven; the author has focused much valuable information.

A STUDENT'S TEXTBOOK OF SURGERY

The Essentials of Modern Surgery. Edited by R. M. Handfield-Jones, M.S., F.R.C.S., and A. E. Porritt, M.Ch., F.R.C.S. Second edition. (Pp. 1,204; illustrated. 40s., plus 11d. postage.) Edinburgh: E. and S. Livingstone, 1943.

The first edition of this book, noticed in our columns at the end of 1938, required reprinting. The demand has continued and a second edition became necessary. The preparation of this has fallen on the senior editor, as his co-editor is away on active service. An expansion and an extensive revision of the articles on wounds, burns, haemorrhage, and shock have been made so that these subjects now occupy two chapters, and represent the results of those modifications of our views and methods of treatment which have come about as the result of this war. There are many new illustrations, including some coloured reproductions of oil paintings made by Miss Zinkeisen. Some figures are borrowed from *Surgery of Modern Warfare*, others from Mr. Watson-Jones's book on fractures. The reproduction of all these is good and so is the printing of the text, so that this edition adds further to the reputation for high quality which the publishing house responsible has been rapidly acquiring in recent times. We find little in the text with which to quarrel, but some confusion seems to exist in the mind of the author of the section on the brain and its coverings in distinguishing between cerebral hernia and cerebral fungus (p. 870). We cannot agree with him that the term "cerebral hernia" should not be applied to those protrusions of brain matter through a deliberately planned decompression

opening, but, on the contrary, regard such as fulfilling all the criteria of a hernia.

On the work as a whole we congratulate both the editor and those contributors whose revision has done much to improve the original text. This second edition should add to the popularity of a now well-established textbook which can be safely recommended to the medical student, of whom it might be said the editor has not only had much experience as a teacher, but (what is perhaps equally important) as an examiner also.

CUNNINGHAM'S TEXTBOOK OF ANATOMY

Cunningham's Textbook of Anatomy. Edited by J. C. Brash, M.D., F.R.C.S. Ed., and E. B. Jamieson, M.D. Eighth edition. Oxford Medical Publications. (Pp. 1,558; illustrated. 60s.) London: Oxford University Press, 1943.

The eighth edition of this work is signalized by a considerable change in the authors who have had a share in its production; this is due partly to the regrettable loss by death of some of its most distinguished contributors—namely, Sir G. Elliot Smith, Prof. T. Wingate Todd, and Prof. David Waterston—and partly to the transference of Sir John Stopford from the chair of anatomy at Manchester to the Chancellorship of that University. These authors have been succeeded by Prof. W. E. Le Gros Clark (central nervous system); Prof. J. C. B. Grant, University of Toronto (respiratory system); Prof. M. R. Drennan, University of Capetown (digestive system); and Prof. A. Durward, University of Leeds (peripheral nervous system). The description of the urogenital system, originally written by the late Prof. A. F. Dixon, has been undertaken by Prof. C. P. Martin, McGill University, Montreal, and a special section on radiographic anatomy by Prof. R. McWhirter of Edinburgh University has been added to the section on surface and surgical anatomy by Sir John Fraser. The work has been edited by Prof. J. C. Brash, with the assistance of Dr. E. B. Jamieson. It is at once evident that the contributors to the present edition are representative not only of British universities but also those of Canada and South Africa.

Perhaps the most striking change in this edition is the inclusion of a large number of photographic and radiographic illustrations and a valuable addendum on radiographic anatomy, comprising a brief account of special methods of examination—e.g., by "contrast media"; this supplies a much-needed standard for interpretation of many appearances seen in radiographic films of normal, healthy individuals of varying ages and sex. Among so many excellent radiographic films it is difficult to choose examples of surpassing merit, but perhaps the reproduction in Plate LXXX of a series illustrating the expulsion of bile by the gall-bladder, as revealed by the administration of "S.T.I.P.P." followed by a fatty meal, and those shown on Plate LXXV, illustrating the course of the foetal circulation and the closure of the ductus arteriosus and ductus venosus in the sheep, by Dr. A. E. Barclay and his colleagues at the Nuffield Institute, Oxford, may be specially noted. Some additional matter bearing on recent research work has been incorporated in all sections of the book, and in face of so much commendable good work there is little to suggest in the way of constructive criticism beyond expressing the view that descriptions of microscopic structure, in order that they may be clearly understood by readers already acquainted with the subject, be accompanied by illustrations of actual microscopical preparations, and that the time has now come when many purely diagrammatic figures may be replaced by accurate drawings or photographs of particular tissues, or of some stages in embryonic development.

Notes on Books

Dr. EDWIN O. GECKELER, believing that every doctor who undertakes emergency work should be able both to insert a Steinmann pin or a Kirschner wire and to carry out proper wound excision without delay, wrote *Fractures and Dislocations for Practitioners* with the object of helping the less experienced in the practice of such procedures. The third edition introduces much recent work relating to fractures which has been learned from war experiences. Attention is appropriately given to chemotherapy, developments in which have practically revolutionized the treatment of wounds. "Bumper" or "pedestrian" fracture receives due consideration and

is well illustrated, but "clay shoveller's" fracture is not mentioned in connexion with the industrial group which includes "dash-board" fractures of the patella and "dash-board" dislocation of the hip. This edition brings a valuable and conveniently sized book up to date and thus adds to the value of an already established work. Illustrations are excellent—it is interesting to notice that one or two are redrawn from Sir Astley Cooper—and the production does not appear to have suffered in any way through wartime publishing restrictions. This is an excellent handbook which can be thoroughly recommended. It is published in England by Baillière, Tindall and Cox at 25s.

The Expectant and Nursing Mother's Cookery Book, written by CECILIA HOOGENDOORN, has a foreword by Mr. W. C. W. Nixon. This book should be possessed by all those who are interested in the health of the expectant and nursing mother. The recipes have been adapted for wartime restrictions. There is much useful advice on the preparation and cooking of food. The publishers are Edward Arnold and the price is 3s. 6d.

The Board of Management of the Australian War Memorial has published from Canberra a booklet entitled *Diseases in the A.I.F. 1916-18*, giving a comprehensive statement of all the non-battle casualties (so far as the records permit) which were sustained by members of the first A.I.F. on the Western Front, or which were the cause of rejection in recruits or were responsible for invaliding to Australia. This is published as a separate appendix to Vol. III of the *Official History of the Australian Army Medical Services*.

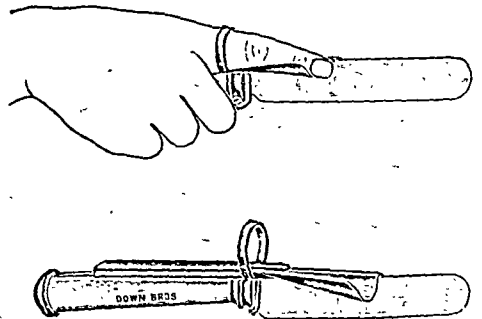
Preparations and Appliances

A TABLE-KNIFE HOLDER FOR USE BY THE PARTIALLY PARALYSED

Dr. J. CARLTON HEAL, Exeter, writes:

The table-knife holder illustrated below was designed originally for my personal use when recovering from a traumatic lesion of the left motor cortex. It is, however, of use in partial recovery from hemiplegia and nerve lesions and in advanced rheumatoid arthritis.

After damage to the motor cortex or after pyramidal lesions when the hand has partially recovered, the simple grasp may be quite strong but the higher "movement patterns," which are developed latest, are lost (cf. Wartenberg's sign). To hold an



ordinary table knife correctly may be regarded as the "acid test" of recovery of hand and finger movements. In order to use one, the three inner fingers must be fully flexed, the index partially extended and abducted, and the thumb oppose with the proximal joint flexed and distal joint extended. Moreover, all these movements must be done very firmly.

This little gadget (the illustration of which is self-explanatory) embodies a ring through which the index finger is slipped as a trough to steady it. It is made by Messrs. Down Bros., Ltd. London, is handy and light, and is ingeniously designed to click quickly on and off any small table knife.

NOMOGRAPH FOR BLOOD UREA CLEARANCE

Dr. M. C. Davis and Miss Mildred Barnard have devised a nomograph (published by W. Ramsay (Surgical) Publicity Ltd., Melbourne, 6d.) for determinations of blood urea clearance. There can be few laboratories in this country which perform so many clearances that this nomograph will be a real saving of time, but those who use it will have the satisfaction of knowing that the proceeds from the sale of these charts are devoted to the Alfred Hospital Clinical Fund for Students.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY DECEMBER 18 1943

STAPHYLOCOCCAL PNEUMONIA COMPLICATING INFLUENZA

Staphylococcal pneumonia following influenza, though not very common, is no new thing. In the influenza pandemic of 1889, and even earlier, necrosis of the bronchi and of the alveolar walls had been observed in cases of influenzal pneumonia, and staphylococci had occasionally been cultivated from the lesions. Netter¹ found mixed infections (staphylococci and streptococci in one, staphylococci and pneumococci in the other) in two out of eight such cases complicating *la grippe* in 1889-90. Only exceptionally were staphylococci invaders of the lungs in cases of influenza in 1918; but the exceptions are striking. Thus, at Camp Jackson, Chickering and Park² recorded that half of 312 fatal cases cultured yielded staphylococci as the only or predominant organism. Patients dying early showed intense congestion, rupture of alveolar walls, and exudation of red cells and serum into the alveoli; those surviving longer showed innumerable abscesses in the lung. In cases at the No. 3 Canadian General Hospital,³ where staphylococci as secondary invaders were second only to Pfeiffer's bacillus, staphylococci were cultivated in 14 out of 67 cases of influenzal pneumonia, and were grown from the heart blood in 8 cases. In Malta⁴ the organism was present in large numbers in the sputum of 16 out of 18 cases, and was recovered from the lungs of 9 out of 11 patients who died. Three cases had empyema, and staphylococci were recovered from each of them. Throughout all these observations the predominant staphylococci were *Staph. aureus*. Winternitz, Wason, and McNamara⁵ observed that staphylococci were more likely to be recovered from influenzal pneumonias if necrosis, abscess formation, or organization were occurring, though this tendency to purulent resolution and organization was characteristic of the epidemic, even in those cases from which no staphylococci could be grown.

The pathological picture is remarkably uniform. There is a necrotizing process in the tissues with acute exudation, haemorrhage, and oedema. The "hyaline membrane" in the bronchioles (described by many authors) appears not to be pathognomonic of either influenzal or staphylococcal infection, but a non-specific toxic effect on capillaries. Stuart-Harris, Andrewes, and Smith⁶ recovered both influenza virus and *Staph. aureus* from cases of bronchiolitis during an influenzal epidemic in England in the winter of 1936-7, and regard both virus and staphylococci as important in the production of the lesion. A similar case

has been reported by Stokes and Wollman.⁷ Wollenman and Finland⁸ have recently given an account of the post-mortem findings in 8 cases of staphylococcal pneumonia following an outbreak of influenza in Boston during the winter of 1940-1: influenza A virus was isolated and an increase of anti-influenzal antibodies was found in the serum of recovered cases of pneumonia. In the three acute cases the pleural involvement was slight. In the dependent parts of the lungs multiple abscess cavities formed a "honey-comb," mainly in communication with the bronchioles, which contained tacky muco-pus. Histologically the process was an acute necrotizing bronchitis and bronchiolitis with spread to the associated alveoli; no hyaline membrane was seen, save in the single fulminating case, in which there was haemorrhagic oedema with little reaction. In the four chronic cases pleural involvement was also slight; the basal portions of the lungs contained numerous "rubbery" nodules, consisting of large cavities containing yellow or greenish-grey muco-pus, and with well-marked fibrous walls. There was extensive fibrosis between the cavities, and the trachea, bronchi, and bronchioles contained grey-green tenacious exudate, the removal of which revealed reddened but apparently intact mucosa. Microscopically the picture was one of multiple abscesses, fibrosis, and bronchiectasis. The bronchial walls were infiltrated with plasma cells, lymphocytes, histiocytes, and rare foreign-body giant cells; in the abscess cavities the process was more acute, with some persistence of necrotization. In three cases there was interstitial fibrosis and the alveolar lining was replaced by a low cuboidal epithelium. There was evidence of regeneration of bronchial mucosa, and in some the regenerating epithelium was found pinched off as isolated epithelial islets. In the alveoli the inflammatory exudate showed all stages of organization; large sheets of connective tissue extended from one alveolus to the other through septal defects. In areas of marked fibrosis and chronic inflammation there was some proliferative endarteritis. Staphylococci could be seen in sections of all the acute cases, and were recovered as the predominant organism in all eight. The authors therefore suggest from their own experience and from a consideration of the literature that *Staph. aureus* may become in influenza epidemics a dangerous secondary invader of the lungs. Until penicillin is generally available the clinician will have to rely upon sulphathiazole as a chemotherapeutic weapon against this dangerous complication. Sulphathiazole should be given in effective doses—for example, 12 grammes on each of the first two days. If the clinical condition is bad, then sodium sulphathiazole should be given intravenously.

THIOURACIL IN HYPERTHYROIDISM

Thiouracil is an important weapon for the control of hyperthyroidism. By the oral administration of thiouracil the symptoms of thyrotoxicosis can be greatly reduced in two or three weeks and they will remain in abeyance so long as the administration continues. The story of the discovery of thiouracil begins with experiments on sulpha-

¹ Arch. med.-exper. Anat. Path., 1892, 4, 28.

² J. Amer. med. Ass., 1919, 72, 617.

³ Tyler, W. H., Jones, R. M., and Dobbin, G. M., M.R.C. Spec. Rep. Series No. 36, p. 77, London, 1919.

⁴ Patrick, A., Lancet, 1919, 1, 137.

⁵ The Pathology of Influenza, Yale University Press, 1920.

⁶ M.R.C. Spec. Rep. Series No. 228, London, 1938.

⁷ Internat. Clin., 1940, 1, 115.

⁸ Amer. J. Path., 1943, 19, 23.

guanidine by J. B. MacKenzie, C. G. MacKenzie, and E. V. McCollum,¹ who wished to see whether, in killing intestinal bacteria, sulphaguanidine would prevent the formation of essential nutrients by the intestinal flora. They observed that it affected the thyroid of the rat so that it became enlarged and hyperaemic, and, on microscopical examination, hyperplastic and colloid-free. About the same time Richter and Clisby² observed that similar changes in the thyroid followed the administration of phenyl thiocarbamide, and Kennedy,³ who was attempting to isolate the substance in rape seed which caused goitre, found that allyl thiourea caused thyroid enlargement in rats and changes in the anterior pituitary.

The MacKenzies' first detailed paper⁴ describes the effects already mentioned and also demonstrates that daily consumption of sulphaguanidine causes cellular changes in the anterior pituitary, together with a fall in the basal metabolic rate. In the anterior pituitary the eosinophil cells decrease in number and the basophil cells are vacuolated and enlarged. The simultaneous administration of sodium iodide does not prevent these changes, but that of thyroxine does. While the MacKenzies thus made the original observations, the further development of the subject and the clinical application of thiouracil have been due to E. B. Astwood and his colleagues in the department of pharmacology at Harvard. In their first paper,⁵ which appeared side by side with that of the MacKenzies, they confirm the MacKenzies' conclusions and show that sulphaguanidine does not cause thyroid enlargement in hypophysectomized animals. Astwood *et al.* put forward the explanation that under the influence of sulphaguanidine or thiourea the organism is unable to synthesize the thyroid hormone at a normal rate, so that a deficiency of this arises. Because of this deficiency the anterior pituitary secretes more thyrotrophic hormone, and this hormone causes thyroid enlargement and hyperplasia. Astwood⁶ then made a study of 106 compounds to determine their relative activity in causing thyroid hyperplasia, and also to determine their toxicity. He found that the sulphonamides were all active, sulphadiazine causing hyperplasia in the very low dose of 4.2 mg. per 100 g. body weight daily; sulphanilamide, on the other hand, acted only in a dose of 70 mg. per 100 g. Other potent substances were *p*-aminobenzoic acid, potassium thiocyanate, and many derivatives of thiourea, of which thiouracil—which is $\text{NH.CS.NH.CO.CH:CH—}$ —a thiobarbituric acid were the most important. Because of their low toxicity, Astwood concluded that thiourea and thiouracil were the most suitable for clinical trial.

The hypothesis put forward concerning the action of these compounds by Astwood *et al.*⁵ was supported by the observations of Dempsey and Astwood⁷ on the effect of temperature. They found that if rats were kept at 35° C. thiouracil had almost no effect in causing thyroid hyperplasia. On the other hand, if rats were kept at 5° C. thiouracil had much more effect than if the rats were kept

at room temperature. The observations fitted in with the conception that the hyperplasia was not the direct effect of the thiouracil on the thyroid gland, but was the consequence of the stimulation of the anterior lobe of the pituitary body by the lack of thyroid hormone. The lack of thyroid hormone is a much more effective stimulus at low temperature. Dempsey and Astwood also showed that when thyroxine was given together with thiouracil, at a room temperature, doses of thyroxine less than 5.2 microgrammes daily did not prevent thyroid hyperplasia, whereas doses greater than this not only prevented hyperplasia but actually led to diminution in the size of the gland. Evidently these doses were greater than the normal thyroxine production, and diminished the activity of the pituitary anterior lobe. By finding the daily dose of thyroxine which at any given temperature maintained the weight of the thyroid gland unchanged when thiouracil was being administered they were able to calculate the normal daily thyroxine production of the gland at that temperature.

In May of this year Astwood⁸ described the effect of thiourea and thiouracil on patients with thyrotoxicosis. Since he found that thiourea produced nausea and gave the patient's breath an unpleasant smell he gave up its use in favour of that of thiouracil. He found that both thiourea and thiouracil caused a fall in the basal metabolic rate provided they were administered for 3 weeks or longer; there was a corresponding fall in pulse rate and rise in body weight and in serum cholesterol (e.g., from 84 to 206 mg. per 100 c.cm.). When the thiouracil was discontinued the B.M.R. again rose. The dosage of thiourea was 1 to 2 g. daily, and that of thiouracil 0.2 to 1 g. daily. In one patient an unnecessarily high dose of thiouracil, 2 g. daily, produced agranulocytosis, but the patient recovered. The initial dose recommended is 0.5 g. daily, to be lowered as the B.M.R. falls.

These clinical results of Astwood's have been confirmed in America by Williams and Bissell,⁹ and recently in England by Himsworth,¹⁰ so there remains no doubt that the introduction of thiouracil represents an important step in the treatment of thyrotoxicosis. It is strange that a substance which causes thyroid hyperplasia in a normal animal should be used to inhibit the effects of hyperplasia in thyrotoxicosis. However, both in the normal animal and in thyrotoxicosis thiouracil prevents the formation of thyroid hormone. In the normal animal the diminution in thyroid hormone leads to pituitary stimulation and thyroid hyperplasia. In thyrotoxicosis the diminution in thyroid hormone leads to a fall in the B.M.R. and an amelioration of the patient's symptoms. Probably in thyrotoxicosis the thyroid hyperplasia will not be seen because thiouracil is given in a dose sufficient only to reduce the B.M.R. to normal. The longest period for which Astwood has given thiouracil to a patient is ten months (that was two months ago); administration for this time produced no ill effects. When in another patient administration was discontinued after two months the B.M.R. returned to the previous high level, which

¹ Science, 1941, 94, 518.

² Proc. Soc. exp. Biol. N.Y., 1941, 48, 684.

³ Nature, 1942, 150, 233.

⁴ J. Biol. Chem., 1941, 134, 1.

⁵ Ibid.

⁶ Ibid.

⁷ Ibid.

943, 78, 79.

⁸ J. Amer. med. Ass. 1943, 122, 78.

⁹ Science 1943, 97, 156.

¹⁰ Lancet, 1943, 2, 465.

gests that continued administration is necessary to control hyperthyroidism. At present the treatment is being carried out in Massachusetts General Hospital, and doubtless other hospitals, as a preliminary to surgical intervention but not as a substitute for it: time will show whether thiouracil will replace the surgeon's knife in the treatment of hyperthyroidism.

VIEWS ON A MENTAL HEALTH SERVICE

The Royal Medico-Psychological Association has issued a series of recommendations setting forth its views on a mental health service. It is in favour of regionalization, and recommends that a Mental Health Committee be set up in each area to take over all mental health activities, with a Medical Advisory Committee "fully representative of those practising psychiatry in the area." An administrative-medical officer of mental health of equal status with the medical officer of health is also recommended. The association is uncompromising in its assertion that the medical superintendent of each mental hospital should continue to be in absolute charge of his institution. The idea of a dual authority consisting of an administrator on one hand and medical director on the other is ruled out. Any possibility of an organization similar to that obtaining in the general teaching hospitals is not mentioned; nor is anything said in the recommendations as to the responsibilities of superintendents with regard to the postgraduate training of the staffs. But it is impossible in a short statement of main principles to cover all the ground. The report recognizes the need for psychiatric beds in each general hospital and suggests 6% of the total bed accommodation as desirable. While emphasizing the need for mental nurses to staff these clinics—or "units," as the report prefers to call them—it does not allude to the possible affiliation of mental with general nursing, and presumably therefore, by implication, is not in favour of a unitary scheme. The report does not commit itself on the question of the allocation of types of patients between the psychiatric unit or clinic and the mental hospital. Apparently it is felt that each is suitable for the treatment of all types. There is probably room for variety based on local experience on this score, especially as in the course of time the increased intercourse between the staffs of mental hospitals and psychiatrists outside them will tend to ensure that the individual patient goes to the place that is actually most suitable for him at the time. The report recognizes the existence of psychiatric consultants other than those on the staffs of mental hospitals and psychiatric units, but it does not suggest any machinery by which they might be recognized.

One of the most important recommendations made by the association is that certification in the form of a reception order should be abolished for non-voluntary first admissions for at least six months. This recommendation is made in conjunction with the suggestion of increased powers for the Board of Control reorganized and renamed as the "Board of Mental Health." While in fact the report envisages increased liberty for the patient and increased facilities for treatment it also implies an increase of regimentation in the ranks of medical men in a mental health service. Important recommendations are made for increase in the provision for the care and education of dull and defective children. A special note is made on the need for hostels and the like for the care and treatment of difficult children. "Child psychiatry" is included under a separate heading, but presumably it is not intended that

a children's psychiatric service and one catering for the subnormal children should be separate and distinct. In general the report provides a comprehensive basis for discussion.

CHILDREN IN HOSPITAL

The belief that illness is caused by malign agency is deep-rooted in the history of the world. In England, not so long ago, witches were burnt for this reason, while to-day among primitive peoples there are many who still look upon disease either as the hostile act of an ill-wisher or as a punishment for sin. In children something of the same feeling exists as in these child-races. Piaget has noted that the conception of chance is absent from the mind of the young child, who interprets what happens to him in terms of the omnipotent parents of his fantasy. So in the case of bodily disorder he feels as if his parents are letting him be ill to punish him for angry, hostile impulses, whose importance he exaggerates, and for which, if he is sent to hospital, he feels cast out. Where parental visits are forbidden, their absence serves strongly to reinforce his sense of loss and guilt. In a series of 44 cases Dr. H. Edelston¹ has traced the onset of neurotic disorders following stay in hospital. Symptoms include night terrors, sleep-walking, fears, abnormal clinging to the mother, facial twitches, soiling, and behaviour difficulties. In each case it was found that the twin traumata of illness and loss of parents had struck at the roots of the child's love-relationships upon which his sense of security was based, for he could no longer feel sure that his parents' love would protect him from harm, or that they would not reject him (as it seemed) in his hour of need. The younger the child the more acute these anxieties, except where frequent visits had been permitted. Although obviously there are many children for whom a period in hospital is not an emotionally traumatic experience, the fact that this can be so may shake the complacency with which medical and nursing staffs are wont to regard the Tommies and Toppies of the children's ward, and to assume that the disturbing influences of father and mother are better excluded. Certainly they can be disturbing, because a child who fears he is rejected may on the one hand test his mother's love by difficult behaviour when she appears, and on the other hand be distressed at again losing her when she leaves. These reactions are but eruptions discharging on the surface which serve to prevent the malady from becoming deep-seated. Better a half-hour of uproar or a passing rise of temperature after visiting hours than a future of neurosis!

ARSINE POISONING

The haemolytic effect of arsine (AsH_3), sometimes causing death by acute and extensive destruction of red blood cells, has long been known. Many such industrial accidents, especially in the course of processes involving extraction of ores contaminated with arsenic, have been reported, and where necropsy has been performed the "haemolytic syndrome" has been found to be associated with engorgement and blocking of the tubular system of the kidneys. The problem of the mechanism of the haemolytic action of arsenic has recently had much light thrown upon it by the investigation² of three cases of acute haemolytic anaemia, one fatal, occurring in workers in the fertilizer industry. Their occupation—that of unloading from the

¹ *Genetic Psychology Monographs*, 1943, 28. Provincetown, Massachusetts, U.S.A.

² Wilson, R., and Maugun, G. H., *Southern med. J.*, 1943, 35, 212.

hold of a wooden schooner fish-scrap used as a source of ammonia nitrogen—did not at first suggest exposure to arsine. The evidence for such exposure, since arsine was not demonstrated in the air of the ship's hold, rested chiefly on the facts that arsenic is present in fish-scrap, that the atmospheric and bacterial conditions in the ill-ventilated hold would tend to favour development of arsine, and that all three workers, with the same immediate occupational history, developed the same haemolytic syndrome. The active haemolysis was demonstrated by a technique of precipitation with ammonium sulphate, re-solution and dialysis, in the protein fraction of the blood in one case and the urine in another. In the blood it was present only in the case in which tests were carried out immediately after exposure to arsine. The haemolysis found in the urine, though the urine itself contained large amounts of arsenic, was entirely free from arsenic. It is suggested therefore that arsenic, after absorption through the lungs, enters into some loose chemical combination with protein in the serum or in the red blood corpuscles, this combination conferring on the protein an active haemolytic property independent of the presence of arsenic itself. In the early stages of the intoxication the haemolysis is present in the blood and is later excreted in the urine. In the fatal case—in which by mistake the administration of alkali was omitted—death took place from clinical uraemia, and examination of the kidneys showed blocking of the collecting tubules by haemoglobin casts. Two necessary measures for prevention of similar fatalities emerge from this investigation: first, the adequate ventilation of ships' holds where fish-scrap is unloaded; secondly, the administration of alkalis in cases of acute haemolytic anaemia in order to minimize the precipitation of haemoglobin in the tubules of the kidneys.

FRIENDS IN NEED

To turn over the pages of the fourth annual report of the Friends' Ambulance Unit is to turn over the pages of a gazetteer—Norway, Egypt, Greece, the Middle East, Syria, Ethiopia, India, China, and now North Africa, Sicily, and Italy—evidence that this body of some 800 men and women who, though unable to reconcile their beliefs with war, nevertheless "go wherever the need is greatest to give disinterested service in the relief of suffering." During the past year thirty-seven members of the unit have provided about a third of the personnel of a mobile military hospital in the Middle East, which has served as an evacuation centre, a forward casualty clearing station, an emergency hospital, and a clearing base for all the seriously wounded. This hospital worked in the desert without pause from November, 1942, to June, 1943, from Cairo to Tunis. Members of the F.A.U. were at hand in India at the time of the devastating Bengal floods in October, 1942, to help with inoculations, nursing of cholera cases, and the distribution of food. Again, in the autumn of 1943 the unit organized canteens in the Bengal famine, and was responsible for distributing powdered milk to 20,000 people in Calcutta and district. While the work of the F.A.U. increases abroad, Quakers at home have turned their attention to the possibilities of relief on the Continent of Europe. Six members who were captured in Greece were among the repatriated prisoners reaching home last October; the remaining ten continue to work as masseurs and orderlies in prisoner-of-war camps and hospitals in Germany. Members of the unit are unpaid, receiving only their keep, equipment, and small allowances towards the necessities of life. About one-half of the unit's total expenditure is now met by contributions from those for whom it works; the remainder must come

from subscriptions and donations, and an appeal is made from 4, Gordon Square, W.C.1, for £30,000 to see the unit through the financial year 1943-4.

WAR ON THE BROWN RAT

The beginning of December saw the outbreak of another war, in which the enemy was the brown rat (*Rattus norvegicus*), the inhabitant of London sewers. It is estimated that the rat damages national food stocks to the extent of 2,000,000 tons a year, equal to the carrying capacity of many cargo ships. Therefore the Ministry of Food, in co-operation with the Ministry of Agriculture, taking the lead in its extermination; but the campaign has an interest from the public health point of view, because the rat is a disseminator of disease, particularly, in the case of the brown rat, of spirochaetal jaundice affecting seamen and miners who come in contact with its excreta and with stagnant water which it has fouled. Since October 14,000 reports have been received by the Ministry of Food from members of the public in London and the Home Counties furnishing evidence of the whereabouts of rats and by piecing together the reports from a particular area a fairly good map of rat territory is obtained. Observation of smears, droppings, and damage locates more closely the whereabouts of the colonies. The first stages of the campaign are directed to the 3,000 miles of London sewers. The sewer rat and the surface rat are closely allied, and it has been shown that if the former is dealt with adequately the surface rat population is depleted. Almost invariably the territories in which the sewer rat is reported are the areas also of surface infestation. To assist in rat control the Ministry of Food is employing 16 young women trained in its Disinfestation Division in Gower Street, who give lectures to rodent officers, sanitary officials, and others who will have the work in hand. The measures taken for the extermination of rats once their presence is known are the result of the experimental work carried out by the Bureau of Animal Population at Oxford under the auspices of the Agricultural Research Council, and have been already employed successfully in the docks and warehouses of the Port of London. An attractive unpoisoned bait of whole wheat or waste bread soaked in water is built up, and after a few days is replaced by a poisoned bait. Red squill is the most effective poison, but is difficult to obtain now in large enough quantities. The poisons used are zinc phosphide, which is mixed with the moist bait in the proportion of 5% by weight, finely powdered arsenious oxide, in the proportion of 15%; or barium carbonate, 20%, this last mixed intimately with sausage rusk or bread mash. Most of the rats die in their runs, but when zinc phosphide is used a number may be found lying out in the open. To ascertain whether any rats remain, a system of post-baiting is recommended, using an unpoisoned—and a different—bait. All care must, of course, be taken to prevent the poisons from becoming mixed up with the foodstuffs or from being left in places to which children or domestic animals have access. The rat-catcher's chief responsibility begins after the "kill," when it is his business to dispose of the waste poison baits as well as of such rat corpses as can be found. A rat campaign is very like war in that if it is to be waged at all, it must be waged rigorously. As Dr. M. T. Morgan, medical officer of health, Port of London, points out in an article in the *Monthly Bulletin* of the Ministry of Health, much money and energy are wasted on enterprises claiming rodent elimination which do no more than touch the surface of the rat population, while the more shy or more cunning survivors continue their depredations and maintain or increase their numbers. The aim must be the total elimination of the rat colony.

PHOTOMICROGRAPHY WITH ORDINARY CAMERAS—A SIMPLE TECHNIQUE

BY

W. N. LEAK, M.A., M.D.

The description of a little-known method which enables anyone who knows how to use his microscope to obtain photomicrographs—which will compare reasonably with the work of elaborate equipment—ought to be of more general interest now than in peacetime, as so many doctors are working in unusual circumstances. The basis of the method depends on the fact that a camera will take a photograph of a "virtual" image—e.g., a reflection in a mirror—as easily as it will that of a "real" one. The image seen in the eyepiece of a microscope is a virtual one, and the results which can be obtained by the method described depend largely on the fact that practically all microscopes work best when the image is viewed in this way. It is relatively seldom that they are so used even in the most expensive photomicrographic equipments; even the projection oculars are to some extent a makeshift, though much better than the ordinary Huygenian type occasionally used as such. The microscope objective is so constructed that it gives its finest optical results when used with a definite tube-length and the image turned into a virtual one by the eyepiece,

focus for infinity thus fixed. If this gadget is then put in front of the eyepiece a small part of the image will be seen through it correctly focused. If the image is somewhat blurred a touch on the fine adjustment will bring it into correct focus. Once it has been found, as it may, that the operator's eye is emmetropic and no adjustment of the fine adjustment is needed, it is not necessary to repeat this manoeuvre every time unless lighting conditions are trying or one is doing a great deal of close work. In these conditions the focus of the eye is liable to alter sufficiently to make some slight correction necessary, though I personally have not found the need for it. If, on the other hand, the operator is myopic and wants to take a number of photographs one after the other, a simpler way is to focus the viewing gadget to show a sharp image with the microscope focused as the operator normally uses it, and then turn the gadget on to some object in the room which shows in sharp focus, and measure its distance from the gadget itself. This will give the correct distance of the virtual image, and if the camera is focused for this distance the resulting photographs will be sharp without further adjustment of the microscope focusing.

Position of Camera Lens

The next point is to see that all the light coming through the eyepiece enters the camera lens. In order to do this it is important that the camera lens should be close to the eyepiece and the lens diaphragm opened as wide as possible. Closing the diaphragm will not increase the sharpness of the picture; it will merely limit the field of view. One might mention here that, though reference has been made throughout to a microscope, the method is just as applicable to any other optical instrument using an eyepiece which gives a virtual image—such as a telescope, spectroscope, range-finder, or even a field-glass, through which, with care, excellent telephotographs can be taken. Care should naturally be taken that there is no dust on either eyepiece or lens to scatter the light and so cause unwanted fog. For this reason, also, the simple triplet type of anastigmat—such as the Zeiss Tessar, the Leitz Elmar, and the Aldis—is probably the best, as with this type unwanted reflections and flare spots are less likely to occur. However, nearly any type of anastigmat will serve, as well as any type of camera. The focal length of the lens is of some importance: the longer the focal length the larger the resulting photographs, the less the need for enlargement, the larger the plate or film required, and—a very great disadvantage—the longer the exposure needed.

Placing the camera so that it is truly in line with the microscope tube is not a difficult matter. It can be gauged by the eye accurately enough for all purposes, and with the tube horizontal one can in a minute or so make up a pile of books of the right height, get the camera out of its case and place it firmly on them, and take the photograph. If the tube is to be kept vertical some sort of stand for the camera must of course be used, and once this is fixed, or a block of wood made the right height for the horizontal tube, the operation is even simpler still. It is wise, though not always necessary, to put a cloth or collar round the junction of the eyepiece and the lens to exclude extraneous light, and unless a wire release is used it is best to make the exposure by putting a card between the illuminant and the microscope stage, open the shutter, and then, when everything has settled down again, give the exposure by removing the card for the time required, closing the shutter after the card has been replaced or, alternatively, switching the electric illuminant on and off—that is, unless a slow instantaneous exposure is required.

Exposure and Development

Judging the exposure is not very difficult after a few trials. Most modern films will give a reasonably good print if not over-exposed more than about five or even ten times; so if one is in doubt and is using a miniature camera with its cheap film, it is best to give two exposures—one perhaps a third what one estimates, and the other about ten times as long. One or other of these exposures should give a nearly perfect result. Where exposure needs to be exact is when photographing unstained objects such as diatoms. Using a 2-in. lens, one may say roughly that if with artificial illumination the image is uncomfortably bright and gives a feeling of glare, a fast film such as Selo H.P.2 will require about 1/10 second,



Trichinella spiralis encysted in infected pork.
(Low power—1 in.; $\times 100$ approx.)

and the virtual image thus formed is focused at infinity—i.e., as seen by an emmetropic eye completely relaxed. This is the normal and ideal position, though a person with hypermetropia or myopia will naturally focus the image at the most comfortable distance for himself.

In this ideal position clearly the conditions required for photographing this virtual image focused at infinity are that the camera itself should be focused at infinity, the lens put in such a position that all the light coming through the eyepiece enters the lens, and the camera itself put truly in line with the microscope tube. The only thing left is to make the correct exposure and develop the film or plate. For all that it is so simple—literally simple owing to the excellence of present-day microscopes, cameras, and films—a few remarks on the various points mentioned may prove helpful.

Focusing at Infinity

The first point is to ensure that the virtual image is correctly focused at infinity. The simplest way of doing this is to construct a small viewing telescope of low power with which to view the image. This is easily done by sticking a small magnifying-glass of about 4-in. focus—non-achromatism does not matter—at the end of a short tube of cardboard, etc., and sliding into the other end a spare eyepiece from the microscope. This should then be focused on some distant object and its

a slow film such as F.P.2 needing five times as much. Using daylight as an illuminant is a more tricky matter even with the help of an exposure-meter. Naturally, a panchromatic film should be used, and the best illuminant is an opal—not pearl—electric bulb of about 40 watts. Except for the lowest powers the illuminant should be correctly focused on the slide by a substage condenser, and those who have not used one will be surprised by the improved definition obtained when an achromatic condenser is employed instead of the ordinary Abbé. One advantage of this type is that with the top lens removed it usually makes an achromatic condenser of longer focus admirably suited to work with a 1/6-in. or lower power. When out of reach of electric light the side of an oil-lamp flame, correctly focused, is probably still the finest illuminant possible, and, as shake here is unlikely, the longer exposures required are not of much consequence.

The only point requiring special notice as regards development is the degree of contrast desired. In this case it is not a question of obtaining an artistic print but one which will show clearly the structures involved. Until ciné colour film becomes available once more we have to differentiate in a photograph by the use of contrast instead of colour-staining. Therefore films should usually be well developed to give as wide a contrast as possible without, however, in the case of miniature cameras, going so far as to increase grain size. We must use panchromatic film, which reproduces the brighter colours very much alike, and for this reason the use of colour-filters to bring out contrast is most desirable. For difficult work the skill of the photographer will be shown by his judicious use of these more than by anything else. Fortunately the filters do not need to be optically worked like those used on cameras, as they should be placed between the illuminant and the condenser. An opal bulb gives rather a reddish light, so the factors for blue filters will be decidedly more than they would be for half-watt lighting, and very much more than for daylight.

Conclusion

Many variants and developments of the general idea given here can be worked out. The owner of a twin-lens reflex, for example, may prefer to focus the image through the top lens before taking the photograph through the lower one. The fortunate owner of some high-power binocular microscopes might like to set his camera semi-permanently over one of the eyepieces, viewing down the other and snapping as often as he pleases. In the same way serial views through the thickness of a section or animal may be taken with the utmost economy of time and material by just moving the fine adjustment a definite amount on each occasion; and views, say, of the disposition of chromosomes in three dimensions or of the internal organs of an insect obtained in a very short time. When peace comes, students, who are often keen photographers, may by this means be helped to take a greater interest in many of their pathological and other slides by photographing them. In fact, the possibilities are as endless as the uses of optical instruments themselves; and even though the result may not invariably be first-class they should always be presentable and certainly full of interest.

The accompanying photograph, taken with a miniature camera, will give an impression of the work which can easily be done.

BIRMINGHAM HONORARY STAFF

In the latest annual report of the Birmingham United Hospital (which includes the General Hospital, founded in 1766, and the new Queen Elizabeth Hospital at Edgbaston, founded in 1938) the Board pays a grateful tribute to its honorary medical and surgical officers, upon whom heavy burdens have fallen. They are discharging important duties under the Ministry of Health, requiring frequent visits to many outlying hospitals, and yet they have continued to serve the United Hospital unsparingly. It is mentioned that as a body, speaking through the Medical Committee, which is composed solely of members of the staff, they have consistently refused to accept any portion of the funds derived from contributory schemes. From time to time there has been set aside a small percentage—at present 1%—of maintenance fees paid by the ordinary non-contributory patients. The small sums so accumulated have been applied by the Medical Committee in furtherance of the interests of the hospital. Officers who have been marked out for staff appointments have received financial help in undertaking postgraduate studies

in important medical centres in Europe and America, and in addition new scientific equipment has been bought for the hospital from a fund. It is stated to be the desire of the staff that the question of adequate payment for services rendered shall remain in abeyance until such time as the Royal Colleges of Physicians and of Surgeons or the British Medical Association have expressed their views, as proposals have been put forward which would operate on a national or at least a regional, basis.

The honorary medical and surgical staff of the Birmingham United Hospital numbers 36, and in addition there are 15 honorary consultants. The normal capacity of Queen Elizabeth Hospital of 5 beds has been temporarily increased, and the average occupancy during the year covered by the report was 592. At the General Hospital, working within a limit of 160 beds, 6,240 in-patients were admitted during the year. The comparable figure for the last pre-war year, when three times as many beds were available, was 1 upon 8,000, so that more than three-quarters of the number of patients have been treated in one-third of the beds—meaning a quicker turnover and the use of the hospital only for the acute stages of illness with consequent heavier work for the nursing staff, to whom a tribute is paid for its "admirable spirit of cheerful service."

UNCOUNTED LONDON

For the first time in its history it is not possible to state the population of London. The London citizen may from the superficial aspect of its streets conclude that it is more crowded than ever, but the statistician is silent on the subject, saying only that the population is much smaller than before the war. The absence of this governing figure takes away much of the value of the statistics which are given in the report of the London County Medical Officer of Health for 1942.¹ We are told, for example, that the deaths of Londoners during that year were 7,500 fewer than during the year before, and the birth rate 7,000 more, but the rates per 1,000 of population cannot be given. The picture of the infectious diseases incidence is little more clear, since the heaviest incidence is among children and it is known that the child population has increased. The number of elementary school children went up by 72,000 during 1942, and that fact must be borne in mind, otherwise an increase of nearly 9,000 in the number of notifications of measles and of 2,000 in those of scarlet fever would be misinterpreted. In general, the pattern of the health of London repeats that of the whole country. Deaths from influenza, rheumatic fever, pneumonia, and infectious diseases showed a gratifying decline. Infant mortality fell to 50 per 1,000 births, although that figure is above the record low rate in 1939 of 47. The rate of maternal mortality fell to 2.51, but in 1939 it was 1.97. It is worthy of note that of the 40,000 births in London 12,000 took place in the Council's hospitals, and 11,000 others were attended by midwives under the Council's domiciliary scheme. Figures are never quite what they seem, and the deceptiveness is increased in the confusions of war. From a superficial study of the figures for attendances at the venereal diseases clinics in London one would suppose that venereal diseases were declining. The total of new cases in males seen at the clinics in 1942 was just half of what it was in 1938, but the clinics deal mainly with civilians who, at the young ages, 18 to 30, are not nearly so numerous in London, especially the men, as in pre-war years. Another factor to be borne in mind is the success of the drug treatment of gonorrhoea, which means that many patients who formerly attended the public clinics are now treated by private practitioners. "There is little doubt," says Dr. Allen Daley in his report, "that for each sex the incidence rate is increasing." The school medical service of London assumed a more normal shape during the fourth year of war with an elementary school population increasing from 148,000 at the beginning of 1942 to 220,000 at its close. An examination of 88,000 children in the five age groups (that is, on entering school, at 7, at 11, and at 13 plus) was carried out, and unsatisfactory nutrition was covered in 6.2%, being almost the same proportion (6.6%) in 1938, when the examination covered twice the number of children. That the nutritional condition of the great majority is satisfactory is attested by some independent observers, and others by Dr. Sydenstricker, an American authority on deficiency diseases, who, at the request of the Ministry of Health, made a sample examination. In the examination of the 88,000

¹ London County Council. *Interim Report of the County Medical Officer of Health and School Medical Officer for the Year 1942.* (6d., post free 7d.)

children obvious decay of the teeth was found in 36% and defective vision (6/9 or worse) in nearly 24%. There was a welcome improvement in the cleanliness of the hair and also in the incidence of skin diseases, which was only 2%. Finally, the mental health services are the subject of a short section of the report. The number of mental patients in London continues to fall. At the end of 1942 the inmates of mental hospitals and institutions for mental defectives totalled 31,400, being 3,000 fewer than at the outbreak of war. The same decrease was noted in the last year, and it is not limited to London. Possibly, with full employment and lessened economic stringency for many individuals and families, many mental breakdowns are averted.

SOCIAL MEDICINE IN SCOTLAND

The Englishman may well have begun to wonder why Scotland has been able to initiate a number of experiments in social medicine since war began, and the Department of Health, in the opening pages of a pamphlet describing these experiments,¹ acknowledges that the accommodation available in E.M.S. hospitals has made much of the work possible. The Clyde Basin experiment, for example—remarkable because it is directed to maintaining the health and efficiency of young civilian workers—was made practicable because beds were available at two base hospitals—Law and Killearn—in addition to convalescent-home accommodation. The patients are referred for overhaul by their own doctors, and are examined by consultants where necessary; if further examination is required they are admitted to E.M.S. hospitals, or they may be sent for convalescence to one of the auxiliary hospitals. In one year 1,400 young people were dealt with under the scheme, and by the end of June, 1943, that number had risen to 4,126. A detailed analysis of the first 1,200 cases shows that some 40% were admitted to hospital for investigation and 14% sent to convalescent homes. The great majority of those patients suffered not from serious organic disease but rather from vague ill-health of the nature of debility, anaemia, and anxiety states, the result of continued strain. The Department concludes from a general review of the working of the scheme that:

"(1) There is need for facilities such as are provided under the scheme, though not necessarily on exactly the present lines—admittedly experimental. (2) At present too many of the cases of fatigue carry on until unfit for work, when the period required for return of capacity is prolonged; more adequate facilities for ordinary—e.g., week-end—rest and recreation would help to prevent some of the conditions found. (3) Much of the vague ill-health encountered was due to long hours of work, travelling difficulties, and inappropriate dietaries as evidenced by the large proportion of cases without serious organic disease. (4) The vast majority of the patients sent for convalescence have benefited by the rest and change provided; the removal of fears of serious disease by complete medical overhaul provides the reassurance so helpful in expediting recovery. (5) The hospital reports must be of value in affording to the patient's own doctor a useful background not only for present but for future reference. (6) The proportion of cases with early organic disease elicited in the course of hospital investigation but not detected by ordinary clinic and specialist facilities is small; where institutional admission can be most helpful in such cases is mainly in the elucidation of causal factors."

Among other work described in the pamphlet is a study of the health and working experience of men and women invalided from the Forces. It was found that 65% of the men received attention from their own doctors and 16% hospital care for the condition responsible for their discharge within 6 months of returning to civil life. Six months after leaving the Services 16.5% were unemployed, 40% were doing their old work, and 43.5% had taken up new work; 39% reported they were having difficulties, and the nature of those difficulties showed how intimately related were their medical, social, and occupational aspects. An investigation into long-term incapacity for work, the steps taken to reduce waiting lists of voluntary hospitals, and the Gleneagles Fitness Centre are also described in the booklet. Of the last named the Department says it is as yet too early to assess its value, but from the enthusiasm of the patients and their co-operation it is obvious that the centre meets a real need.

¹ *Health and Industrial Efficiency: Scottish Experiments in Social Medicine*, H.M. Stationery Office, 1943. (1s.)

THE RENEWAL OF CIVILIZATION

PROBLEMS OF FEEDING EUROPE

It is hardly to be wondered at if, after four years of international violence, any sign of the reversing of the engines is regarded with scepticism. The Atlantic Charter evoked hope and cynicism in about equal parts, and now the plans which are being constructed by the United Nations for the relief and rehabilitation of the victims of war attract less interest than some minor episode of the fighting. Yet there will come a time, soon or late, when those plans will be the topic of general conversation; they will seem as paramount as the prosecution of the war seems now, and eighty millions of our national income will probably be spent upon their furtherance.

At Washington early in November forty-four nations signed a draft agreement for a Relief and Rehabilitation Administration. They are called the United Nations, but, strictly speaking, the United Nations number thirty-three; there are ten others, chiefly Central and South American States, associated with the United Nations in the war, and there is the French Committee of National Liberation, making the forty-four. The purpose of the Administration is to meet the basic needs of the victims of war in the territories controlled by the signatories, including the areas liberated from the enemy. The preamble of the agreement ordains that immediately upon the liberation of any area the population shall receive aid and relief in the shape of food, clothing, shelter, and measures for the prevention of pestilence and recovery of health. At the conference which has taken place lately at Atlantic City, Dr. T. H. Parran, Surgeon-General of the U.S. Public Health Service, stated that reports from France and Poland in particular indicate the need for swift moves to counter the spread of epidemics, especially of typhus and tuberculosis. As many as 21,000,000 people will, in his computation, be returning to their homes. He stated that teams of physicians and technicians, each team capable of dealing with a group of 10,000 persons, were being organized and medical supplies accumulated. The returning people will be passed through centres where they will be examined for contagious diseases and will be vaccinated and, if necessary, put in quarantine.

A council, representative of the principal Governments, is created by the agreement, with power to establish general policies. It will receive reports and recommendations from standing committees, including one for Europe and another for the Far East, and there will be a central body composed of representatives of the United States, Great Britain, Soviet Russia, and China for emergency decisions. The agreement is an instrument of ten articles, one of which deals with the appointment of a Director-General, who will have power to carry out relief policies. The American Secretary of State, Mr. Stettinius, says that in the course of the negotiations he has learnt the great importance which all the united and associated nations attach to this project and their eagerness to make the utmost possible contribution. It will certainly all be needed if any halt is to be called to the spectres of famine and plague which not only accompany war but follow for long in its wake. It is to be hoped that this instrument will be more effective than the League of Nations Covenant, the penultimate article of which called upon the members of the League to encourage and promote the improvement of health, the prevention of disease, and the mitigation of suffering throughout the world.

Famine Conditions in Belgium

Meanwhile the Famine Relief Committee in London has issued, above the signature of Lord Horder, its chairman, a report on conditions in Belgium, from which, of all the famine countries, the evidence is most complete. The calorie value of the official basic ration in Belgium per day is 1,280, less than half of that required for health, and about half of that which obtained during the last war, when Belgium also was an occupied country. Infants and workers receive a supplementary ration, but large sections of the population have to depend upon the basic figure. Lord Selborne, Minister of Economic Warfare, has questioned these figures, but he admits that large groups of the population receive an average daily allowance no greater than 1,550 calories. One of the most striking evidences of dangerous undernutrition is the occurrence

of hunger oedema, which has been seen in some of the refugees, not of the poor class, who have arrived lately in this country.

A report by Prof. Heymans of Ghent, made a year ago, gave the consumption per head per day of the Belgian people in 1939 as 2,868 calories, compared with present rations, including supplementaries, of 1,450 for children of 6 to 14, and 1,230 for adolescents of 18 to 21. It is stated that in Liège a daily ration of 1,300 to 1,500 calories has resulted in an average loss of weight of 12% in the individuals attending the polyclinic of the university. Apparently there is no striking rise in infant mortality. In 1939 the rate was 73 per 1,000 births, and in 1942 it was 78 (it is not clear whether these figures relate to the whole country or only to certain maternity clinics). A supplementary ration is allowed to tuberculous persons, and during the first six months of 1942 the number of persons receiving such allowances rose from 69,000 to 88,500. Heymans says that if the Belgian people continue to be undernourished tuberculosis will assume more and more a catastrophic character, causing a fatal enfeeblement of the race. A great shortage—in some cases a complete lack—of necessary drugs began in 1941, and in view of the embargo afterwards imposed by the British Government there is an element of tragedy in Heymans's further statement that "we are permitted to entertain certain hopes of still more important arrivals of medicaments."

Famine in Many Lands

Some further light on the European situation was afforded at a conference called recently by the London Area Committee of the Association of Scientific Workers. Another Belgian authority, Dr. A. Marteau, gave an account of the situation in actual weights of food, not calories. Millions of Belgians, he said, now exist on a daily ration of 1/2 lb. of poor-quality bread, a few potatoes, and occasionally a tiny piece of meat. At the same conference conditions in Czechoslovakia were described by Dr. V. Kruta, who said that in that country the rations are deficient in energy value by some 500 to 800 calories a day for all classes of consumers; they are deficient also in protein and in vitamins, especially A and D. Here again an alarming increase in tuberculosis is recorded, as well as a rise in general and infant mortality. The occurrence of a new skin disease suggestive of vitamin A deficiency is mentioned.

Greece still presents a dire spectacle of famine. Dr. A. Cawadias gave the conference an account of the intense famine periods, separated by certain lulls, since the occupation. The arrival of some cargoes of foodstuffs gave a restricted relief, and brought down the terrible mortality and morbidity, but the occurrence of some epidemics, especially of dysenteric diseases, and of typhus in Athens and elsewhere, has confirmed what was already known—that the effects of famine do not cease with arrival of food. During 1943 continued malnutrition in Greece has resulted in a great increase of malaria, hunger oedema, and tuberculosis.

The task before the U.N.R.R.A. is certainly formidable, and, as Prof. J. R. Marrack urged at the conference, it is most important that it should have power to acquire stocks and control of shipping and internal transport. Certain lessons and warnings may be gathered from the end of the last war, when the relief given was twice blessed, because although the giver—mainly the American taxpayer—was not repaid, the cost to him was less than that of the dislocation of economy which would have occurred if the farmers in the United States had been left with the stocks on their hands. But supplies last time were, nevertheless, inadequate; they were not based on physiological needs, which then were not so well understood as they are now, and they were mainly just what happened to be surplus.

COMMUNAL RESTAURANTS

St. Louis, 400 years ago, predicted the communal restaurant. He pictured the whole of the citizens of the ward coming at appointed hours to dinner or supper, saying that it was "a folly to take the pain to visit a bad dinner at home when they might be welcome to good and fine fair so nigh at hand at the hall." The 2,000 public canteens dignified as "British Restaurants" may be the beginning of the realization of More's dream, or they may prove to be wartime developments and fade into nothingness when commercial catering is fully resumed. But we are told that rationing will continue perhaps for years after the war, so that

municipalities may continue to provide a restaurant service as they provide baths and wash-houses or parks and gardens. Meanwhile these restaurants are evoking a new social form. They are serving over half a million people every day, and it is estimated that they are probably saving 200,000 of these from the monotony of carried sandwich lunch or the inadequacy of a "snack." The communal feeding centres made their appearance during the aerobombardment of 1940. They were, spiritually, next door to the emergency centres for the relief of the homeless. It was considered a good thing to have a number of public kitchens in running order. But they have persisted and have acquired a certain pride of their own. There remains about them an element of improvisation: the staff are less professional, though not less efficient, than ordinary catering establishments, and there is a certain homeliness about the arrangements. Most of these places are controlled by the local authority, but a certain number by voluntary committees recognized by the Ministry of Food. They are not run for profit, which is not to say that they are more or less efficient than establishments which are. The Research Group of the London Council Social Service, under the direction of Mr. F. Le Gros Clark, has made a study of a cross-section of these places in London and has published the results in a sixpenny pamphlet obtainable from the offices of the Council (7, Bayley Street, W.C.1). The group found the restaurants generally bright and roomy, some of them with mur decorations, the arrangements approximating rather to the mess-room or refectory than to the traditional restaurant. The food is fresh and good, cleanly prepared and served, and cheap. The customers are drawn mostly from those who work in the neighbourhood and require a meal away from home, but there are two special categories served—housewives and elderly persons. The housewife comes, must be supposed, to eke out the domestic ration or to save fuel and kitchen work. As for aged persons, a large number of the restaurants give special treatment to old-age pensioners, who obtain their meals at a lower price and are allotted a special table or served at a special hour. No doubt many of these old people live in squalid rooms and neglect their dietetic welfare. It is no small benefit to them to have a hot meal, served by a considerate staff, and accompanied by cheerful conversation with their kind. Mr. Le Gros Clark suggests that a medical survey might usefully be made of a group of 70-year-old men and women who attend regularly at one of these restaurants and a similar group who do not. It is possible, of course, that these British Restaurants might be used, quietly, for the inculcation of better food standards. In some cases the management are said to discuss food values with their customers or even to organize demonstrations in favour of certain dishes or certain food habits, popularizing the salad, the cheese dish, perhaps even the meatless day. But up to now it is their social value and the nutritional value for large numbers of people who otherwise would be indifferently fed which merit their continuance.

Reports of Societies

SURGICAL PATHOLOGY OF RECTAL CANCER

In his presidential address to the Section of Proctology of the Royal Society of Medicine Dr. CUTHBERT E. DUKES gave a general survey of the surgical pathology of rectal cancer and analysed the results of treatment of more than 1,000 patients.

The position of a malignant tumour in the rectum made little difference to prognosis after excision provided no lymphatic metastases were present, but in cases with glandular spread the survival rates were slightly better for tumours of the upper and lower thirds than of the rectal ampulla. The size of the growth was no indication of the extent of spread, but deep ulceration was usually a sign that it had penetrated deeply. It was rare for rectal cancer to spread upwards within the bowel wall for more than a short distance above the visible margin of growth. Signs of intravenous spread had been found in 17% of operation specimens of rectal cancer, being commonest in anaplastic growths of a high grade of malignancy. Hepatic metastases were more likely to be found in the cases. The survival rates for patients with demonstrable venous spread were not so good as for those without venous involvement, but much depended on the extent of the intravascular growth. If firmly fixed and limited to the outer margin of the primary tumour it had about the same significance as isolated lymphatic metastasis, but if massive and accompanied by loose clots the passage of emboli to the liver was almost certain to have occurred. Lymphatic spread was closely dependent on the histology of the primary tumour, being rarely found in growths of a low grade of malignancy, but almost invariably accompanying rapidly growing anaplastic

tumours. Patients with one to three metastases often survived five years, but the fifth anniversary was rarely reached by patients with four or five. A survey of the extent of local and lymphatic spread in a large series of patients treated by a combined operation had shown that about half of these might have stood just as good a chance of cure if a perineal excision had been done instead. In the other half it was probable that if the surgeon had known in advance all that was subsequently revealed in the pathologist's report concerning extent of spread he would have decided that the patient stood a better chance with a combined excision.

Recurrences and Survival Rates

A survey of the results of surgical treatment in a series of more than 1,000 cases showed that most recurrences manifested themselves within the first three years after operation, and that it was very rare for a patient who had passed the fifth anniversary of his operation to die of rectal cancer. Judged on a five-year survival basis, the surgical treatment given to these patients cured approximately half of them. Rectal cancer was commoner in men than in women, though at the time of treatment the disease was generally at a more advanced stage in women. After operation the survival curves followed a similar course for three or four years, after which there were more female survivors than male.

More than 80% of cases in which growth was limited to the rectum and more than 60% of cases in which, while there was spread to perirectal fat, there were no glandular metastases, were cured by operation, but unfortunately less than half the patients at present were operated on at these stages. Once lymphatic spread had begun, the prospects of surgical cure rapidly declined. For cases without lymphatic metastases the survival rate was practically the same irrespective of the type of operation, but for those with lymphatic metastases the results of the combined operation showed an improvement of 13% on perineal excision, and with recent improvements in surgical technique this figure might reach 15 or 20%.

In conclusion Dr. Dukas said that one obvious way of improving the results of surgical treatment would be to provide more facilities for postgraduate study and the sharing of experience. It should also be made better known that in its early stages rectal cancer could be completely cured, and that even in more advanced cases surgical treatment was often satisfactory. The need was earlier diagnosis.

CONTRIBUTION OF ORTHOPAEDIC SURGERY TO HOSPITAL DEVELOPMENT

In an address from the chair of the Section of Orthopaedics of the Royal Society of Medicine on Nov. 2 Mr. S. A. S. MALKIN spoke on the contribution of orthopaedic surgery to hospital development, and took as an example Harlow Wood Orthopaedic Hospital, near Mansfield, Nottinghamshire, with the development of which he was much concerned.

Mr. Malkin recalled a paper by the late Sir Robert Jones and Mr. G. R. Girdlestone which appeared in the *British Medical Journal* in 1919 concerning a proposed scheme for the cure of crippled children. It interested him because he was then working in a military orthopaedic hospital and had become accustomed to Army organization, whereby the sick and wounded, wherever their sickness might have developed or their wounds have been received, were sent to a place where the appropriate treatment was available for their condition. He was impressed by the absence of such a scheme for civilians, whose treatment seemed to depend not on their need but on the place where their need arose. The scheme put forward by Sir Robert Jones and Mr. Girdlestone, apart from providing treatment for crippled children, suggested a small-scale experiment in hospital organization. It contemplated a division of the country into districts, in each of which would be established a country orthopaedic hospital with a system of scattered out-patient clinics, while administration and treatment would be co-ordinated by a committee working under the Ministry of Health.

In 1923 Mr. Malkin was appointed orthopaedic surgeon to the Nottingham Cripples Guild for the purpose of developing a scheme on the lines of Sir Robert Jones's national plan. The work began in a small physiotherapy clinic, but was assisted by an allocation of a few beds in a hospital fifty miles from Nottingham. Ultimately 40 patients were accommodated at this hospital, all of whom were paid for by Nottingham authorities, public or private. In the meantime a larger new out-patient department was built at Nottingham, and later six voluntary clinics were established in various centres,

each with its independent committee and responsible for the main tenance of the patients from its own area requiring orthopaedic treatment. After these clinics had been established a joint committee on which all of them were represented was formed with the object of pushing forward the provision of an orthopaedic hospital to serve the region. A site was given by the late Duke of Portland, and in 1929 a hospital of 80 beds was opened by the present King and Queen to serve Nottinghamshire and parts of adjoining counties. Additions were made to the bed accommodation, which by 1936 had increased to 155, including a small private block.

Co-operation with the State

After pointing out some special features in the planning of the hospital, Mr. Malkin said that when the war came the Ministry of Health took the view that in the North Midland region it was better to enlarge an existing institution than to create a new one for orthopaedic work. By agreement with the hospital committee the Ministry acquired in the hospital grounds certain sites on a twenty years lease for its own wards and ancillary buildings, and on these sites E.M.S. buildings were erected. With these additions the hospital was able to accommodate 355 patients; it also controlled an annexe of 50 beds used as a rehabilitation centre, and was linked with two Red Cross homes.

Apart from the cost of the E.M.S. buildings, all the capital required for the hospital had been raised by voluntary means, but the various clinic committees were expected to provide the cost of maintenance of all the patients from their areas. The staff consisted of consultants, all of whom were available as and when required and were paid for each visit, and a central staff of orthopaedic surgeons paid on a part-time basis. The latter were responsible for the work of the hospital and the clinics within easy access. A complete scheme of rehabilitation had been developed, starting with ward exercises. Recently land had been purchased on which to build a vocational training centre.

Mr. Malkin claimed that this scheme had demonstrated that hospitals controlled by voluntary committees could preserve their autonomy and yet co-operate fully with the State, and also that the service of regional hospitals could be made available throughout the region and the staff of hospitals in outlying districts be associated with the central hospital. The plan put forward by Sir Robert Jones and Mr. Girdlestone nearly a quarter of a century ago had pointed the way to a method of co-operation with the State for the provision of specialist services throughout the country, and had enabled orthopaedic surgery to make a real contribution to hospital development.

Correspondence

The Future of Medicine

SIR.—Anyone who has studied the history of our art, from the age of Hippocrates onwards, knows that, in its broad outlines, medicine shows a noteworthy parallelism with the reigning political theory and practice in each age and country. Of this I could easily, if required, adduce examples—indeed I did so in my book *Health and Conduct* published 20 years ago. But no competent medical historian nowadays will question the fact.

At present throughout the Western world—including Japan which, like Russia, is now in all essentials Westernized—standardization and regimentation of the people hold sway official justification being found in the prevalent social insecurity or in military necessity. It would therefore be absurd to expect that in this country any official or Government-sponsored scheme planned "for the better promotion of health" will not partake essentially of this principle of regimentation. The underlying idea will be that in future the *hoi polloi* will be diagnosed and treated much less as individual and much more in categories—as "cases," in fact. Accordingly, the new health centres, from which much is by many expected will necessarily come to approximate in character to sick parades, while domiciliary treatment will mean treatment of sick billets; any case obviously seriously ill will, if acute, be "rushed," and, if chronic, "shoved," into hospital. The ordinary average doctor will in future be styled M.O. He will also be no longer an individual but one of a category. His approach to each and every patient will be purely objective and one M.O. will be at any moment replaceable by another without the patient's health being in the least affected by the change.

Up to a point this sort of medical practice will work, as it does work in the combatant Services now. But just as

war itself, on however vast a scale, only works up to a point and finally breaks down as a method, so it will be with all this materialistic organization of health services. Man is by his nature an individual, not a cipher, and he expresses himself primarily in a concrete environment of actual neighbours, and only secondarily at best in an abstract one of "fellow countrymen" or even "humanity." Such is man's nature; and Nature, even when driven out with a pitchfork (*naturam expellas furcad*), has a way of reasserting herself, and sometimes, if too long pent up, with explosive and shattering violence. Galen, the medical historian and synthetist of Graeco-Roman antiquity, was for ever repeating that the real claim of his master, Hippocrates, to divinity (or sainthood) rested on his reverence for, and obedience to, Nature (*Physis*). Modern Western civilization, by its scorn for and defiance of man's essential nature, threatens without a doubt to gravitate downwards into anarchy.

Meanwhile in the sphere of medicine is it not clear that unofficial quackery is going to raise its head *pari passu* with official regimentation?—I am, etc.,

North Queensferry, Fife.

A. J. BROCK.

Medical History of Individuals

SIR.—In view of the talk of a comprehensive medical service there is one reform which is immediately applicable, urgent, and which would, unlike most medical reforms, be universally welcome. At present in the Army, I understand, there is a wonderful system whereby a man's whole medical history from the time of his medical board onwards is recorded and readily available for use by his M.O. Consider the chaos in civilian life. When a child leaves school and comes on the panel his panel doctor can only get his school medical record by writing for it. The medical board for examining a recruit does not see his panel medical record. When he is discharged from the Army again his panel doctor can only get his Army medical history by writing for it and enclosing the written permission of the patient. The man may then have to be examined by the Home Guard medical officer, by some doctor to see whether he is fit for fire-guard duties, etc., and in no case can the doctor obtain his whole medical history; each doctor has to examine him afresh.

The silly part is that the Government already has the answer to many of the questions which it poses to the examining doctor, but filed away in another Department. Thus the factory doctor is supposed to examine a new worker thoroughly and record the result, even though the Army medical board which has just discharged him or the medical authority of the school he has just left has the complete answer. Why cannot each panel patient, at any rate, have in his medical record a complete account of his condition every time he is examined on behalf of the Government? And why cannot that system be extended to the rest of the nation?

Finally, may I put in a plea for better medical records on the panel. Most of them are terrible. Usually only the medicines given are recorded. Sometimes the doctor keeps a list of the diagnoses; sometimes one can see from the record that organs were removed in the patient's last visit to hospital. Seldom are the physical signs recorded; yet these are of vital importance later, and of great assistance to the at the time, in arriving at a diagnosis.—I am, etc.,

Colchester.

M. E. LAMPARD.

Tuberculosis in Nurses

SIR.—In a leading article in the issue of Dec. 4 you regret that England has done nothing towards the investigation of the problem of tuberculosis in nurses. For once this country has not been quite so inert and remiss as usual. The Royal College of Physicians has for the past nine years been conducting just such a research, on a large scale and over a ten-year period, with the aid of the Prophit Trust. A preliminary report on the work has been published by Dr. F. Ridehalgh in the *Lancet* (Oct. 17, 1942, p. 463); a final report on tuberculosis in nurses will, it is hoped, be published shortly.—We are, etc.,

CHARLES NEWMAN,
Chairman, Prophit Survey Comm.,
Royal College of Physicians.

ALAN MONCRIEFF,
Asst. Registrar, Royal College of Physicians.

Post Mall East,
London, S.W.1.

Pneumonitis

SIR.—Dr. Maxwell raises an important point in his letter of Nov. 27 (p. 689). Although the New Sydenham Society's *Lexicon* of 1899 uses the word "pneumonitis" as synonymous with "pneumonia," we must agree with him that the latter term has by long custom come to denote a specific disease "running a definite clinical course, with a high mortality if left untreated and terminating by crisis." He might have added also that it is accompanied by a perfect series of demonstrable reactionary manifestations in the blood, typical of a specific bacterial infection. It is true that even prior to the advent of sulphonamide treatment the classical pneumonia, like many other diseases, was changing in type and was occurring in decreasing incidence whilst crises seldom presented. With the modern use or abuse of these drugs the picture may never be seen.

When the influenza epidemic, with its usual periodicity, recurred in 1918 a new picture—new to our generation—presented itself. The lungs were obviously affected, but physical signs of consolidation were obscured by the associated acute emphysema, although later x rays were found to demonstrate areas of infiltration. There was much toxæmia, no leucocytosis—on the contrary, often a leucopenia with monocytic activity, characteristic of virus infections in general—and at times a slow pulse. Anatomically the entire lung tissue was involved, and I have described elsewhere the degeneration and striking friability of the whole lung in fatal cases. In 1918 I used the term *pneumonitis* to denote the generalized inflammation of the lungs, although later I felt that the changes were degenerative and of toxæmic origin rather than inflammatory. Later I included the more chronic changes, which at times accompanied delayed resolution, these often prolonged and even simulating tuberculosis, for which they were mistaken in x-ray films.

If the term *pneumonitis* be accepted, it does not, as Dr. Maxwell says, signify anything more than an inflammation of the lungs, and should suffice until a more significant name based on a sound aetiology be coined. Furthermore, by not confounding it with pneumonia, which by now has come to denote a well-defined infective disease, our aetiological excursions will not be obscured. Instance the persistent attempts during the pandemic, and later, to bolster up Pfeiffer's bacillus as the causal factor. Whether the primary atypical pneumonia recently described is of this nature I must not opine. That it is a new disease is as unlikely as that any disease is new. Hamer² pointed out that one of the striking characteristics of influenza is its power of impressing the mind of observers as being a "new disease." It is significant that at the same time as we are hearing of this disease we are experiencing an increasing incidence of "virus" diseases—herpes zoster, infective jaundice, glandular fever, poliomyelitis and polyneuritis, and, latterly, influenza. Hence let us not dwell too long on an unusual diseased state lest we lose perspective, but rather ask ourselves whether we are working up to a new epidemic, remembering that influenza recurs in epidemic form about every 25 years. And, again, I recollect that in 1918³ I described an epidemic of "glandular fever" which merged into the influenza pandemic, and which I still feel was part and parcel of the same state, the virus having gradually exalted itself.

However, my attempts at nomenclature were not favourably received. Hence Dr. Maxwell's letter brings some satisfaction, even at this late date. Nor would I claim any originality for the use of the term. In the Westminster Hospital Museum Catalogue for 1905 and later years I find I have described specimens under the name of *pneumonitis*, although these were not exactly what I had in mind later. I have no doubt that I gathered in the word from my senior colleague Dr. R. G. Hebb—that redoubtable and learned physician-pathologist. Finally, if the condition which has aroused this correspondence be of benign nature, perhaps the name "pneumonicula," described in the Sydenham *Lexicon* as a slight pneumonia, might be suggested to those who find it difficult to depart from traditional usage.—I am, etc.,

London, W.1.

REFERENCES

- ¹ *Proc. roy. Soc. Med.*, 1919, 12, 49.
- ² Milroy Lecture, 1906.
- ³ *British Medical Journal*, July 20, 1918.

J. BURNFORD.

Omens of Influenza.

SIR.—In your leading article of Dec. 4 (p. 717) on the outbreak of influenza, in which you ask if "there are any omens by which we could predict a widespread outbreak," you comment on the apparent conflict between your information that virus A has been isolated and the statement by the Ministry of Health that "the illness from which most of the victims are suffering is not the real 'flu virus.'" This apparent difference might, I think, be explained in terms of time. It would be interesting to know if the Ministry has carried out, or means to carry out, further investigations in the same area to see if the virus A can be recovered in a later phase of the epidemic.

The simplest way of correlating these conflicting observations appears to be to regard influenza as a potential complication of any epidemic of common colds; not so much a complication of the individual who suffers from a cold, but as a social complication, for it is rarely the agents who activate this vast phenomenon who are themselves the greatest sufferers. This may be the reason why there is an apparent lag of a few weeks from the start of the wave of colds to the appearance of the influenzal wave.

Unfortunately I do not know how to express this more clearly, nor can I offer any explanation which is not highly speculative, but I published a chart illustrating this feature of the 1940 epidemic (*Journal*, May 25, 1940, p. 869). Recently a friend, who had studied my chart on that occasion, asked me if the epidemic had taken me by surprise, and I invited him to come to my surgery and he would see the answer for himself. The chart is open for inspection. There are omens of influenza, but it is impossible to imagine how they could ever be seen by anyone who tries to look for them through a fog of viruses.—I am, etc.,

Halifax.

A. GARVIE.

The Element of Fatigue in Disease To-day

SIR.—I am grateful to Dr. T. L. Hardy (Dec. 4, p. 725) for bringing out this factor in regard to peptic ulcer cases. It is showing itself at present in a number of asthmatics (and three angioneurotic oedema patients), who would otherwise have been able to "carry on," and would, therefore, never have come under my notice. One, a young woman of 23, a stockbroker's clerk by day, felt impelled to do her bit by night as an officer in the voluntary A.T.C. Another, a confectioner, short-staffed and compelled to work hard in both her bakery and her shop, added to all this amateur acting at night. A third, an accountant, only had an asthmatic paroxysm in the night after he had mown the lawn in the evening. One knows, of course, that tiredness increases an allergic tendency, and that a dish—e.g., some *réchauffé*—which will produce no ill effects if taken at lunch-time will, taken at supper by the same person, be followed by a thoroughly restless night.

In the next letter in the same issue Sir Arthur Hurst also reminds us of the frequent association of "acidity" with achlorhydria. This complaint is often met with in asthmatics, and routine gastric analyses of them often show achlorhydria or hypochlorhydria.—I am, etc.,

Manchester.

F. E. TYLCOATE.

Gunshot Wound of Innominate Artery

SIR.—Mr. G. F. Langley (Dec. 4, p. 711) records a case of gunshot wound of the innominate artery. He explains the hemiplegia which resulted on the hypothesis of cerebral anaemia due to spasm of the common carotid artery, which was observed at operation. This, however, was not checked by post-mortem examination.

In four cases of gunshot wounds of the carotid arteries, followed by hemiplegia and a fatal result in 26, 18, 15, and 72 hours after receipt of the injury, a post-mortem examination was made by Prof. John Shaw Dunn (*Lancet*, Jan. 13, 1917, p. 57). In each case an embolus had blocked either the trunk of the middle cerebral artery or its branches, with several inches of intact vessel between this point and the site of injury. In one case only was the common carotid tied on account of continuing haemorrhage from the wound. In one other the carotid trunk was found completely severed.

The progress of the paralysis beginning with a monoplegia in the case so carefully observed by Mr. Langley suggests that the pathological process may have been the same. If so the gallant attempt of Mr. Langley to save his patient was doomed to failure from its inception. The specimens have presumably been destroyed in the wreck of the Museum of the Royal College of Surgeons, but two of them are illustrated in the paper by drawings by Mr. A. K. Maxwell.—I am, etc.,

London, W.1.

LIONEL COLLEGE.

March Fracture of the Metatarsals

SIR.—All who have fresh evidence about obscure conditions should publish the facts. It is more important that what is written should be strictly accurate as to facts and up-to-date as to information and views published by others. In both respects Fl. Lieut. Barns's article on march fracture of the metatarsals (Nov. 13, p. 608) leaves much to be desired. This letter is intended to correct some mistakes and misconceptions which appear to have arisen.

No discussion of the aetiology and diagnosis of march fracture can be complete if it ignores authoritative works on the structure of the foot. As in the case of so many other "minor" abnormalities of the foot, a proper conception of the structure and nature of the foot is essential to a correct appreciation of observed facts. In his reading Barns appears to have overlooked the foot in his concern with the metatarsal. Yet even in the limited field of march fractures he has omitted several very excellent papers. Those of H. Dodd (1933) and J. Blair Hartley (1943), for instance, are of the utmost importance. It is not surprising, therefore, to find him stating: "No obvious foot deformity was observed." "The aetiology of the lesion is obscure." "The injuries were sustained . . ." (*My italics*.)

The essence of the diagnosis of march fracture is that there has been no "injury." In civilian life it is all too clear that the onset is spontaneous. In the Forces it is equally clear that the only trauma is that of repeated physiological strain and stress. In both groups the problem is not so much why march fractures arise as why they do not occur more frequently. Barns states that in one of the twenty cases the cause was a single direct trauma. In fourteen others there is the possibility of a single direct or indirect trauma. In only five of them the fracture "could not be ascribed to any particular exercise." It is therefore necessary to ask whether any of them are true march fractures—i.e., spontaneous stress fractures. We know that in civilian life it does not require the slightest change of habit to produce them. They occur quite spontaneously, though not without explanation.

As I wrote the last sentence an acquaintance, a woman civilian aged 43, asked me if it was any good rubbing an aching foot. She then told me the following story. Three days previously she had woken up with an ache across the dorsum of the foot. She rubbed it. As she walked about during the day she felt as if her toes were being forcibly dorsiflexed. A little pain developed. Her foot swelled over the top of her shoe. The pain was worst if she stood up on her toes. She limped a little, but was not otherwise incommoded. The swelling had now gone, but the ache persisted intermittently. I told her of Barns's article, read out to her the identical symptoms which he records, and told her of the sentence I had just written. An examination of her foot revealed the other well-known points—namely, tenderness restricted to the dorsal aspect of one (the second) metatarsal, no swelling, no bruising, and the expected deformity of the foot.

In her case the deformity was obvious. (It was confirmed next day by x rays, which were otherwise "normal.") There was an everted heel, a pronated foot with bulging scaphoid, and "low arch"; there was also some hallux valgus and spread metatarsal. The essential deformity (for march fractures of the second metatarsal) was the elevated first metatarsal. When she stood with the heel upright the first metatarsal head left the floor and the hallux plantar-flexed. It has been shown by D. J. Morton, and confirmed in Britain, that each metatarsal transmits a share of the weight borne by the forefoot. It is normally two units for the first and one unit for each of the other four metatarsals. Morton (1935) showed that the first metatarsal (and the internal cuneiform) may be hypermobile. Lambrinudi (1937) has described cases of permanently elevated

first metatarsal. First metatarsals so short that they do not take their share of the weight are described. Whichever the cause, there is failure of support at the front and inner side of the foot, and the foot rolls over into pronation. When this happens a change may occur in the second metatarsal. If it is elevated or hypermobile nothing happens to it. When it is firmly fixed it either hypertrophies (Morton's and Kohler's stout second metatarsal), undergoes the change known as Kohler II, or is affected by march fracture—i.e., stress fracture. The deformities are present for all to see, but they may be very slight. As I have pointed out on other occasions, the foot is a very small object, made up of small and even minute structures, and when we examine for abnormalities we must look for small deviations from the normal. It is failure to appreciate that fact which leads to the statements that there was "no obvious foot deformity" and that "the aetiology is obscure."

The explanation of march fracture affecting other than the second metatarsals—and I have seen one even of the fifth—is failure of the supporting action of adjacent metatarsals so that undue stress is thrown on the one which fractures. I have seen the third fracture after removal of the head of the second. I have seen the second fracture, become united, and then the third metatarsal give way. It should, perhaps, be explained that another reason for overlooking what many of us now regard as very evident is a misconception of the nature of the foot. It is not yet widely accepted in Great Britain that the shape of the foot, as well as its lateral balance, depends on the shape of the bones and the strength of the ligaments. Despite the experimental evidence of D. J. Morton and Norman Lake and the clinical evidence of Jack and of Lambrinudi—all of which I have been able to confirm without reserve—many British surgeons persist in the view that the muscles are the main support of the dome of the foot. The view arose as a result of the work of Sherrington on contractural and postural tonus, and is the result of misapplication of his findings. So far as the shape and balance of the foot are concerned, the part played by the muscles is to balance the foot on the leg at the universal joint and to lock the bones into a firm dome under certain circumstances. But they play second fiddle to the ligaments. I demonstrate these points very fully in my film "Some Foot Faults related to Form and Function." There is no room to amplify them here. The principle to grasp is that a structural defect of the foot frequently leads to other, and therefore secondary, defects.

The last important point to make about march fractures of the metatarsals is that it is impossible to diagnose them with certainty by x rays if one pays attention only to the fractured metatarsals. The various points about hypermobility, elevated or short metatarsals must be taken into account. Even then one can say only that it is *probably*, or is *unlikely* to be, a march fracture. I have a series of x-rays of march and ordinary traumatic fractures of metatarsals which exhibit a very wide diversity of serial x-ray changes. There is no series of changes which characterizes or distinguishes one from the other. In some cases a fracture due to a single direct trauma undergoes the changes that we have in the past accepted as characteristic of march fractures. In others a march fracture shows those said to be characteristic of the single direct traumatic type. In some the fracture may be visible before periosteal reaction," while in others the subperiosteal new shows before the absorption and osteoporosis at the fractured site demonstrate the loss of continuity of the bone. The final result may be a complete return to the normal architecture or the presence of a spindle of bone. It depends on whether displacement of the two fragments takes place. Treatment makes no difference. My practice is to apply elastoplast strapping to either type, using novocain infiltration to abolish pain if it is severe. But when most of the pain is due to contusion of the soft tissues over a wide area it is often wise to rest the foot in a walking plaster for a short period.

In short, people suffer from march fractures because the structure—the architecture—of their feet is wrong, and not because of any unusual external factor. The only part that external factors play is the same as applies to any mechanical structure. A bridge designed to carry 5 tons is more likely to give way when 10 tons go over it than one strong enough to support 10 tons.

I have made this letter long and strong because we have reached a stage in the knowledge of the behaviour of the foot when we can no longer be content to impede the diffusion of knowledge by accepting without protest articles which ignore facts accumulated by other workers.—I am, etc.,

Manchester.

W. SAYLE CREEER.

BIBLIOGRAPHY

- Dodd, H. (1933). *Brit. J. Surg.*, 21, 131.
 Harile, J. Blair (1943). *Brit. J. Radiol.*, 16, 255.
 Lambrinudi, C. (1937). *Proc. roy. Soc. Med.*, 31, 1273.
 Morton, D. J. (1935). *The Foot*, Columbia University Press.
 Sweet, H. E., and Kisner, W. H. (1943). *J. Bone Jt. Surg.*, 25, 188.

Peptic Ulcer in Youth

SIR,—In the correspondence columns of your issue for Oct. 23 (p. 523) Mr. Blacow Yates referred to a case in which gastro-enterostomy was carried out for pyloric stenosis in a youth of 19 years, and threw out the suggestion that I might be aware of the performance of this operation at an earlier age. I well remember the days when gastro-enterostomy was done for congenital hypertrophic stenosis of the pylorus in infants, but with only very occasional success.

Recently, I am glad to say, there has been a revival of interest in congenital defects generally, and gastro-enterostomy has been carried out on several occasions for atresia of the duodenum. My old pupil Stewart Feggetter of Newcastle-upon-Tyne has operated on four cases, one of which he reported in detail in the *Lancet* of Aug. 17, 1940. In May of this year, when I last visited my old hospital in Newcastle, I was invited by Mr. Norman Hodgson to deal with an infant just 5 days old and the victim of atresia which had been referred for surgical treatment by Prof. Spence. In that case gastro-enterostomy was entirely satisfactory, and the infant was thriving some months later. But these cases were clearly not of the type Mr. Yates had in mind.

In March of 1925 Dr. Dunlop Lickley of Gosforth asked me to see a little girl of 4 suffering from increasing and most troublesome vomiting which had come on with pain and was attended with rapid wasting. The patient had been a perfectly normal infant, and up to three weeks before I saw her was regarded as a healthy child. There was no blood in the vomit and no history or signs of melaena. An x-ray examination showed a very much narrowed pylorus with marked stasis. There was also albuminuria. As the condition did not yield to medical treatment and the child was rapidly getting worse operation was advised. I suspected that we were dealing with a condition simulating congenital hypertrophic stenosis. At the operation I found the pyloric end of the stomach contracted, thickened, and reddened, and the lymph nodes were enlarged. The appearances were not like those of ulceration. Posterior gastro-enterostomy was carried out, but the child developed regurgitant vomiting, and on the fourth day I had to make an entero-anastomosis. After that recovery was slow but assured, although there was some recurrence of stomach symptoms two years later associated with albuminuria. Thereafter she has kept very well, and up to the present time, 18 years after operation, has had no further return of her stomach symptoms. The patient is now in good health, is married, and expecting her first baby. Thanks to the care of Dr. Lickley the original x-ray films have been preserved and were kindly sent to me. They show marked dilatation of the stomach with gross narrowing of the pylorus and some deformity which my radiological colleague, Dr. Topham, pronounces as compatible with ulcer.—I am, etc.,

British Postgraduate Medical School, W.12.

G. GREY TURNER.

Diet in Peptic Ulcer

SIR,—In view of the disastrous effect of peptic ulceration on industry as well as on personal safety and happiness it is important to stress the uselessness of trying to make much impression on it by minor tinkering with the articles of diet.

The patients concerned in this correspondence are either those working despite the presence of an active ulcer or those who have a healed ulcer. It is most important to know under which head the patient comes. As regards the former and, I fear, numerous class, they should be recumbent and under treatment at the earliest opportunity. However, many continue to work, taking only a day or two off during the bouts of pain; eventually they present a callous ulcer. With careful

and repeated gastroscopic control, I find no difference in the comfort and rate of healing between the hospitalized patient on an "ulcer regime" of frequent feeds and alkalization and the hospitalized patient taking the normal hospital diet, only three meals a day and no drugs at all. In view of this fact I do not think this class of patient will be much benefited by instructing him to follow an abnormal dietary regime which necessitates special difficulties and anxieties about food at each meal.

The second class—the patient with the healed ulcer—appears to be comfortable on a normal full diet with the extra milk usually allowed. Should such a patient complain of dyspepsia one should suspect that the ulcer is really still unhealed or has relapsed. My own practice is to retain a patient in bed until proof of healing is obtained by gastroscopy in gastric ulcer and by radiology in duodenal ulcer cases. The practice of regarding the disappearance or absence of physical signs or of symptoms as proof of the healing of ulcers cannot be too strongly condemned. Reliable physical signs of ulceration are often absent from the start, and it is common to see an active penetrating ulcer through the gastroscope several weeks after all pain and discomfort have gone.

The most serious feature of the peptic ulcer problem, however, and the one which so often makes surgery advisable, is not difficulty in making it heal, but the strong tendency to relapse, especially in the chronic ulcer, and even after good healing. Local deformity, fixation, or stenosis makes the scar site more susceptible to local traumata, and it is probable that the thin, newly regenerated mucosa, which occupies the centre of the scar, lacks the protective anti-acid-pepsin factor or lacks mucus-secreting cells. Again, I doubt if any special dietetic factors, apart from the coarsest roughage, would make much difference to the relapse rate. Many of our most conscientious patients relapse repeatedly. A varied, easily prepared diet containing adequate vitamin, especially C, as well as adequate nourishment is important in the attainment and maintenance of healing. Only gastric irritants and coarse roughage need be avoided.

Careful inquiry directed to the time preceding the first dyspepsia often elicits a history of irregular or missed meals, or a sudden change in the hours of taking the main meals. This suggests that workers and employers should be informed of the importance of getting regular meals leisurely masticated with rest before and afterwards in reasonably pleasant surroundings, and of taking breakfast before starting work. Much also could be done to enable workers to live near their place of work, which would help them to have extra time for leisure. Shift work should be regarded as bad in principle, and might be rectified by making employees either day or night workers—possibly making financial compensation to those who adopt the less popular hours. These, too, are the lines on which we must tackle the more important question of the prevention of ulcer.—I am, etc.,

NORMAN TANNER.

Scabies

SIR,—Dr. MacCormac's article (Nov. 27, p. 667) on three skin diseases in wartime deals instructively with this subject, and if those treating scabies all carry out his directions an immense improvement in the present situation will occur. Two applications of 25% benzyl benzoate emulsion, as he describes, will give uniformly good results, although authorities with really skilled treatment orderlies have obtained equal success with one application (see Graham, J. R., *Journal*, 1943, 1, 413). It is tragically common still to find people with a sulphur dermatitis on one part of the body and a live sarcoptic infection on another; to find patients who have been instructed to apply a medicament daily for an unlimited period and to boil all their bedclothes every day; and to find children deprived of months of schooling because of a disease which can be rendered non-infective in a matter of minutes and completely cleared up almost as rapidly.

With regard to disinfection of bedding and garments, I still feel that, although this can do no harm and may occasionally be useful, provided that it does not divert energies from more important measures, Dr. MacCormac's evidence of a "minor epidemic occurring among fire-watching parties through communal blankets" requires some comments. I am afraid this

phrase will be quoted and reproduced in textbooks, so that in twenty or thirty years we will be faced with the statement that such an epidemic did, in fact, take place during this war. I have been unable to find evidence of localized epidemics of scabies, either among fire-watchers or among groups of military personnel living under confined conditions. Of course one commonly sees fire-watchers with scabies, but then practically the whole adult civilian population of the country engages in fire-watching. The evidence that fire-watchers have contracted their scabies through "communal blankets" is scanty and is mainly based on unsupported statements from the patients themselves. Similarly, in the early part of the war practically every soldier with scabies attributed his infection to blankets, but it has been shown since that most of these infections came from outside civilian sources.

I would submit that, while scabies is widespread and is indeed causing a minor epidemic, there is no evidence to suggest that this epidemic has been greatly aggravated by communal blankets among fire-watchers, nor indeed that fire-watchers, as such, are particularly prone to infection. Furthermore, if a few people are probably infected through the intermediary of fomites, reinfection from this source, after benzyl benzoate treatment, is rare, due to the acaricidal medicament on the skin of the subject.—I am, etc.,

Sheffield.

KENNETH MELLANBY.

X Rays and the Clinical Society of London

SIR,—In his recent presidential address on the old Clinical Society before the Clinical Section of the Royal Society of Medicine (Nov. 20, p. 651) Dr. J. D. Rolleston said that the most interesting event in its history was the first medical description of x rays in this country, which was given by Prof. Silvanus Thompson before nearly 400 members on March 30, 1896. But I was present as a guest of the late Dr. R. T. Williamson, while I was still a school-boy, at a big meeting of the Manchester Medical Society twelve days earlier—on March 18, 1896—when I heard an address by Prof. Schuster on the "Roentgen Discovery." In the discussion which followed I remember a surgeon saying how useful the rays would be in the treatment of fractures, a physician suggesting that they might reveal the presence of an aneurysm, and an obstetric surgeon saying, amidst much laughter, that they might help him to diagnose the presence of twins.—I am, etc.,

Oxford.

ARTHUR HURST.

Surgical Tuberculosis in South Africa

SIR,—The *Journal* of Aug. 14 containing my letter has just reached me. I did not intend to imply that cases of "the typical non-pulmonary lesions of the disease in humans" are due to the bovine bacillus, but was merely drawing attention to the extreme frequency of surgical tuberculosis in this country. I agree with the rareness of these lesions being caused by the bovine bacillus. Where the bacillus could be identified in cases investigated from this hospital the causal organism has always been the human bacillus.

What has impressed me, however, is the comparative infrequency of both pulmonary and surgical tuberculosis occurring in the one individual. Patients have either pulmonary or surgical tuberculosis, rarely both. It is an admitted fact that human beings can suffer from infection by the bovine bacillus. Is it possible that some of the dairy stock in South Africa is infected with the human bacillus, and in this way accounting for the frequency of the human bacilli in human affection?—I am, etc.,

Lovedale, Cape Province.

W. C. J. COOPER.

Analgesia in Midwifery: A "Mechanical Midwife"

SIR,—Having experimented rather gloomily over many years with most of the vaunted techniques for producing analgesia in midwifery the machine described by Dr. H. Rex Marrett in your issue of May 23, 1942 (p. 643), seemed possibly the answer to a matron's prayer. I have now used it in fifty cases of domiciliary midwifery and would like to sing its praises to the skies. With one bottle, for trilete only, it is light-weight and compact. It is completely simple to operate, with no taps to turn or moving parts to go wrong; and it really produces analgesia. It can be left with the mother during the first

stage, so that she can help herself to small doses as the pains get stronger. With a minimum of supervision the nurse can increase the dose during the second stage. If full anaesthesia is needed it is simple to strap on the face-piece and have the patient just where she is wanted in a few minutes.

This machine really does take half the trouble out of midwifery, and stymies that bugbear—the impatient relative. Finally, it costs about sixpence a case, and the machine is sold by Messrs. A. Charles King, Ltd., 27, Devonshire Street. It should be christened “Martha, the Mechanical Midwife.”—I am, etc.,

Ashted, Surrey.

W. EDWARDS.

Therapeutic Fallacies

SIR.—I was discussing some therapeutic fallacies with a recently qualified practitioner who swears by ammonium chloride in bronchitis; I inquired how such a mixture (or, for that matter, any mixture) simply by passing over the epiglottis and dropping down the gullet into the stomach could exert an expectorant effect on the bronchial passages. He replied, rather adroitly, that the ammonium chloride is excreted into the respiratory tract, where it acts as an antiseptic and stimulant! Do Drs. Linnell and Thomson accept this pharmacology?

It is surprising that enemata should find a place in the treatment of chronic constipation other than for the well-marked case of faecal impaction. The writers, however, having advocated this method, should make it more widely known that the way to give an enema is not with the old-fashioned enema syringe; this is dangerous and may do injury to the anal canal; the only way to give an enema is with a suitable rubber catheter linked by rubber tubing to a funnel. It should be administered only by a trained person.

Have the writers tried giving the synthetic vitamin B₁₂—that is, aneurine hydrochloride—for constipation? It is usually obtained in tablets of 3 mg.; 4 to 6 of these should be taken daily in moderate cases and 8 to 10 in obstinate ones. I have known this treatment give quite good results.—I am, etc.,

Salford.

JOSEPH FARNES.

Agents Provocateurs

SIR.—I was interested indeed to see your annotation on the police decoy case and Mr. Reginald Payne's letter on the same subject. This extraordinary incident has a direct bearing on an article of mine, “A Problem in Medical Certification, etc.,” which you published in June of last year.

In that article I mentioned the importance of the patient's statement, and I emphasized that not only should the doctor accept any reasonable statement which the patient gives of his symptoms, but that, in fact, he is *obliged* by his professional code to do so. By a reasonable statement is meant a statement which cannot be definitely disproved by a fair and careful clinical examination. His conscience and his honour tell him that his first and prime duty is to his patient, and the law clearly and emphatically tells him that he must not do or omit to do anything that would cause him to fail his patient in any way in which a careful and skilful doctor would not so fail that patient. He is expected to bring to bear upon his cases “a reasonable degree of care and skill,” and if he fails to do this in any case the civil law always, and the criminal law sometimes, can penalize him very severely. This does not mean, of course, that he is to accept any absurd statement a patient makes to him, but that he must give credence to any statement which, in the light of his knowledge and experience, *could reasonably be true*. He may know that the patient might be exaggerating, as many genuine sufferers do, and he might even be aware that the patient might even be lying; but I maintain that if he is faced with two reasonable alternatives he must always and deliberately accept the one in favour of the patient.

Almost any example from actual experience will convince one of this. Epilepsy cannot be diagnosed in the surgery by any known method of examination, and many practitioners are to-day successfully treating epileptics without having seen them in a fit and purely on the description of the fits given at second-hand by the patient or his relatives, as only the fortunate few have access, even indirectly, to the evidence furnished by an electrocephalogram. The doctor who refuses to certify such a person as being unfit to follow an occupation

which could be dangerous to the applicant would certainly be unable to justify himself to the coroner if his patient fell off a steeple or mangled himself in a machine, and legs he could have little hope of rebutting a charge of culpable negligence. In the eyes of his colleagues, and surely before his own conscience as well, he would be little less than a pliant murderer.

The thing is so obvious that one feels impelled to apologize for pointing it out, but it is far from being realized even by many doctors! It would be fairly easy, therefore, for a rascally conspirators who were really competent at their shabby job to bring a very telling case against almost any doctor on a question of certification.

This is a most disquieting case altogether, and exemplifies too well the dangerous tendency which is being exhibited in certain bureaucratically minded people to interfere in the liberties so dearly bought for us by de Montfort, Wycliffe, Hampden, and the rest. I am wondering what is going to happen to me and to my colleagues when and if we are put under any central control, however benevolent it may be. Torquemada, as he carefully explained, was a most benevolent fellow.—I am, etc.,

Sunderland.

A. KEFALIS.

Hospital Diets

SIR.—A short letter of mine in answer to the question raised in your columns apparently received notice in the daily press with the result that I have received what I believe is call in film circles a “fan mail.”

One letter was signed by all the patients in a ward at a certain hospital describing a menu which had not varied for four and a half months, and asking—very pertinently, I think—“What becomes of our bacon, butter, lard, eggs, and sweets?” Another describes a petition signed by inmates of the male and female wards of a sanatorium asking for more or better food, and the stopping of all ward entertainments as a punitive measure by the medical superintendent in consequence. Then I may say, was in England and not in Germany! There one complaining that herrings are cooked and served “complete with heads, guts, and scales”; and describing an epidemic of diarrhoea among patients and nurses, who had the same food. There have been other complaints that “points” coupons are removed for a greater period than the patient's stay in hospital.

Apart from the question of adequacy, there would appear to be a need for closer administrative control to ensure better cooking and the supply to patients of rations to the full value of coupons removed from their ration books. I am surprised that any hospital should require the handing over of its personal “points” for the supply of sweets, as they cannot possibly be regarded as a legitimate part of the ration.—I am, etc.,

Brookwood, Surrey.

H. M. STANLEY TURNER.

Contraception and Sterility

SIR.—Mr. Green-Armytage implies to your readers that his colleagues whose textbooks he quotes (Nov. 27, p. 691) are in agreement with his views on contraception and sterility. Yet actually these references are most moderate, and allude exclusively to the use of chemical methods, no mention being made of the other hydra-headed dangers which Mr. Green-Armytage senses in the practice of contraception. The chemical methods criticized are mainly of the “quinine” variety, which are, of course, not medically recommended; but even then the gravity of the charges seems to be limited to theoretical possibility. The following quotations include the whole relevant context.

J. H. Peel (Forsdike), p. 341: “It is claimed by some that the constant use of chemical contraceptives predisposes to subsequent sterility—without, however, very much positive evidence to support this claim.”

Blair Bell, p. 336: “It is possible that the use of chemicals for contraception practised during a long period of time may lead to sterility, for we have known such a combination of circumstance, but it is difficult to assert that the sterility is a sequel to contraceptive methods.”

Beckwith Whitehouse (Eden and Lockyer), p. 215: “Associate with the use of chemical agents is the important question of harmfulness of the preparation used. We have already referred to the irritant character of quinine and soaps upon the vaginal epithelium.”

another aspect of the same problem is whether subsequent fertility may be impaired by their use, and whether ill effects are produced upon children that result from their failure. It is not beyond the bounds of possibility that a spermatozoon may suffer trauma from a chemical spermicide, and yet be capable of fertilizing an ovum. For these reasons the employment of mechanical contraceptives appears to us to be more desirable than chemical contraceptives, apart altogether from the greater reliability of the former."

One might have thought that a theory would be more discredited than upheld if this is the best corroborative evidence upon which it can be substantiated. Let us make no mistake. The control of excessive fertility has become an integral part of our present-day family life, and the medical practitioner cannot allow himself to take an ill-informed or biased view upon the subject. If there remains any serious medical concern about the bearing of contraceptive practices upon sterility, it will be essential to search for the facts in the only scientific way—viz., a statistical inquiry into the advent of pregnancy among couples who have and have not used previous contraceptive measures. This offer was made to Mr. Green-Armytage (Nov. 6, p. 587) with the opportunity of choosing the statistician. It apparently this way of seeking truth does not appeal.—*am, etc.*

London, N.W.1.

JOAN MALLESON.

* * This correspondence is now closed.—*ED., B.M.J.*

Dentistry and Medicine

SIR,—I was surprised to find a letter in the *Journal* of Dec. 4 from a man qualified in medicine and dentistry agreeing with me in his view that there is little advantage in a dual qualification. Surely dentistry should be regarded as a specialty of medicine, and the same course should be done as in the other medical or surgical specialties? Mr. Waddy's argument leads logically to a demand for the abolition of the full medical course for the majority of specialties. However, as this is the realm of the revision of medical education I do not feel competent to pursue it further, except to state that by this I do not necessarily mean the courses as at present pursued by our future specialists.

How can a dental surgeon be described as an expert anaesthetist? As to his "considerable knowledge of medicine and surgery" I have seen little evidence of it. This "considerable knowledge" is picked up during all too brief attendances at lectures and clinics, where usually little interest is taken in him by the teaching staff, who concentrate on the medical students—it being thought apparently that these are not essential subjects for the future dental surgeon.

I am inclined to agree with Mr. Waddy concerning American dentistry, but feel that many of our own dental surgeons would agree with the Americans' estimate of their own dentistry. From the little I have seen I would say that stress appears to be laid upon craftsmanship to the detriment of the surgical aspect.

Unfortunately most of the dentists' time is taken up, as Mr. Waddy states, with prosthetic work. I cannot help wondering if a more extensive course in physiology, bacteriology, and medicine might lead to an appreciation of Dr. Broderick's *Dental Medicine* with a corresponding decline in the amount of prosthetic work done.

Lastly, if Mr. Waddy sees little, if any, advantage in a dual qualification in ordinary civilian practice, I wonder how he would explain the correspondence columns in the dental journals on the vexed question of status except as a tacit admission of the inadequacy of the dental professional standing.—*I am, etc.*

Haverfordwest, Pems.

D. STEPHENS PRICHARD.

SIR,—While it is true that the dental surgeon is, and must be for many years to come, chiefly occupied with technical procedures and the acquisition of a sound judgement in their execution, it is also true that there is a province which, because it lies on the borders of medicine and dentistry, has remained something of a "no-man's land." This made possible within our memory both the over-mechanically conceived and now obsolete type of unhygienic bridgework on the one hand, and that new massacre of the innocents, the wholesale extraction of teeth, on the other. It is the concern of both medicine and dentistry that what is important to both should be the special

study of those who may know a little of both—the medically qualified dental surgeons. Indeed there is a strong case for postgraduate facilities in this sphere available to medical and dental graduates alike.

No one will deny the necessity for training dental students to a state of technical excellence, but unless a proportion of these were also educated to view the problems of dental disease from a wide scientific standpoint the future of dentistry would be black indeed. A profession which looked no further than the mechanical repair of the effects of disease would never attract students of high capability. There is certainly no prospect of dental caries becoming a rarity until the best brains available have been further applied to the problem and their conclusions translated into administrative measures. To suppose that such endeavour should not be a principal concern of dentistry is to take a very small view of that division of the healing art; a division which, opportunity provided, should offer the highest return in public benefit by prevention, and not just the meagre dividends of palliative repair and artificial substitution.—*I am, etc.*

Basingstoke.

MARTIN A. RUSHTON.

The Human Side of Medicine

SIR,—I hope that many of our Austrian colleagues will answer the quite unnecessary and entirely unjustified insult to Viennese doctors in the letter by Dr. Alan Maberly (Nov. 20, p. 661). My own slight experience of Viennese medicine under the Socialist regime gave me an altogether different impression, which has since been confirmed by working and exchanging views with many of Vienna's best doctors now working in this country.

It is clear that Dr. Maberly does not understand what is proposed for a socialized service, the duties of a doctor to-day, or the ideal relationship between doctor and patient. He may be able to perform the curious psychological process which he suggests I should try, and separate himself into a doctor and "official" and an individual. For me, as for most medical men, there is no such possible division; whether acting as an individual toward my fellow citizens, as a doctor toward my fee-paying patients, or as an "official" toward those whom I see in any official capacity, I am still, as all doctors would be in a system in which there were no longer any fees to be competed for, concerned with the life and health of the individual whom it is my privilege to assist.—*I am, etc.*

D. STARK MURRAY.

Obituary

ROBERT WHILLIS, M.B., B.Ch.CAMB., F.R.C.S.ED.

The following obituary notice of Mr. Robert Whillis, late of Kensington Terrace, Newcastle-upon-Tyne, has been written by Mr. W. Frank Wilson at the request of his colleagues:

It was with great sorrow that the many friends and colleagues of Robert Whillis learned of his death, which occurred on Nov. 20 at the age of 45, after a somewhat protracted breakdown in health from which we had fervently hoped that he would have made a complete recovery. This was not to be, however, and we are left to mourn the loss of one who was in the prime of life and whose personal charm and generous but sensitive nature won for him a deep respect and affection from all who came in contact with him, both in and out of school. Bob Whillis (as we all knew him) received his earlier education at Uppingham School, and a letter just to hand from the present head master of Uppingham, Mr. J. F. Wolfenden, states "it is clear from his record that he was a distinguished member of the school." He played in the school rugby XV in 1916 and 1917, was a praepositor and in the Modern Sixth; surely a good record to leave behind his school-days. Having decided to follow his father's profession, he entered Pembroke College, Cambridge, and graduated M.A., M.B., B.Ch. therefrom in 1925, having previously gained the diplomas of M.R.C.S., L.R.C.P. in 1923, and was admitted a Fellow of the Royal College of Surgeons of Edinburgh in 1925. Shortly after graduation he was appointed house-surgeon and, later, house-physician at University College Hospital and afterwards spent a useful period abroad in the Viennese clinics. On his return home he obtained the appointment of registrar to the ear, nose, and throat department of the Royal Victoria Infirmary, Newcastle-upon-Tyne, later being appointed

honorary assistant, and in 1940 was elected honorary surgeon in charge of this department, a post held for 20 years by his father, who had, in 1910, originated and devised the method of complete enucleation of tonsils with the guillotine—a method which has only to be mentioned in laryngological circles to arouse discussion and often a sharp division of opinion between those who can and the others who can't master and accomplish the trick of its technique.

Robert Whillis was a most capable and conscientious worker, never sparing himself and giving the best that was in him on behalf of the hospitals with which he was associated, his colleagues, and his patients. For fifteen years we worked together in almost daily contact, and no man ever had a finer partner and friend in the truest sense of what both should stand for. He played the game for the sake of the "team," which he would never let down if any effort of his could prevent it. Had he been spared to run a longer course, his work and scrupulously upright example would have shed added lustre on the specialty in which he was so deservedly successful and upon the wider plane of medical life. He leaves behind him very pleasant and abiding memories of a dear and gentle spirit. To his widow and daughter and to his father and mother, we, his colleagues, take this opportunity of expressing our deep and sincere sympathy in their bereavement.

The death of Dr. FRANCIS BARKER will be deeply regretted by the many who knew him. A member of a well-known Scottish family and allied to others which have also achieved distinction, he was a man of fine physique and high intellectual capacity. At lawn tennis he was, as a young man, in the class of tournament players and he was a good golfer. He possessed a charming singing voice and was intensely musical besides being very well read. He specialized in gynaecology and obstetrics and in that capacity was for many years on the honorary staff of the Hospital of St. John and St. Elizabeth; he was also its medical superintendent. At the outbreak of war he became superintendent of the hospital at Ashridge Park and continued to work there till his health failed. A man of strong views and forcible personality he was loyalty itself to what he held to be right and to those who, in his opinion, followed the right, and he had a kind and generous heart. He leaves a dearly loved wife and daughter, and to them the sympathy of all his friends will go out in full measure.—V. B.

Universities and Colleges

UNIVERSITY OF OXFORD

Plastic Surgery Unit

As briefly announced last week (p. 768) the Nuffield Provincial Hospitals Trust, at Lord Nuffield's suggestion, has offered the University of Oxford £8,000 a year for ten years towards the cost of establishing and maintaining a plastic surgery unit. The University has accepted the offer and has appointed Mr. T. Pomfret Kilner as the first director of the unit with the title of Nuffield Professor of Plastic Surgery. The Radcliffe Infirmary will provide hospital facilities for the unit, and these will be supplemented by the Ministry of Pensions. The total of Lord Nuffield's direct personal gifts to the University of Oxford for the purpose of the development of the Medical School now amounts to £2,810,000. The new unit will be a centre for the training of plastic surgeons, and will work in close touch with the university laboratories in which parallel investigations of the biochemical and other problems connected with the growth and repair of tissue, fundamental to plastic surgery, will be carried on. The war has brought a greatly increased demand for the services of plastic surgeons, and Lord Nuffield's proposal was chiefly influenced by a desire to provide the best possible treatment of casualties, especially those suffering from disfigurement caused by burns.

UNIVERSITY OF CAMBRIDGE

The Board of Research Studies has approved Dorothy Stuart Russell, B.A., of Girton College for the title of the degree of Doctor of Science; Dr. Russell is also an M.A. of Oxford and an M.D. of London University. Winifred Ferguson Young, M.B., B.Chir., of Girton received the title of the degree of M.D. by diploma in November.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Council of the College has decided to proceed without delay to make an appointment to the Chair of Human and Comparative Pathology instituted under the gift recently made to the College by Mr. W. H. Collins. To this end a Board of Advisers has been appointed consisting of six members of the Council, and the President of the Royal Society, the Secretary of the Medical Research Council, the acting Regius Professor of Physic in the University of Cambridge, and Prof. J. Shaw Dunn of Glasgow. Details of the appointment are being considered and will become available at an early date.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At the annual meeting held on Dec. 2 Dr. A. Fergus Hewa F.R.F.P.S.G., F.R.S.Ed., was elected President, and Drs. Charles McNeil, L. H. F. Thatcher, A. Ninian Bruce, D. M. Lyon, W. J. Alexander, and D. K. Henderson were elected to form the Council for the ensuing year. Dr. D. M. Lyon was nominated Vice President.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting of the Faculty held on Dec. 6, with the President Mr. James H. MacDonald, in the chair, the following were admitted Fellows of Faculty:

Qua Physician: J. W. Affleck, M.B., Ch.B.; *qua* Surgeon T. Fletcher, M.D., D.P.H., F. McD. Walker, M.B., Ch.B.

FACULTY OF RADIOLOGISTS

The following candidates have satisfied the Fellowship Board at the recent examination for the Fellowship of the Faculty: F. M. Abeles, M.D., D.M.R.E., W. Tennent, M.D., D.M.R.E.

The Services

Temp. Surg. Lieut. F. E. Fraser, R.N.V.R., has been mentioned in dispatches for steadfast courage and skill in a dangerous and important minesweeping operation.

The description of Surg. Cmdr. E. R. P. Williams, O.B.E., R.N. who was appointed a Commander of the Order of Orange Nassau for services to the Royal Netherlands Navy, is as now stated and not as published on Oct. 9 (p. 468).

The names of C. P. Miller, M.B., B.S., E. O. Pedersen, M.R.C.S. (deceased), and D. W. Quanttrill, M.B., Ch.B., ship surgeons appear in a list published by the *London Gazette* of those who have been commended for brave conduct when their ships encountered enemy ships, submarines, aircraft, or mines.

Surg. Cmdr. J. D. Simpson and Acting Surg. Cmdrs. H. I. Hoffman and E. H. Parkinson, R.N.V.R., have been awarded the R.N.V.R. Officer's Decoration.

Jemadar (Assistant Surg.) N. M. Nayar, I.M.D., has been mentioned in dispatches in recognition of gallant and distinguished services in the Middle East.

CASUALTIES IN THE MEDICAL SERVICES

Prisoners of War.—Capt. J. S. Hamilton-Gibbs, War Subs. Capt. C. Nairnsey, and War Subs. Capt. A. McN. Tomlinson, R.A.M.C. *Killed on Active Service.*—War Subs. Capt. J. C. Seddon, R.A.M.C.

Died.—Lieut. N. Clarey, R.A.M.C.

DEATHS IN THE SERVICES

Capt. HUMPHREY BARRON THOMSON, M.B., R.A.M.C., who had previously been reported missing, is now officially recorded as killed in action on or shortly after Dec. 14, 1941. From the meagre accounts which have tardily filtered through from the Far East it appears that the 2nd Batt. of the East Surrey Regiment, to which he had been posted as regimental medical officer, was holding part of the border between Malaya and Thailand. The regimental aid-post of the East Surreys was attacked and wiped out by the Japanese in the early days of their invasion. The sergeant of the unit escaped and reported that Capt. Thomson was killed in this assault. Humphrey Thomson was the only son of Prof. and Mrs. W. W. D. Thomson of Belfast. Born in 1916 he was educated at Elm Park and Campbell College, Belfast. He went to the Queen's University and qualified M.B., B.Ch., B.A.O. in June, 1939. After six months in the Royal Victoria Hospital as house-physician and house-surgeon he joined the R.A.M.C. Shortly afterwards he volunteered for service in the Far East. On arrival in Malaya he acted as medical officer in the Military Hospital at Singapore, and later was posted to the East Surrey Regiment as medical officer. A correspondent writes: Humphrey Thomson was full of the joy of life, and his wit and humour, his high ideals of honour, his straightforward nature, his outspoken championship of what he considered right won the regard and affection of all his contemporaries, while his innate kindness of heart and his old-world courtesy endeared him to the older generation. During his short residence in hospital he showed great promise of a happy and useful life in the profession of his choice. Humphrey Thomson would have been the last to claim any brilliance of scholarship or profound book knowledge, but in the medical profession he found an ideal niche for his practical capabilities and shrewd common sense. His success was also due to the absorbing interest he took in his patients, whom he always regarded as men and women rather than mere "cases" and examples of various diseases. Subconsciously he obeyed the maxim of the great father of medicine—Hippocrates—"To a love of his profession

the physician should add a love of humanity." The same trait was exhibited as regimental medical officer, and his work among the ranks received high praise from his brother officers in the battalion. The exact events which happened in that far-distant regimental aid-post may never be known, but it is certain that Humphrey Thomson faced death with a smile on his face and words of cheer and comfort to the wounded and dying men of his battalion.

Medical Notes in Parliament

The White Paper

Mr. ROBERT MORGAN asked the Minister of Health on Dec. 9 whether it was still intended to produce a White Paper as to the proposals for the reformation of the medical service arising out of the recommendations of the Beveridge report. Mr. WILLINK replied that the White Paper was in preparation. He must have sufficient time to study closely the many difficult issues involved. For this reason it was not yet possible for the date of publication of the paper to be fixed, but there would be no avoidable delay. No new consultations were being initiated. The questions involved were important, complex, and delicate, so he must feel he could take real and personal responsibility for the proposals he would put forward to his colleagues. He was giving fresh consideration himself to matters on which Mr. Brown had given full consideration. He hoped the White Paper would be issued quite early next year. The House would then have an opportunity of debating it.

Infant and Child Mortality in Scotland

On Nov. 30 Mr. KIRKWOOD asked the Secretary of State for Scotland if he was aware that the rate of infant mortality since the last war among the poorer classes had, according to recent medical statistics, been the highest in the civilized world, and what steps he was taking in the matter. Mr. JOHNSTON: According to the latest information available to me the Scottish figures, bad as they are, are not the highest even among the nations of Western Europe. The causes of the variations in these infant mortality figures are not always apparent, but a report on the subject by a committee under Sir John Orr's chairmanship set up at my request by the Scottish Scientific Advisory Committee in June, 1942, will shortly be published.

Mr. GALLACHER asked if Mr. Johnston would consider calling a meeting of Scottish members and representatives of the local authorities to discuss this very serious question of health. Mr. Johnston said that that was one of the considerations to which he had been giving attention, but it was obvious, when he read the Orr report, that there were many causes contributing to these alarming figures. Dr. EDITH SUMMERSKILL: Will not Mr. Johnston agree that this question is accurate so far as it relates to children under 1 month old? Mr. JOHNSTON replied that he could not say that without notice.

Mr. KIRKWOOD also asked if the Secretary of State was aware that the child death rate in Glasgow was higher than it was in Tokio, and what immediate plans he had for the rehousing and rehabilitation of the workers in the Glasgow area to save the lives of the children. Mr. JOHNSTON: Figures for 1936 relating to the cities of Glasgow and Tokio are to the effect stated. But the official statistics published by the League of Nations show that, for the five-year period 1934-8, the infant mortality rate for the whole of Japan was half as high again as for Scotland. Bad housing is not the sole cause of a high infant mortality. Regarding the immediate provision of more housing beyond that already under construction, I can add nothing to the explanation given to Mr. Kirkwood on Nov. 11 by the Prime Minister.

Mr. KIRKWOOD: In that reply the Secretary of State for Scotland does not deny the statement made in the *British Medical Journal* that the death rate among children in Glasgow is worse than in Tokio. What steps is he going to take to remove this terrible and disgraceful situation in the West of Scotland? Mr. JOHNSTON: The figures for one year are as stated in Mr. Kirkwood's question, but over five years the figures for Tokio are 50% worse than in Glasgow. The steps we are taking to deal with this matter are, first, to find out what are the deficiencies in the way of homes, housing, and so on—to find out what are the causes of it. The Orr Committee was set up for this purpose, and the report is now in hand, and I expect it will be published.

Vaccination

On Nov. 30 Mr. WILLINK informed Mr. Viant that the policy of his Department on primary vaccination of adolescents and young adults remained as communicated to sanitary authorities in 1929 and referred to in the Chief Medical Officer's annual

report of 1933, to the effect that it was not generally expedient to press for the primary vaccination of children of school age and adolescents in this country unless they had been in personal contact with a case of smallpox or directly exposed to smallpox infection.

The same day Sir JAMES GRIGG informed Mr. A. Edwards that, in the event of the failure of at least three attempts to vaccinate or revaccinate Service personnel, an entry was made in the records to the effect that such persons were in the opinion of the vaccinating officer insusceptible of successful vaccination. In the event of such persons contracting smallpox no specific instructions had been issued, but all the relevant facts concerning the case were recorded in the appropriate documents. Instructions had been issued that in all cases of unsuccessful vaccination the operation should be repeated until there had been three successive failures with calf lymph of known potency. The record of each failure was entered in the personal documents of the officer or soldier.

Sir James Grigg also told Mr. Viant that six deaths from encephalitis following vaccination or inoculation of soldiers had been reported to his Department since the outbreak of the war. Fifteen cases did not result fatally.

Emergency Medical Service

Sir E. GRAHAM-LITTLE was informed by Mr. Willink on Nov. 30 that the cost of the salaries, fees, and expenses of medical officers enrolled in the E.M.S. was at the rate of approximately £1,200,000 a year, and the number of medical officers receiving whole- or part-time salaries, which fluctuated somewhat from time to time, was about 1,550. Although the service had fortunately not been called upon to treat so many casualties as was at one time expected, it had been employed in caring for the numerous other classes of patients brought within the scope of the Emergency Hospital Scheme. Among these classes were large numbers of civilian sick transferred from town hospitals to outer hospitals having more adequate facilities for their treatment, and other civilian patients transferred from hospitals with long waiting lists. In the result the emergency scheme had greatly expanded the hospital facilities provided for the civilian population as a whole, and had made specialist medical skill available to much larger numbers of patients than ever before.

Views of Serving Officers

Sir E. GRAHAM-LITTLE asked whether the Minister of Health was aware of the successful protest made by the Federal Council of the British Medical Association against the nationalization of the medical profession in Australia on much the same lines as have been proposed for Great Britain in speeches by the ex-Minister of Health; and whether he would apply the argument put forward by the Australian Association also to this country, that it was unjust to make plans for the medical profession while many doctors serving in the Forces cannot make their views heard. Mr. WILLINK replied on Dec. 2 that he was alive to the importance of enabling doctors in the Forces to see for themselves what the Government proposals were and to discuss them and express views on them before legislation was undertaken. That was one of the objects of the forthcoming White Paper.

Nurses' Salaries Committee

Lady APSLEY asked on Dec. 2 whether the Minister of Health could make any statement about the Second Report of the Nurses' Salaries Committee and the action he proposed thereon. Miss HORSBURGH replied that Mr. Willink had received the committee's second report from Lord RUSCHLIFE. It dealt with male nurses in hospitals, with nurses employed in the public health services, with nurses engaged in domiciliary work, and with trained nurses employed in nurseries. Mr. Willink was communicating with local authorities, the British Hospitals Association, and the Queen's Institute of District Nursing commending to them the recommendations as to salaries, emoluments, and conditions of service, and informing them of the grant which was payable, as in the case of the previous report.

Other White Papers

In the House of Commons on Dec. 7 the debate on the address in reply to the King's speech was resumed. Mr. BARNES moved an amendment dealing with post-war reconstruction and regretting that the Government had not yet reached definite decisions on the action to be taken this session to deal with social security as envisaged in Sir William Beveridge's report. Sir WILLIAM JOWETT, replying to the debate, said that the Government had covered a vast field of work in examining the Beveridge report. In many cases they confirmed Beveridge's conclusions, but they did not slavishly copy them. In many cases they had reached their own conclusions which, he thought, were better. He hoped to produce the White Paper early next year.

He begged those who had talked glibly about the Government having murdered the report, or buried or mummified it, or who had said that the Government's scheme was a thing of shreds and patches, to wait for the White Paper, because what they said was simply not true.

Mr. MANDER asked if there were not to be two White Papers, one on the State Medical Service and one more general. Sir W. JOWETT: Yes, two or more. There may be one on workmen's compensation. The White Papers, he added, were coming soon. The question of a comprehensive medical service was an additional cause for a White Paper. It was a matter of intimate concern, not only to hospitals, clinics, etc., but to the ordinary man or woman in the street—the little man who had so often no one to speak for him and no organization he could approach. They could begin to find out what he wanted or was thinking by using the non-technical language of the White Paper setting out the Government's scheme, and by having a discussion in the House of Commons, which represented everybody. The Minister of Health authorized him to say that the White Paper would be available shortly.

The amendment was withdrawn.

Tuberculosis in Belgium

On Dec. 7 Mr. FOOT told Mr. Oldfield that according to his information 109,511 supplementary ration books were issued in Belgium in Feb., 1943, to persons certified to be suffering from tuberculosis. Undoubtedly there had been a serious increase in the incidence of this disease since the German occupation. He could not accept the accuracy of the statement in the question that at least one-third of the young persons in Belgium and 30% of the school children in urban areas were suffering from tuberculosis. He had nothing to add to his former statements on the question of allowing more food-stuffs to be imported into Belgium.

Replying to a further question, Mr. Foot said he did not agree that the cases he had enumerated were the very worst. Under the system now prevailing in Belgium anyone might apply to his doctor for a certificate showing that he was suffering from tuberculosis. It was open to a doctor to give it, even if the suffering was only to a slight degree.

Deaths from Hunger in Greece

Mr. OLDFIELD asked on Dec. 7 if Mr. FOOT was aware that the deaths due to hunger in Athens and Piraeus had increased to 1,800 in October. Mr. FOOT pointed out that precise figures of deaths in Athens and Piraeus during October were not yet available. In the opinion of the Swedish supervisors of the relief scheme the figure of 1,800 deaths resulting from starvation or undernourishment was certainly incorrect. It was possible, however, that the total of deaths from all causes during October was in the neighbourhood of 1,800. The scale of the relief sent to Greece was constantly under consideration, but he was not prepared to add to his previous statements on this subject. Mr. FOOT added that if the figure he had given was correct, it showed a substantially smaller number of deaths in Athens and Piraeus than in October last year, and considerably smaller than the year before.

Serving Officers' Views on White Paper

On Dec. 7 Sir JAMES GRIGG informed Major Nield that he was not aware of any approach having been made to members of the medical profession now serving in the Army to ascertain their views on the question of a State Medical Service. When the White Paper on the subject was issued he would facilitate arrangements whereby their views might be expressed. He could not say off-hand whether he would do this by Army Council Instruction or Army Order.

Help for Doctors in Civilian Practice

Replying on Dec. 9 to Sir Leonard Lyle, Mr. WILLINK said the need for supplying the Forces with the doctors which they required must in certain areas cause some inconvenience to the public, although every effort to mitigate this was made in selecting the individual doctors for recruitment. In any case arrangements were made to secure that essential medical attention would be available. The Service Ministers had always been ready to give what help they could from their medical departments. In the present epidemic they were co-operating in special arrangements under which their medical officers would give as much help as their essential Service duties permitted to general practitioners, factory doctors, and hospitals in urgent need. Medical officers of health were being asked to take the initiative in putting into operation the arrangements affecting general practitioners and factory doctors. Doctors

requiring help would apply in the first instance to the secretary of the Local Medical War Committee. The corresponding applications from hospitals would be made to the hospital officers. He understood that a suggestion for pooling medical officers of the Services had been explored by the Medical Personnel (Priority) Committee. The committee recommended that co-operation between the medical departments of the three Services, already carried out to a considerable extent, should be developed to the highest possible degree, but they felt that complete pooling would not be practicable.

University Grants Committee

On Dec. 7 Sir JOHN ANDERSON informed Mr. Harvey that he had increased to 15 the number of members of the University Grants Committee in order that their advice on the important problems that lay ahead might be based on the widest range of experience. Before the war the committee numbered 10, but had been reduced by deaths and resignations to 5 immediately before the appointment of the new members. Arrangements were being made to hold the first meeting of the new committee at an early date.

In a further reply Sir John said that the rule precluding those in the employment of universities from being members of the committee had been changed.

Medical News

The office of the British Medical Association will be closed from 4 p.m. on Friday, Dec. 24, until 9 a.m. on Tuesday, Dec. 28.

The Institute for the Scientific Treatment of Delinquency has arranged a university extension course of twelve lectures on the Freudian theory of delinquency by Mrs. Kate Friedlander, M.D. It will begin on Saturday, Jan. 8, at 2.30 p.m. at 17, Manchester Street, W.1. Fees: for the course £1; for single lectures 2s.

The first issue of the *British Journal of Industrial Medicine* is to be published in January, 1944, under the editorship of Dr. Donald Hunter. It will appear quarterly, and those wishing to take out a subscription should apply to the Secretary of the Journal Board, B.M.A. House, Tavistock Square, London, W.C.1. A year's subscription is £1 5s., or £1 for members of the B.M.A. Single copies cost 7s. 6d. All editorial communications should be sent to Dr. Hunter at the London Hospital, London, E.1.

The *British Medical Bulletin*, which is published monthly by the British Council for overseas distribution, is devoting its January, 1944, issue to a symposium on penicillin. Several of those who have taken a leading part in work on penicillin are contributing short review articles, and there will be abstracts of all the important British papers on penicillin which have been published between the years 1929 and 1943. There will also be a bibliography of relevant papers not abstracted. Although the *Bulletin* is not normally available in the United Kingdom, a small number of extra copies will be printed for any members of the medical profession resident in this country who would find this special number useful. Applications for a copy should be addressed to the British Council at 3, Hanover Street, London, W.1, and should be received not later than Wednesday, Dec. 22. A charge of 1s. per copy will be made, but no money should be sent with orders, as the number available will be limited.

Manuscripts and published articles submitted for the 1943 Charles L. Mayer prize are being received by the National Science Fund of the National Academy of Sciences, 515, Madison Avenue, New York 22, N.Y. The closing date for the receipt of contributions is Jan. 15, 1944. The award will be made for an outstanding contribution to present-day knowledge of factors affecting the growth of animal cells with particular reference to human cancer.

The High Commissioner for India is reported in the *Times* to have stated that medical supplies, including a million capsules of halibut-liver oil, are to be sent by aeroplane to combat epidemic disease in the famine districts of India. He said that thanks to the prompt and energetic action of the Viceroy the food crisis in Bengal and other parts is being tackled vigorously and food is arriving to relieve distress. The most serious need now is for medical supplies and organizations for after-care of the people who have undergone so much suffering. The situation is gradually improving.

The name of Dr. R. P. Brittain, ship surgeon, appears in a list published by the *London Gazette* of those who have been commended for brave conduct when their ships encountered enemy ships, submarines, aircraft, or mines.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales the number of deaths attributed to influenza rose from 106 to 375 in the great towns; notifications of pneumonia rose by 669. (For the week ending Dec. 4 influenza deaths numbered 709 and notifications of acute pneumonia 2,291.) Scarlet fever was up by 59, and diphtheria by 27; and whooping-cough was down by 66, measles by 38, and dysentery by 29 cases.

The rise in the influenza deaths was general throughout the country but most noticeable in the northern towns. The cities with the largest number of deaths were: Manchester 44, London 29, Birmingham 20, Bristol 18, Bradford 17.

The notifications of pneumonia have been more than doubled during the past fortnight, and the total was the largest for any week since the early spring of 1941. The increase in pneumonia followed a similar distribution to that of influenza—a general rise but more marked in the north. The largest rises during the week were in Lancashire, 143 more cases, Yorks West Riding 86, London 48, and Durham 46 more.

In only a few counties was there any wide variation in the trends of the infectious diseases of childhood. There were 45 more cases of scarlet fever in Middlesex and 35 more in Yorks West Riding. There was an increase of 13 in the notifications of diphtheria in the Port Health Districts. The largest decline in measles was in Cambridgeshire by 28, and whooping-cough in Lancashire by 60; the latter disease tended to be more prevalent in the south.

Notifications of dysentery remained steady at 147. The chief centres of infection were London 26, Middlesex 21, and Lancashire 19, these three areas contributing almost half of the total cases.

In Scotland there were rises in the notifications of scarlet fever by 46, acute primary pneumonia by 28, measles by 17, diphtheria by 13; the incidence of dysentery fell by 15 and that of whooping-cough by 8. The rise in scarlet fever was confined to the western area. Of the 65 cases of measles 52 were notified in Glasgow.

In Eire the incidence of diphtheria fell by 43. The increase in infantile enteritis and diarrhoea was due to the experience of Dublin C.B., where 61 of the 70 cases were recorded.

Public Health in Eire, 1941

The annual report of the Department of Local Government and Public Health shows that the decline in the incidence of infectious diseases was continued in 1941. The statistics for the principal notifiable infectious diseases are:

Disease	No. of Notifications		No. of Deaths	
	1941	Average of 1936-40	1941	Average of 1936-40
Typhus fever ..	25	8	6	2
Typhoid fever ..	284	318	38	52
Diphtheria ..	1,447	2,410	165	275
Scarlet fever ..	2,318	3,816	32	92
Puerperal infection ..	99	104	27	54
Total ..	4,173	6,656	268	475

The 268 deaths were the lowest ever recorded for these diseases. The incidence of tuberculosis, which had been rising slightly since 1938, showed another small increase. There were 2,882 deaths from pulmonary tuberculosis—25 fewer than in 1940; but non-pulmonary tuberculosis, with 829 deaths, was 51 in excess of 1940. The increase was due to the unfavourable experience of the rural districts; 2,188 deaths from all forms of tuberculosis were registered in these areas in 1941, compared with 2,094 in 1940. In the urban areas an improvement was recorded, the deaths falling from 1,591 in 1940 to 1,523 in 1941.

The Week Ending December 4

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,694, whooping-cough 1,757, diphtheria 610, measles 451, acute pneumonia 2,291, cerebrospinal fever 60, dysentery 144, paratyphoid 2, typhoid 8. Deaths from influenza in the 126 great towns numbered 709—an increase of 354.

Radiotherapy for cancer cases is to be provided at Mount Vernon Hospital, Northwood, and Warren Road Hospital, Guildford (Ministry of Health Circular 2878). The former is already receiving patients from Sectors II, III, IV, and V, while the latter is ready to receive patients from the remaining Sectors. Applications, which should be made through the Sector Hospital Officer on form E.M.S. 116, should be accompanied by adequate case records (for which a special form, E.M.S. 221, is available) and any pathological and x-ray reports, with slides and films if possible.

No. 47

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov. 27.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	43	3	30	6	—	77	4	27	—	9
Deaths	—	2	—	—	—	—	—	2	—	—
Diphtheria	732	47	188	92	45	861	39	225	97	12
Deaths	15	1	2	2	—	17	—	4	5	—
Dysentery	147	26	44	—	—	163	15	65	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	4	—	2	—	—	1	—	1	—	—
Deaths	—	—	—	—	—	—	2	—	—	—
Erysipelas	—	—	57	9	—	—	—	67	9	—
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	—	—	—	70	—	—	—	—	42	—
Deaths	39	5	15	6	7	36	5	19	20	2
Measles	518	49	65	30	3	10,649	307	456	33	43
Deaths	—	—	—	—	—	10	—	2	—	—
Ophthalmia neonatorum	75	2	13	—	—	82	5	22	—	2
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	2	—	1	—	—	4	—	3	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza*	1,647	121	65	1	1	766	51	13	3	11
Deaths (from influenza)	375	29	43	8	5	35	7	3	—	—
Pneumonia, primary	—	98	326	13	—	—	—	216	10	13
Deaths	—	—	14	19	—	—	—	16	—	—
Folio-encephalitis, acute	1	—	—	—	—	6	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute	13	2	1	3	—	18	—	—	5	4
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	1	18	—	—	—	—	14	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	166	7	16	2	1	161	11	21	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	3,157	240	402	30	94	2,979	148	401	61	63
Deaths	5	—	—	1	—	2	—	1	—	—
Smallpox	—	—	1	—	—	1	1	3	12	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	—	—	3	7	5	13	—	—	12	2
Deaths	—	—	—	—	—	—	—	—	1	—
Typhus fever	—	—	—	—	—	—	—	—	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	1,500	163	225	38	28	1,263	75	52	35	4
Deaths	16	4	1	1	1	13	2	3	1	—
Deaths (0-1 year)	394	44	81	31	34	309	40	71	52	19
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	6,863	1,055	793	221	172	4,508	703	615	212	141
Annual death rate (per 1,000 persons living)	—	—	17.9	14.5	4	—	—	13.8	14.2	4
Live births	5,635	709	807	410	266	5,576	675	789	363	256
Annual rate per 1,000 persons living	—	—	16.5	27.0	4	—	—	16.3	24.2	4
Stillbirths	191	18	36	—	—	185	7	36	—	—
Rate per 1,000 total births (including stillborn)	—	—	43	—	—	—	—	44	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Members' subscriptions should be sent to the Secretary of the Association.

TELEPHONE NO.—B.M.A. and B.M.J.: EUSTON 2111.
TELEGRAPHIC ADDRESSES.—EDITOR, *Ailology Westcent*, London; SECRETARY, *Medicera Westcent*, London.
B.M.A. SCOTTISH OFFICE: 7, Drumshugh Gardens, Edinburgh.

ANY QUESTIONS?

Cold Extremities

Q.—For the last two years I (60 years old) have suffered from coldness of the ears and hands. The sensitiveness to cold is very marked and results in chilblains either on the fingers from resting them on cold desks and chairs, or on the ears from what I take to be the draught from driving in a motor car. The ears become so cold that they ulcerate on the upper part of the pinna and I am forced to cover them in some way. Probably there is some deficiency, but I cannot trace it to any vitamin or endocrine gland of the time. At times there is a sensation of tingling in them which is most marked. Can it be a gouty tendency?

A.—The onset after age 60 of chilblains of the extremities and ulceration of the ears on exposure to cold is suggestive of arteriosclerosis. The urine should be examined for sugar and the blood for the Wassermann reaction. If the condition is due to sclerosis of the peripheral vessels no curative treatment is likely to be effective, and reliance should be placed on protection from cold, as by gloves, Balaclava helmet, car heater, etc. Operations on the sympathetic nerve supply are probably not indicated at this time of life, but a small dose of thyroid, gr. 1/2 t.d.s., might inhibit the undue reaction to cold. Nicotinic acid may also be of value; as little as 10 to 50 mg. daily by mouth may be effective, but the dose should be worked up, if necessary, to 500 mg. a day until relief is obtained or the effects become unpleasant. No other vitamin or endocrine therapy seems promising, and the symptoms are not suggestive of gout.

Progesterone for Menorrhagia

Q.—At what stage of the menstrual cycle should corpus luteum (tablets) be administered to check climacteric menorrhagia in a nullipara? In what dosage?

A.—Corpus luteum hormone is inactive when administered by mouth, and corpus luteum tablets, therefore, even if they contain progesterone, do not affect menstrual function. If progesterone is given for menorrhagia, it should be given by daily intramuscular injections of 5 mg. for three or four days before the expected onset of the period, and for the first one or two days of the period. If the bleeding is not cyclical but occurs irregularly and persists for long periods of time, withhold treatment until the bleeding is in progress, and then give it daily for seven days. As an alternative, and if oral therapy is required, ethisterone 10 mg. t.d.s. may be employed. This substance is active by mouth, and, although chemically different from progesterone, has a similar, if less potent, action on the uterus.

Alkalosis

Q.—What exactly is alkalosis? Under what conditions does it occur? How is it recognized? And what is the treatment?

A.—A state of alkalosis exists when some change has occurred in the blood chemistry which, if uncompensated, would tend to make the blood alkaline. Thus it may be produced by an excessive loss of acid from the body or an increase in the bicarbonate of the blood above the normal level. The term is an unfortunate one because it suggests that there has been a rise in the pH of the blood, whereas in fact a very small deviation from the normal is sufficient to cause death. This compensation is effected by the buffer systems of the body, which enable acids and alkalis to enter the circulation without bringing about a change in pH unless an overwhelming amount is present.

Alkalosis occurs in high intestinal obstruction, the severe and protracted vomiting leading to excessive loss of chlorides from the body with a resulting rise in the bicarbonates of the blood. Alkalosis also occurs from alkaline therapy in peptic ulcer should the renal excretion of bicarbonate fail to keep pace with the rate of administration of alkali by mouth. The incidence is as high as 20-30% of cases on doses of 60 to 160 grammes daily of alkali expressed as sodium bicarbonate, but falls to 2-3% on doses of 20 to 30 grammes

daily. Overbreathing in mountain sickness, post-encephalitic states, and some cases of hysteria washes out carbon dioxide from the blood and leads to alkalosis by decreasing the quantity of carbon dioxide relative to the blood bicarbonate.

Alkalosis is recognized clinically by drowsiness, headache, signs of severe dehydration, anorexia, furred tongue, nausea, excessive dryness of the mouth, numbness and tingling of extremities, tenderness of the muscles, stiffness in the limbs, and slow breathing. Tetany may supervene. The bicarbonate content of the plasma is usually raised, but this is not the case in alkalosis from overbreathing. The blood urea is usually elevated and the urinary ammonia diminished. Paradoxically enough the urine is not necessarily alkaline.

Treatment is first to remove the cause. Hyperventilation can often be checked by sedatives or by inhalation of an atmosphere containing 5% CO₂. Alkalis should be stopped in peptic ulcer and feeds be salted generously. In severe cases large quantities of normal saline may need to be given intravenously. An injection of 10 c.cm. of a 20% solution of calcium gluconate will relieve tetany. Treatment by acidifying agents such as ammonium chloride is not admissible, as they increase the dehydration and the patient may quickly suddenly swing from alkalosis to acidosis.

Paroxysmal Auricular Fibrillation

Q.—A woman aged 75, with good family and personal history has had symptoms of heart trouble for 8 or 10 years. It appears to be auricular fibrillation, the attacks coming on at intervals, so long. A presystolic murmur was once heard. In the past years general failure of health and activities noticed. The last attack seemed serious, but passed off. Two days' rest with digoxin (2 tab. daily, 25 mg.) has brought her back nearly to her usual condition. Has coramine or strychnine any place in the treatment of this case?

A.—It would seem desirable to have electrocardiographic record of the heart both during and between the attacks to be certain of the nature of the disturbance of rhythm. If the attacks are paroxysms of auricular fibrillation and last only one to two days, it is possible that small doses of digoxin will do more harm than good. Digitalis preparations are usually advisable only if the attacks are of longer duration and threaten to produce cardiac muscle failure. They should then be used in full dosage—i.e., digitalis pulverulenta gr. 1½ 4-hourly for three days, and then less frequently according to the effect produced. Quinidine might be more helpful early in the attacks, 4 gr. every two hours until the attack vanishes. As a rule only two or three doses should be necessary for this purpose, and it would probably be undesirable to exceed a daily dosage of 20 gr. at this age. Rest and sedatives, such as phenobarbitone gr. 1/2 t.d.s., would seem more appropriate than stimulants such as strychnine. Coramine (nikethamide B.P.) is a medullary stimulant; it is used particularly in respiratory failure—e.g., after anaesthetics—and it has no place in the treatment of paroxysmal fibrillation. Oxygen by a comfortable mask such as the B.L.B. would also be of value in the attacks. As they occur at relatively infrequent intervals, prophylactic treatment with quinidine is probably not called for, but regular administration of a small dose of phenobarbitone might be of value.

Calcium for an Infant

Q.—What are the daily calcium requirements of a child aged 16 months, of average weight and in good condition? Milk, and anything made with it, is disliked, and the daily intake is only 2.6 oz. Until 1 year old the child sometimes took as much as 3½ pint a day, and had a bigger appetite than at present. Powdered calcium, gr. 7½, with vitamin D, was often taken daily in food, but lately such meals have been refused, apparently because the calcium renders the food unpalatable. Rose-hip syrup and cod-liver-oil emulsion are readily taken. Eggs are available, and the child likes them. Only small meals are eaten—e.g., one egg, one dessertspoon of cooked potato, and three or four teaspoons of spinach are an average dinner. First teeth were cut at 5 months; the child had 8 teeth at 10 months, and is now just beginning to cut the first molars.

A.—One gramme a day of calcium is the desirable intake for a child of 16 months. It would undoubtedly be difficult to get anything like this intake of calcium on the type of diet a child of this age could take unless much more than 2½ oz. of milk is drunk, as green vegetables or cheese are really the only other good sources of calcium in a mixed diet. It looks, therefore, as if artificial methods may have to be resorted to in this case. Clearly the best way would be in the form of calcium phosphate. There is a proprietary product, put up in tablets each containing 5 gr. of calcium phosphate, equivalent to 1.7 gr. of calcium. But even with the help of these it would be difficult in this case to make up a reasonably good calcium intake. There does not appear to be anything wrong with the calcium metabolism of the child so far as the dental evidence shows, but it would be well to try to get a good calcium intake now. It would be a good plan to increase the vitamin D intake, so that better utilization of calcium in the diet is ensured. Probably fish-liver oil, giving up to 800-1,000 i.u. of D per day, would help.

National household milk contains as much calcium as fresh milk. This could be used in making all kinds of milk dishes. Another tip is that children who dislike drinking milk will often readily take junkets. The analytical figures for milk are (per lb.):

	Protein g.	Calories kcal.	Calcium mg.	Vit. A i.u.	Vit. B ₁ mg.	Riboflavin mg.
Fresh milk	15	281	544	530	0.2	0.79
Whole-milk powder	116	2,168	4,060	4,870	1.37	5.76
National household milk powder	162	1,502	5,557	130	1.77	9.07

The advantages of using household milk powder are that, in addition to being a good source of calcium, it provides good protein and riboflavin.

Occupational Dermatitis

Q.—Recently I had to give evidence in court in a case of occupational dermatitis. Counsel asked me if the attack of dermatitis already contracted had rendered the workman more than usually liable to a further attack. I answered that it had done so. Later I came to the conclusion that extra susceptibility may be only temporary, on the following grounds: (a) By analogy: As a student I contracted severe dermatitis of hands and fingers through contact with antiseptics. For many years I have had no dermatitis, although my hands are often in contact with antiseptics. In drug eruptions (iodides, etc.) desensitization can be obtained by appropriate doses of the drug. In allergic manifestations desensitization may be obtained by calculated doses of the protein or substance concerned. (b) Anatomical: The epidermis is always being shed and renewed. Surely a time must come when an entirely new epidermis has formed which has the resistance of the pre-dermatitis skin?

A.—The risk of recurrence of dermatitis varies with (a) individual susceptibility, which may be affected by (b) number of previous attacks; (c) causal irritant; (d) the severity of the attack or attacks. Certain primary skin irritants seem more liable to give risk, on resumption of contact or exposure, to a recurrence. Notable examples in this class are teak wood dust, certain chemicals—e.g., dinitrochlorobenzol and tetryl, and formaldehyde-containing materials. Each additional attack of dermatitis renders the sufferer more susceptible, not only to the primary irritant but to others in addition, and sometimes a susceptibility is developed to contact with materials which do not ordinarily cause dermatitis. Apart from individual susceptibility, the chance of recurrence varies directly with the severity and duration of the primary or subsequent attacks of dermatitis.

My comments on the questioner's views are that his experience of one severe attack of localized dermatitis after contact with a skin irritant, with no recurrence on further exposure, has fortunately also been the experience of a large number in industrial occupations. Desensitization as a means of preventing recurrence of industrial dermatitis has not in this country proved a success. The horn cells of the epidermis, together with the products of the sweat and sebaceous glands, constitute the skin's anatomical defence against dermatitis, which being an inflammatory process (thus dependent on the presence of blood vessels) can originate only in the corium below. Although there will be regeneration of the epidermal horn cells after an acute inflammatory condition, these new horn cells may be no better in resistance to skin irritants than their predecessors, and may even be less so. On the matter of regeneration there is no doubt that diet and nutrition play an important part.

Finally, I should like to emphasize the importance after an acute attack of dermatitis of a definite period for the convalescence of the skin, which should date from the apparent local recovery.

Emulsifying Agents

Q.—From time to time references are made to new ointment bases containing emulsifying agents. These are supposed to allow better contact between the active ingredients and the skin and at the same time be easier to remove. I have also read of cleansing agents to aid in the getting rid of greasy preparations applied to the skin. Little or no mention is made of these matters in textbooks on dermatology, and I should like to know what at present are the best ointment bases and cleansing agents, and whether they are recommended for routine use or only for special purposes.

A.—Nearly all ointment bases in use to-day are immiscible with water. Their reaction to exudate and to skin contours is a physically resistant one. If an emulsifying agent is present then free interchange of therapeutic content between vehicle and tissue is to be expected. Contact becomes intimate and penetration follows. The presence of emulgent enables the removal of ointment by water rather than by oils (paraffin, olive oil, etc.). A number of emulsifying agents—e.g., lanette wax, Halden's emulsifying base, triethanolamine stearate, and cetol—are available. The *British Pharmacopoeia* will, in the near future, include a high proportion of "emulsion bases." In the greater proportion of diseases of the skin such bases are preferable from both economic and cosmetic aspects. Such bases, apart from other properties, encourage free

dispersal and rapid absorption of incorporated medicament. Occasionally an emulsifying base is to be discouraged, since it may increase the detergent effect of soap and water by rendering natural skin fats more accessible thereto. Much research is now devoted towards the provision of cleansing creams which do not "degrease" but leave, after use of an acid, "oil in water" emulsion on the skin. This approximates to Nature's normal barrier—a bacteriological protective film not wisely interfered with.

Epidemic Infective Hepatitis

Q.—According to the leading article in the *JOURNAL* of Nov. 27 jaundice has become much commoner during this war, and the tendency to diagnose cases as catarrhal jaundice is diminishing. If the prevalent variety is infective, what steps should a practitioner take to prevent the spread of infection, if there is indeed any risk of this? For example, at what stage of the disease is the patient infectious, how long does this last, and how is infection conveyed from one person to another?

A.—It is true there has been a great increase in jaundice since the war, not only among the troops but also among civilians, in particular school children and young adults. Most cases are examples of "infective hepatitis," which is now regarded as a more suitable term than "catarrhal jaundice" for this particular disease, because it is infectious and it primarily affects the liver cells. It does not begin as a catarrh of the duodenum and large bile ducts as used to be thought, and the jaundice is due to intrahepatic obstruction to the secretion of bile. Important points to remember about this infectious disease are the long incubation period (3 to 5 weeks), the pre-icteric stage of several days to a week or more, the direct droplet spread, and the tendency for familial cases to occur in chains and not in groups. The patient is most infectious in the pre-icteric stage, and probably ceases to be infectious after the jaundice appears. During epidemics, patients with anorexia, pains in the back or limbs, headache, and particularly nausea and vomiting with pain or tenderness over the pit of the stomach and the liver, should be suspect and immediately isolated. In school outbreaks any child who vomits should be sent home for 7 days and allowed to return only if no jaundice has developed. Ancillary diagnostic tests in the early stage of infection are bile-salts or pigment in the urine, a leucopenia with lymphocytosis, and evidence of liver dysfunction (positive van den Bergh or Takata-Ara reaction). *Formes frustes* are probably common, and they may supply the missing links in the epidemic chain. Obviously control presents many difficulties; fortunately the infection is not as a rule severe, but adult patients in particular must not be allowed to return to work until the jaundice has quite gone.

Other forms of jaundice more frequent since the war began are the post-arsphenamine jaundice in syphilitic patients and the so-called homologous serum jaundice which has followed (after an incubation of 2 to 4 months) the injection of certain batches of human serum given with yellow fever vaccine or as convalescent measles or mumps serum for protection against these diseases. Clinically the jaundice is similar in type (though fatal cases are less rare) to that of infective hepatitis, but does not seem to be infectious. Spirochaetal jaundice, spread from the rat by contamination of ponds and canals, mines, sewers, etc., is typically a more severe infection, but milder grades occur; a leucocytosis is a distinguishing feature from infective hepatitis.

Psoriasis

Q.—Psoriasis is thought by some to be an allergic disease, and there is no specific remedy for it, but some preparations relieve it for a time. I have found stilboestrol one of these, and it would seem to cure the rheumatism which is sometimes associated with the condition; but the cure is short-lived, and I would like to know of an analogous preparation which might last longer and give more complete relief.

A.—Some thirty years ago a millionaire, a victim of psoriasis, provided funds to endow a team of experts to discover the cause of this common and intractable skin disease. The investigations were profound and searching, but the experts failed. Their chief conclusion—that a limitation of the nitrogenous intake benefits psoriasis—is not now even considered. Then in recent years Grutz and Berger asserted that there was both a general and a local disturbance of the fat metabolism in psoriasis. Dodds, MacCormac, and Robertson (*Brit. J. Derm. Syph.*, 1942, 54, 212), repeating these experiments, were unable to observe any constant or definite improvement on a low-fat intake, or, conversely, an aggravation of the eruption on a high-fat diet.

Indeed, in all fields of research psoriasis has proved a veritable will-o'-the-wisp, and we have reluctantly to admit that we are still quite ignorant of its cause. There are therefore no grounds for describing it as an allergic disease, nor any constructive scientific principle justifying the employment of stilboestrol, except clinical observation, which is a complete answer until, or unless, it is disproved by contrary experience. This applies with more or less force to all these methods of general treatment—by arsenical medication, by injections of bismuth or mercury, by protein shock, and so forth.

The treatment of psoriasis is therefore mainly or exclusively the treatment of the eruption by external applications. Of these the most active is chrysarobin, in a 6 to 8% ointment, which, however, should be employed with certain reservations. First, it cannot be used above the neck; secondly, it produces conjunctivitis if it gets into the eyes; thirdly, it stains sheets and clothing permanently; fourthly, it should be used only under careful and continued supervision, preferably keeping the patient in bed. Tar and mercury are also frequently employed, as in Adamson's formula: ammoniated mercury 10 gr., liquor picis carbonis 1 drachm, and vaseline to the ounce. Or oil of cade 1 to 2 drachms in salicylic acid ointment one ounce. Success depends upon the vigorous and thorough application of the remedy. Ultra-violet irradiation clears up the eruption in many cases, the patient appreciating the freedom from grease and the shifting of the responsibility for treatment to another. Small doses of x rays are also used in suitable cases—for example, an eruption limited to the elbow. But the cumulative effect of this form of treatment must always be kept in mind, and it should therefore never be used except under expert supervision and by a practitioner fully versed in superficial radiotherapy.

Enlarged Prostate

Q.—Is there evidence that methyl testosterone is of value in the treatment of early prostatic enlargement? Is such treatment worth while, bearing in mind the possible carcinogenic factor of the hormone, and, if so, over what period should dosage be continued?

A.—There is a good deal of experimental evidence that benign hypertrophy of the prostate is of endocrine origin. There is some clinical evidence that the administration of androgens may arrest further development of hypertrophy of the middle lobe, but on the whole the treatment of the enlarged prostate with androgens has been disappointing. At any rate it would seem that the first essential of such treatment is adequate dosage, and it is doubtful whether this would be obtained with the doses of methyl testosterone by mouth which are now popularly employed. The usual procedure, if androgen therapy is decided upon, is to give injections of, say, testosterone propionate 25 to 50 mg. (or even more) weekly for 3 or 4 months, and if no relief is obtained to consider the possibilities of surgery. The cancer bogey has been raised frequently in the course of discussions on oestrogen therapy. So far as is known androgen has up to the present not been accused of being a possible pre-cancerous agent.

INCOME TAX

Income from New Zealand

"F.R.C.S." raises two points in connexion with this income: (a) the inspector of taxes suggests that he should drop his claim to Dominion income tax relief, if only the net amount of the income (i.e., after deducting New Zealand income tax) is assessed to British tax; and (b) whether he is liable to account for tax on that portion of the income which accrues in New Zealand but cannot be remitted to this country owing to Government restrictions.

* (a) We distrust these short cuts. The result for the year in question might not differ much—that depends on various facts; but the only safe way is to claim what the law gives—i.e., the Dominion income tax relief. (b) He is liable in law, but if payment of tax on the unremitted portion of the income would impose hardship—as it very well may do—we understand that collection of that tax can be held over to be dealt with as and when the income withheld is in fact remitted.

Expense of Travelling to London

"A. H." inquires whether expenses incurred in travelling to London for (a) meetings of the Royal Society of Medicine and attending hospitals for postgraduate instruction are allowable.

No; it would, we believe, be held that such expenses are not in the carrying on of professional work, but in raising the level of professional ability and knowledge.

Deduction for General Expenses

"SIGMA" has a small specialized practice for which he uses a consulting-room (exclusively) and the dining-room as a waiting-room. The maid acts as receptionist and attends to the telephone. (He is also part-time assistant in another practice, but this does not affect the question raised.) The house is assessed at £70 per annum. What would be a reasonable allowance from the profits of the practice?

* So far as the rent, rates, etc., of the premises are concerned, we would suggest, say, 20% as a fair charge. The proportion of the maid's time is difficult to deal with as it depends on the amount of work she has in connexion with the private practice. "Sigma" can probably make an estimate as to the proportion of her time spent on that work. No allowance is due in respect of the part-time assistant work unless the principal requires "Sigma" to maintain a consulting-room for the purposes of his (the principal's) practice.

LETTERS, NOTES, ETC.

Atmospheric Pollution with Cement-Dust

Mr. P. G. BOWIE (Cement and Concrete Association) writes: My attention has been drawn to Mr. D. W. Standley's letter (Nov. 13 p. 622), and while I appreciate his point that too close an association between housing and industry may not—on account of noise atmospheric pollution, or for other reasons—be desirable, I would ask that any statement concerning cement manufacture which is published in a journal of such high standing as your own should be based on fact. Cement is not powdered until after it has left the kilns, consequently cement dust does not pour out of the chimneys. What is often visible is the cloud of steam evaporating from the wet clay from which the cement is made. Flint dust is not used in the manufacture of cement, and you may be certain the having gone to the expense and trouble of making and then crushing the cement to powder the manufacturers do all in their power to minimize any loss of material.

Pleuro-pericardial Rub

Dr. W. TREVOR COOKE (Birmingham) writes: The signs and symptoms given in the question "pleuro-pericardial rub" (Oct. 23 p. 533) are very similar to those described by Hamman (*Johas Hapt. Hosp. Bull.*, 1939, 54, 1). He called attention to the significance of previously recorded cases, and reported 7 cases under the term of "spontaneous mediastinal emphysema." The condition is benign and is frequently confused with coronary thrombosis owing to the intense pain and collapse that may be present, and with pericarditis due to the auscultatory findings. Six of Hamman's cases were under the age of 35. In view of the ease with which the diagnosis may be confused with more serious conditions, spontaneous mediastinal emphysema should be more widely recognized, and the possibility of its occurrence should be considered in the case discussed in the question.

Wilson's Disease

Dr. A. J. GLAZEBROOK writes from Edinburgh: The question of a family history of encephalitis lethargica is discussed in the *Journal* of Nov. 13 (p. 631). In a few cases of Wilson's disease the I have seen the condition has usually been misdiagnosed as encephalitis lethargica. This rare condition is familial. One of the cases I have seen was clearly hereditary. The fact that "the girl has an attitude and a way of speaking which are a trifle lethargic," and the family history, suggest to me that Wilson's disease should be excluded before child-bearing can be safely advised. I am interested in hepato-lenticular degeneration and would be grateful for further details of the case.

Subungual Haematoma

Dr. J. BARR STEVENS (London, N.4) writes: The easiest way to treat this condition is as follows. Having cleaned the toe or finger as much as possible, run a tenotomy or other straight knife down to the base of the nail, above the nail but below the cuticle, and turn it sideways with the cutting edge down. Blood will immediately escape by the side of the knife and give relief. The procedure can be done so quickly as to be practically painless, and is quicker and easier than attempting to perforate the nail with knife or drill.

Leicester Christian Medical Association

Dr. E. K. MACDONALD, medical officer of health, Leicester writes: I have been instructed, as honorary secretary to the above association, to advise you of its formation. Some little while ago a meeting was held of medical practitioners in this area who felt that it was most desirable that the influence of Christianity should be borne in mind in our practice of our profession, and it was decided to form an association with the object of promoting the profession and practice of Christianity among the medical men and women resident in the city of Leicester and counties of Leicestershire and Rutland. Any medical man or woman in the area who accept the Christian Faith is eligible for membership. Honorary members have been invited, and have accepted our invitation, from the three main Christian denominations—viz., the Lord Bishop of Leicester and the Very Reverend Father Prior (Roman Catholic), and the President of the Free Church Council. In addition, two associate members from each of the three denominations have been appointed from among the clergy. Up to the present we have some forty members and our first meeting, which was held recently, was addressed by the Bishop of Leicester, who dealt with the question of co-operation between the clerical and medical professions. An interesting programme of meetings has been arranged during the winter. The chairman of the association is Dr. J. V. C. Braithwaite and the council is representative of all denominations.

Corrigendum

Mr. G. F. LANGLEY wishes to correct a serious error in his article on gunshot wound of the innominate artery published in Dec. 4 (p. 711). In lines 13 and 14 of the clinical history the sentence should read: "There was a round wound half an inch in diameter just above the midpoint of the right clavicle."

BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 25 1943

THE POPULATION PROBLEM OF INDIA

BY

D. B. BLACKLOCK, C.M.G., M.D.

Professor of Tropical Hygiene, School of Tropical Medicine, University of Liverpool

The health or welfare officer of the near future will doubtless find himself in a more favourable position than his forerunners of to-day, and it may be well for us to examine some of the possible consequences of the change, not all of which must necessarily be good. Reasons now exist for anticipating great betterment in the health prospects of all peoples, and seemingly trustworthy political utterances portend developments which will certainly upset previous calculations. Countries like India, which at the present time suffer most severely from preventable disease, are exactly those in which the ameliorative changes will provide the most spectacular results.

Even a few years ago the idea that the adequate treatment and the successful prevention of disease might entail weighty political and administrative consequences would have seemed absurd, and it may still seem so to many people to-day. But I venture to think that such results will indeed occur—and, moreover, that they will be very grave indeed—if the aspirations expressed by some of the framers of our post-war policy are translated into practice. For example, the Atlantic Charter has implications which deserve the careful study of all health officers, under which title we must include not only the medical profession but also all welfare and social workers. They will presently encounter questions which need an immediate answer. If the valid promises contained in the Atlantic Charter are fulfilled, what are the kinds of consequences which we may expect? This Charter has been called an epoch-making declaration. It is incumbent upon us to try to foresee, if we can, the sort of epoch which may be produced by it. The case of India at once suggests itself for consideration.

The Malthusian Doctrine

Malthus, in 1798, based his arguments about population increase on his two natural laws: the first, that food is necessary for the existence of man; the second, that passion between the sexes is inevitable and will remain in its present state. He concluded that the power of increasing population was greater than the power of the earth to produce sustenance for man, and that therefore vice and misery must periodically ensue.

However, the increase of population in geometrical progression, coupled with an increase of the means of subsistence in arithmetical progression, as accepted by Malthus, could not, in a limited area, continue for very long. The time would soon come when the various classes of the population would have reached that standard of living—dictated by their accepted ideas of a reasonable subsistence—below which they were not prepared to descend. If a rising population were then allowed to continue its increase at the same rate as before, even for a very brief time, there would be nothing for the new arrivals to live on. The strange stage of affairs postulated by Malthus, at which masses of people with no means of subsistence could yet contrive to keep on propagating their species freely—in a nutritional vacuum as it were—could not actually be reached. But there could and undoubtedly would come a point beyond which any additional people must perish of hunger. An increase of population in a place where the means of subsistence is no longer capable of expansion does in fact involve starvation.

George in 1889, writing of the Malthusian theory, was emphatic in his denial of its truth: "Examination," he wrote, "... shows that this doctrine has no real support either in fact or in analogy, and that when brought to a decisive test it is utterly disproved." It is of interest to note that Darwin, in Chapter III of his *Origin of Species*, when describing the nature of the struggle for existence, stated that "it is the doctrine of Malthus applied with manifold force to the whole animal and vegetable kingdom."

Great public attention should be paid to one statement for which George was responsible. He wrote: "Even if it be admitted that the tendency to multiply must ultimately produce poverty, it cannot from this alone be predicated of existing poverty that it is due to this cause, until it can be shown that there are no other causes which can account for it—a thing, in the present state of government, laws, and customs, manifestly impossible."

The Land Policy of George

For the cure of poverty the sovereign remedy proposed by George was the taxation of land values:

"Taxes may be imposed upon the value of land until all rent is taken by the State, without reducing the wages of labour or the reward of capital one iota; without increasing the price of a single commodity, or making production in any way more difficult.

"But more than this. Taxes on the value of land not only do not check production as do most taxes but they tend to increase production, by destroying speculative rents. How speculative rent checks production may be seen not only in the valuable land withheld from use, but in the paroxysms of industrial depression which, originating in the speculative advance of land values, propagate themselves over the whole civilized world, everywhere paralysing industry, and causing more waste and probably more suffering than would a general war. Taxation which would take rent for public uses would prevent this; while if land were taxed to anything near its rental value, no one could afford to hold land that he was not using, and consequently, land not in use would be thrown open to those who would use it. Settlement would be closer, and, consequently, labour and capital would be enabled to produce much more with the same exertion. The dog in the manger who, in this country especially, so wastes productive power, would be choked off."

It should be carefully observed that in this passage George was directing the thoughts of his readers to *existing* poverty. His violent objection to the Malthusian argument was based on his belief that Malthus assumed that the *existing* poverty so painfully evident on all sides was due to an already operating pressure of population on the means of subsistence. George argued that population-pressure could not be the explanation of this kind of poverty, since there were vast areas of productive land, not only abroad but also at home in America, which were still entirely undeveloped. This failure to utilize natural resources he traced to one fact—the existence of the right of private ownership of land.

George's apparently casual expression, "even if it be admitted that the tendency to multiply must ultimately produce poverty," is one which we should now note; it is fundamental. This most significant statement seems worthy of far greater attention than has ever been given to it. Does it not tell us that George himself harboured inner reservations as to what

might be the ultimate outcome, even in places where his policy of taxation of land values had been put fully into operation?

Some Assumptions, and the Prospect in India

However this may be, let us ourselves be bold enough to make certain assumptions with regard to India and to discover whither they will lead us. The assumptions which we shall permit ourselves to make are somewhat as follows:

1. That the most favourable agrarian policy—better, it may be, than the taxation of land values, or than nationalization by State purchase, or allotment of the land to the people by declaration of Government, as in Northern Nigeria—has been put into effect. All the land, therefore, has by some means been made accessible directly or indirectly to the enterprise and industry of every person in the State.

2. That the land so freed for development is being fully utilized for agriculture, forestry, and mining, with the aim of reaching the maximum production of all kinds of goods.

3. That this freedom to produce goods from the land has been supplemented by the complete freedom to trade in them which the Atlantic Charter has forecast in a provisional way.

4. That, in addition to the above, a conscious and large-scale effort is being made to provide proper housing, adequate clothing, suitable food, good education, and the best possible medical care for everyone. (The promise of all these things seems implicit in the Atlantic Charter.)

5. That health officers and welfare workers are therefore afforded every facility for applying universally the vast knowledge of disease prevention and treatment already in existence and all the scientific advances which may accrue in the future.

Then, if these assumptions are accepted as correct, or even as correct in large part, let us try to consider in an unprejudiced way what the prospect is likely to be in an already densely populated and disease-ridden country such as India.

According to the census of 1941 the total population of all India (British India and Indian States) was 388,800,000. This number is distributed mostly in village communities over a total area of 1,576,000 square miles—i.e., about 247 persons per square mile. It is still a rural population. There are over 500,000 villages, and only 37 of the towns have populations over 100,000.

It has recently become evident that the duty of adjusting their internal political and economic outlook to meet the new conditions will devolve upon the people of India themselves. This development has long been foretold. Lord Macaulay in 1834 understood well that experience of administration would lead to a demand from the people of India for European institutions. "Whether such a day will ever come, I know not, but never will I attempt to avert or retard it. Whenever it comes, it will be the proudest day in English history." The future from the medical point of view already lies largely in the hands of the Indian people themselves. Even now, in the civil medical department of India, out of a total of six thousand fully or partly qualified medical men fewer than two hundred are British.

There can be few thoughtful Indians who will claim that the present state of affairs in regard to the health of the people of India is satisfactory. A recent official report states that "the village house is still ill ventilated and over-populated; the village site dirty and crowded with cattle, choked with rank vegetation, and poisoned by stagnant pools; and the village tanks polluted and used indiscriminately for bathing, cooking, and drinking."

Haward attributes the slow rate of progress in India to financial causes: "Conservative finance—prudent in an administration working in a country where standards of living are low—has prevented rapid acceptance of elaborate measures for educational development and for establishing public health organizations on European lines." He refers to the terribly high rate of infant mortality in India, but nevertheless, in spite of all these drawbacks to health, he has to write: "The population had increased by 40% in 1931 as compared with 1881, while the increase in 1941 over 1931 has proved to be nearly 15%."

According to Wattal, Hindus believe that perdition awaits a woman who dies unmarried or a man who dies without a son; for Hindus, therefore, marriage is an almost compulsory sacrament. A Hindu male must marry and beget sons who

will perform his funeral rites, lest his spirit should have to wander uneasily in the waste places of the earth. It is said that the very name of son, *putra*, means one who saves his father's soul from the hell called *Put*. A Hindu maiden unmarried at puberty is a cause of social obloquy to her family and of potential damnation to her ancestors. It has been observed that Muslims are not handicapped by any such penalties—though they have a saying of the Prophet that "when a man marries verily he perfects half his religion." Yet among them also the married state is equally esteemed—partly, it may be, owing to Hindu example, but partly also owing to the conditions of life in a primitive society, where a wife is almost a necessity both as a domestic worker and as a helpmate in the field. When Wattal wrote in 1934 there was in India a total population of about 353 millions, and of these no fewer than 83 million females and 84 million males were said to be married. The potentialities for increase of population are illustrated locally by the State of Travancore in Southern India, which in one year recorded a birth rate of 41.5 per thousand and a death rate of only 16 per thousand. Even higher birth rates than this are recorded.

Taking India as our example, it is hard to avoid the conclusion that an enlightened land policy and the putting into practical effect of the terms of the Atlantic Charter, coupled with the continuance of the above views on marriage and production of families, are bound to produce acute economic and political difficulties. Such a condition of over-population may be anticipated as can lead only to one result—starvation. If a sequence of events such as that suggested is likely to occur—and I think that it will occur very soon if the assumptions are correct—then we ought now to be preparing plans for dealing with the problems which will arise. In anticipation of the time when neither further irrigation schemes nor more scientific treatment of the soil can result in increased production from the land, Indian statesmen must have some policy ready by which great disaster to their country may be avoided.

The Doctor's Duty

Medical officers and social workers will not find it a pleasant reflection that the more they succeed in alleviating human suffering and in preventing disease the more rapidly will they reach, in some countries, a stage at which nothing but starvation looms ahead. Taking the reaction of medical men and women to such probabilities, there are several courses open. They may elect to wash their hands of all responsibility in the matter, to leave things severely alone, and to let the politician and Nature take their course. That, no doubt, would be to follow the line of least resistance, but it is diametrically opposed to the aims of medical science. The days are gone, never to return, when an attack of malaria was accepted as a warning of Divine displeasure, when for a surgeon to straighten a crooked limb was to cast doubt upon the perfection of Creation, and when the agony of the pains of labour had to be endured because so it was ordained. No doctor to-day will assent to any restraint which would deprive him of the privilege of relieving, as best he can, the immediate suffering of man, woman, or child. Nor will any doctor accept the ignominy of being compelled to stand idly by and watch a preventable disease spreading and taking its toll of human life. On the contrary, the doctor will insist on pointing to all the diseases which are already preventable—for example, diphtheria, yellow fever, plague, smallpox, and many others—and will demand to be given means by which he may take the steps necessary to prevent them. The doctor feels no doubt whatever about the line of action which he must follow. So far as he is concerned his duty is absolutely plain: it is to relieve the suffering patients and, so far as lies in his power, to prevent all human disease. Where malnutrition exists, all social and welfare workers will use every endeavour to reduce it and to obviate its recurrence.

Post-natal and Natal Checks on Population

India has almost the highest death rate of all countries; it is more than double that of England and Wales. That the position of India among the nations is by no means enviable in regard to its present death rate, but if the money and the necessary staffs were available that death rate could with certainty be greatly reduced. It may be argued, however, that

in spite of the application of scientific knowledge to such a country as India, Nature will always provide suitable and satisfactory checks upon population. The checks which Nature may impose ought therefore to be considered.

Warfare is a post-natal check which acts for a period, but its effects are largely on the male section of the community. Apart from the reduction of the numbers of males brought about directly by death in action and death from wounds, there are also certain other less-specialized losses which may result from war. For example, the destruction of crops may lead to wholesale malnutrition or even the starvation of large numbers of the general population. The conditions of existence imposed by warfare will frequently tend to increase the virulence and the rapidity of spread of disease. The influenza epidemics of 1917 and 1918 were held responsible for more deaths than were caused by enemy action. Moreover, like war, catastrophes of Nature, such as floods and earthquakes, may have both direct and indirect consequences. The floods which occur periodically on the Yellow River in China, for example, may result in numerous deaths from drowning. The 1934 Bihar earthquake caused the death of thousands of persons directly, and the death of thousands indirectly owing to starvation. In the Quetta earthquake 25,000 persons are said to have been killed. The deaths due to starvation and disease consequent on such catastrophes often exceed the deaths caused directly.

Furthermore, in densely populated areas numbers of deaths from starvation, or from disease to which malnutrition predisposes, may be expected to follow upon crop failures due to such milder derangements as excessive drought or frost. The existence of a Famine Code in India and of an Indian Famine Trust, intended to give monetary assistance to persons in districts affected by a shortage of rainfall, indicates the seriousness of the risks even now being constantly run in that country. Many diseases, especially in epidemic form, may wipe out a large proportion of a local population; influenza and plague are instances of disease which may reduce populations over fairly wide areas. Among the post-natal checks on population one of the most important in countries with low standards of living is excessive infant mortality.

With the exception of warfare, all the foregoing post-natal checks may be classed as involuntary, inasmuch as normal people would avoid them if they could. But in the post-natal period there are also voluntary checks, and these the parent or the community can apply. Infanticide by exposure of unwanted children and by other means is in several countries not unknown even to-day. The killing of twins, as practised among certain peoples, is a system which, whatever its original significance, may have some effect in limiting population by preventing twin-bearers from reproducing.

Natal checks include stillbirths and deaths of mothers at childbirth. How important the natal factor is can be concluded from the stillbirth rates and the high figures of maternal mortality. The figures given by Megaw for maternal mortality are worth noting here. He estimates that in India 200,000 mothers die in childbirth every year.

Prenatal Checks

Prenatal artificial checks in the post-conception period include all methods at present employed for causing miscarriage or producing abortion. The reduction of population which results from these means comprises all children unborn and all the mothers who succumb to the effects of the drugs used or of the mechanical operations performed, as well as all the later children who might have been born to these mothers had they survived. It may be observed that none of these prenatal methods can be considered devoid of risk. The safe production of even early abortion involves a surgical operation which requires precaution if it is to give the mother a fair chance of survival in a good state of health. As regards preconception checks, we may here leave out of consideration mechanical means of sterilization of the male and female. These are also operative procedures which involve risks. It may be possible to impose them by statutory means on those whose offspring are not welcomed by the State, but only in the case of persons who are not free. They are never likely to be accepted voluntarily by any large number of free peoples.

Among normal and civilized people it is at a stage before conception has occurred that a check on population is most often adopted and may most safely be undertaken. One method—that which is called the ideal one—is for men and women to abstain voluntarily from marriage, or, more broadly speaking, from reproduction. Religious celibacy has its effect on population, as also has secular common prudence, as when men put off marriage till late in life because they cannot afford to keep a wife and children. But much more usually it is the employment of contraceptives which provides the solution of any dreaded over-population problem among careful people with forethought. To what extent, if any, the frequent use of chemical or mechanical contraceptives finally impairs health is as yet by no means certain, and no doubt it will be some years before convincing evidence can be collected and sifted. That the immediate physical and mental risks are not considered great, however, seems already to be widely accepted.

Conclusion

We may sum up by concluding that if the world achieves lasting peace, if the maximum productive use of land is practised, and if, moreover, there is a sustained effort to apply our knowledge to the betterment of the health of man by attention to the prevention of disease and to improving housing, environment, and nutrition, then India, with all these newly acquired aids towards increase in the numbers and the good health of families, will be so rapidly populated that starvation will inevitably result, and that soon. In order to avert this it will be necessary for the politicians and administrators of India—as it presently will be for those of certain other countries—to make up their minds on what is to be their standard of living, and on the number of people which the land will support at that standard. Having determined this, they will then be compelled either to educate their peoples up to a high level of moral restraint or to educate them in the practice of contraceptive methods. Only so will they be able to limit the numbers of the population to the figure indicated by those standards of living which they have chosen and to avoid the starvation of many of their people.

INFECTIVE HEPATITIS

WITH SPECIAL REFERENCE TO THE ORAL
HIPPUIC ACID TEST

BY

IAN GORDON, O.B.E., B.Sc., M.B., M.R.C.P.

Major, R.A.M.C.

During the period Dec., 1941, to Sept., 1942, there were admitted to hospital 168 cases of infective hepatitis in the Middle East Forces. This figure does not include 50 cases of jaundice in persons undergoing antisyphilitic treatment, which are considered elsewhere. The patients came from certain base units, from rest and training camps, and from the forward areas in the Western Desert. The epidemic reached its peak in the early autumn (September), but figures showing the seasonal incidence would be misleading, since there were often large troop movements in the area served by the hospital. For the same reason it was difficult to trace contacts and so to assess accurately the incubation period of the disease. It was estimated at 4 to 5 weeks. Booth and Okell (1927-8) consider the incubation period to be not less than 20 and not more than 40 days. Excellent epidemiological studies have been carried out in rural districts in England by Pickles (1930, 1939) and Newman (1942), who have brought forward fairly conclusive evidence of an incubation period of 26 to 35 days.

Onset and Pre-icteric Stage.

The disease for the most part affected the apparently healthy. In the war of 1914-18 so-called catarrhal jaundice was common in the Middle East. Bacillary dysentery and diarrhoea were so frequently associated with the onset of the illness that

a suggestion was put forward that there was a definite relationship between the two diseases. In this series dysentery and diarrhoea were associated with the onset in only 19 cases. This remarkable difference is not due to any change in the character of the disease, but is the result of more efficient hygiene and sanitation, which during this war has been a feature in the Middle East.

A few epidemics have been associated with sore throat, notably those recorded by Fraser (1935) and Glover and Wilson (1931). No such association was noted here. General debility, sore throat, respiratory infection, or skin sepsis preceded the onset of the disease in only 8 cases. While there was wide variation in the clinical picture in the pre-icteric stage, two fairly distinct types of onset were recognized: (1) cases in which there occurred a well-marked febrile attack, and (2) cases in which no febrile attack was observed. In the great majority of cases the pre-icteric stage had passed and jaundice had developed before admission to hospital, but in such cases notes on the prodromal symptoms from regimental medical officers were of great value. Only occasionally was it difficult to determine the type of onset.

Group 1: 88 Cases with Febrile Attack

The onset was usually sudden, often with shivering and occasionally with a rigor. Fever ranged from 100° to 102°, the highest recorded temperature being 104°. The pulse rate usually varied from 80 to 90, and often dropped to 50 or 60 when jaundice became established. Headache, mostly frontal or retro-ocular, was common, and was noted in 85%. It was rarely bitemporal or occipital. A few patients complained of photophobia and pain on movement of the eyes. Giddiness was noted occasionally, and malaise, rarely amounting to lethargy, was almost constant. Two-thirds complained of backache and/or pains in the limbs.

Gastro-intestinal symptoms were universal in some form or another, and sometimes their appearance was delayed until the third or fourth day of the illness. Loss of appetite was complained of in all but three cases, and nausea, vomiting, and abdominal pains or discomfort were common. Constipation occurred in just over one-third, and mild diarrhoea in 9%. The average duration of this prodromal stage before the appearance of jaundice was 5.8 days, and in one case it lasted as long as 17 days.

Group 2: 80 Cases without Febrile Attack

The pre-icteric stage in this group was of slightly shorter duration, averaging 4.1 days. In 8 cases jaundice was the first symptom to be noted, and the longest duration of this stage was 18 days. Slight frontal headache was complained of in one-third, and, though no definite febrile attack occurred, a few cases had fever from 99° to 100°. The great majority, however, were afebrile.

Gastro-intestinal symptoms were evident from the first and, though similar to those in the "febrile" group, were not so constantly present. A number of patients complained of relatively few gastro-intestinal symptoms, and 8 would admit

of food the nausea was so intense or the feeling of distension in the abdomen so great that they could eat no more. Malaise, a bad taste in the mouth, and disinclination for smoking were common. Vomiting, especially after fatty foods, was noted in 49%. Abdominal discomfort or pain was complained in the right hypochondrium or mid-epigastrium, and was described as a soreness, fullness, tightness, a dull ache, a feeling of distension, or, rarely, as severe pain. Sometimes this discomfort was confused with nausea. Heartburn and flatulence were not uncommon, and in one-quarter the bowels were constipated. Suffusion of the conjunctivae, as noted by Be (1936) and Newman (1942) in children, was not observed. In both groups dark urine was noticed usually one to three days before the onset of jaundice.

Icteric Stage

After the appearance of jaundice the physical findings and subsequent clinical course were almost identical in all respects in two groups. When jaundice became evident, first in the conjunctivae and then in the face and neck, fever in Group 1 abated and constitutional and gastro-intestinal symptoms tended to disappear. In fact, as soon as the yellow tinge of jaundice appeared most patients began to feel well and to eat heartily. Very occasionally low fever continued for a day or two in the icteric stage.

The persistence, for a few days in the icteric stage, of anorexia, nausea, abdominal discomfort, and sometimes of vomiting occurred in one-quarter of all cases, and the symptoms were generally associated with clay-coloured stools. With the return of pigmentation in the stools the troublesome symptoms usually disappeared. Vomiting was so severe in 3 cases that intravenous saline with glucose was administered, with rapid improvement. Paresis of accommodation—a serious symptom—occurred in one deeply jaundiced patient, but disappeared quickly after the administration of glucose saline intravenously. The tongue was clean in the majority of cases—an interesting observation in view of the fact that discoloration of the liver is commonly said to be associated with a coated tongue. Tenderness in the epigastrium and in the right hypochondrium was common.

Enlargement of the liver was detected in 49% of cases in Group 1 and in 51% in Group 2. The liver became palpable and was invariably tender at the first appearance of jaundice or, less commonly, within a few days of its onset. The liver edge extended on average to 1½ fingerbreadths below the right costal margin. There was a definite relation between the size of the liver and the duration of the icteric stage. Though in a few cases of prolonged jaundice the liver never became palpable, it is clear (Table II) that the longer the liver the longer the duration of jaundice. In giving a prognosis it is helpful to remember that gross hepatomegaly is associated with severe and persistent jaundice. The enlargement in the average case lasted for about a week. In some cases hepatomegaly was transient, lasting for only two to three days; in others it persisted for three to four weeks.

TABLE II

No. of Cases	Size of Liver	Average Duration of Jaundice
2	3-4 f.b.	62.0 days
19	2-3 f.b.	34.4 "
63	1-2 f.b.	24.4 "
84	Not palpated	20.0 "

The spleen was palpable in 6 cases in Group 1 and in 10 cases in Group 2 (average total, 10%). The enlargement usually appeared within a week, and in all but one case was associated with hepatomegaly.

Duration of Jaundice.—In over two-thirds of cases jaundice lasted from 15 to 35 days. It usually developed rapidly and reached maximum within a few days; after a varying time it began to fade slowly. The depth of jaundice varied considerably, and in a few cases only the conjunctivae were tinged. In "febrile" cases the average duration of jaundice was 23.4 days, and in the "non-febrile" group it was 25.3 days; 24 cases (14%) out of 168 had an icteric stage which lasted more than 35 days, the longest duration being 81 days.

Leucocyte Count.—The leucocyte count in the pre-icteric stage and during the first three days of jaundice ranged from 3,100 to 8,800 per c.mm. (average 5,800 per c.mm.). A leucopenia with relative lymphocytosis and monocytosis is described as a common finding, and this was present in a number of cases. It was more common, however, for the leucocytes and the differential count to be within normal limits. The average differential count during the first three days of icterus was (20 cases): polymorphonuclears, 54% (44-64%); lymphocytes, 39% (30-52%); monocytes, 5% (1-10%) (Other cells not included.)

TABLE I

	Cases with Febrile Attack	Cases without Febrile Attack
	(%)	(%)
Headache	76	76
Retrolateral headache	34	2.5
Headache and limb pains	51	32
Anorexia	64	14
Nausea	97	83
Vomiting	85	71
Abdominal discomfort or pain	56	49
Constipation	51	45
Diarrhoea	36	25
	7	9
Duration of pre-icteric stage	5.8 days	4.1 days
Duration of jaundice	23.4 "	25.3 "

of no previous symptoms whatsoever. In most cases anorexia was complete; in others (17%) appetite for food remained good or was only slightly affected. Many patients said they would sit down to a meal, but after eating a few mouthfuls

Stools.—The stools were clay-coloured or light brownish at some time or another in the majority of cases. Their appearance was usually noticed by the patient at or before the onset of jaundice, but was sometimes delayed until jaundice had been well established. In a few cases they appeared intermittently, and in others every stool passed was well coloured with pigment.

Urine.—Dark-coloured urine was noticed by most patients one to two days before the appearance of jaundice; but sometimes it was observed every day during the previous week, and 11 patients said they had noted dark urine 7 to 14 days before the occurrence of jaundice. A small quantity of albumin was found in the urine of a few patients during the first two or three days of jaundice, and in some instances occasional granular and hyaline casts were present. In 60 cases an early morning specimen of urine was examined daily or on alternate days for bile (Gmelin's test), bile salts (Hay's sulphur test), and excess urobilinogen (Ehrlich's diazo reagent). The average duration of biliuria as estimated from the day of appearance of jaundice was 14 days, and bile salts were detected for three to four days after the test for bile became negative. It will be generally agreed that both Gmelin's nitrous acid test and the iodine ring test for bile pigment in the urine are unsatisfactory, since in the latter stages of jaundice, when excess bilirubin is still present in the blood, these tests for bile are negative. Excess urobilinogen was found in the late pre-icteric stage and in many cases during the first few days of jaundice. The test was usually, but not invariably, positive when the stools were clay-coloured or light brown. This may be regarded as evidence that stoppage of bile-flow was usually incomplete, since the formation of urobilinogen depends on the presence of bile pigment in the intestine. It has already been shown (van Rooyen and Gordon, 1942) that, in cases of infective hepatitis when the stools are clay-coloured, quantities of bile can be obtained by duodenal intubation. Occasionally, however, excess urobilinogen was absent in the presence of clay-coloured stools. In one severe case, in which jaundice lasted 55 days and the stools were clay-coloured for 14 days, excess urobilinogen was never present in the urine. Probably in this case there was complete stoppage of the flow of bile, so that in the absence of bile in the intestine no urobilinogen was formed.

Diagnosis in the Pre-icteric Stage

The initial febrile attack in cases in Group I resembled, and was often confused with, sandfly fever and malaria, but the distinguishing feature in these cases was the presence of gastro-intestinal symptoms, especially anorexia and nausea. Diagnosis was difficult when the appearance of these symptoms was delayed for a few days.

Pneumonia, meningitis, and septicaemia had occasionally to be excluded when fever was high in the pre-icteric stage, and in such cases the leucocyte count was of great assistance. The enteric group of fevers, especially paratyphoid fever, had not infrequently to be considered. In 2 cases abdominal pain was so severe that a diagnosis of acute appendicitis was made by the medical officer. In patients without an initial febrile attack the gastro-intestinal symptoms were sometimes confused with an alcoholic "hang-over"—an excusable mistake, as the symptoms are almost identical. Many of these cases, before the appearance of jaundice, were also labelled "gastritis" or "dyspepsia."

The main diagnostic aid in the pre-icteric stage, however, is the presence of bile pigment and bile salts in the urine. Excess urobilinogen is also found at this stage, but its presence must be interpreted with caution, since it occurs in excess in the urine in malaria, and indeed when pyrexia is high from any cause. Excess urobilinogen in the urine of afebrile cases is of much more diagnostic value. Confirmatory evidence of subclinical icterus may be obtained by removing a sample of whole blood in a dry syringe and estimating the icteric index or serum bilirubin.

The histamine intradermal test described by Brodribb and Cullinan (1936) as diagnostic for subclinical icterus was carried out in a number of cases, but gave disappointing results. The test was rarely positive before the appearance of bile pigment in the urine.

Other Symptoms

Itching was not a usual complaint, and was recorded in only 9 cases. Occurring usually but not invariably at the height of the jaundice, itching was for the most part generalized, and was sometimes severe enough to prevent sleep. Apart from an accompanying persistence of anorexia and nausea in 3 cases, itching could not be associated with any particular symptom or sign, nor did it bear any relation to the severity or duration of the jaundice.

Urticaria occurred in 5 cases, none of which gave any previous allergic history. In one case it appeared on the sixth day of jaundice, but in the others it was noted late in the disease when the jaundice was decreasing. Slight epistaxis occurred in a few cases.

Relapses and Complications

When jaundice had almost or totally disappeared, there occurred in 5 cases a sudden relapse with deepening of jaundice, lasting on the average six to seven days. In one case the relapse, which appeared to have been brought on by a severe cold in the head lasted three weeks. No satisfactory explanation for these relapse can be offered. They occurred in the more severe cases.

Death from acute necrosis of the liver is fortunately a rare occurrence, and there were no such cases in this series. Some of the more severe cases suffered from a considerable amount of debility, but otherwise there were no complications.

Liver Function Tests

Hippuric acid liver function tests by the oral method were carried out in a number of cases at various stages of the disease. This test, devised by Quick (1936), is a measure of the power of the liver to convert benzoic acid to hippuric acid, and is considered to be an index of the "detoxifying" power of the organ.

Briefly, it is carried out by giving orally 6 g. of sodium benzoate in the early morning and collecting for four hours complete hourly specimens of urine. The hourly excretion of hippuric acid is remarkably constant in the normal adult, who will excrete about 3 g. of sodium benzoate (in the form of hippuric acid) in four hours. Three grammes is chosen as the average normal for calculating the output in terms of percentage of normal. Excretion of over 90% of this amount is regarded as non-pathological (Quick, 1940).

Attempts to correlate the oral hippuric acid test with the bromsulphalein and galactose tolerance tests have been made by Sneyd and Plunkett (1936), and their results indicate that the oral hippuric acid test is reasonably accurate and satisfactory. Mater and his co-workers (1942, 1943) have made a comparative evaluation of the newer liver function tests and are of the same opinion, though they found that the intravenous hippuric acid test was more sensitive than the oral method.

Quick's original technique was followed. The modifications of the test introduced by Weichselbaum and Probst (1939), Probst and Londe (1940), and others were not adopted. In the present series oral hippuric acid tests were carried out in the main at three stages of the disease: (a) when jaundice was at about its height (b) when jaundice had almost disappeared; and (c) after two to four weeks' convalescence, when jaundice had totally disappeared. Many results were confirmed by a repetition of the test. During the first three weeks of jaundice tests were performed in 14 cases of a grades of severity, the duration of icterus varying from 7 to 81 days. Evidence of impaired function of the liver of from 37 to 72% of normal was found in all cases. Similar results have been recorded by Quick (1936), Probst and Londe (1940), and Henderson and Splatt (1942).

In an attempt to compare the function of the liver in mild average, and severe cases, a number of tests were performed at the stage of the disease when jaundice had practically disappeared. A these patients were "up-patients" on ordinary diet, and jaundice had just disappeared from the skin and only a trace remained in the sclerotics. The icteric index ranged from 8 to 20. It is at this stage of the disease that patients are usually discharged from hospital, and it was considered desirable to obtain, in addition, some information as regards liver function at this time. That the liver was slow in regaining normal function in some cases was suspected on clinic grounds. We have seen in this hospital recurrence of jaundice in four patients (not included in this series) who had indulged rather than freely in alcohol during convalescence. It was thought that in these cases, although jaundice had practically or totally disappeared on discharge from hospital, liver insufficiency was still present, and the imbibing of alcohol had caused further liver damage, resulting in the reappearance of jaundice.

Hippuric acid tests performed in 29 cases when jaundice had almost disappeared revealed evidence of liver insufficiency in the majority. The results (Table III) show that in 19 cases (65%) the excretion of benzoic acid was less than 90% of normal, indicating an insufficiency of the "detoxifying" power of the liver. It will be observed that the type of onset, the duration of jaundice, and the presence or absence of hepatomegaly do not bear any constant relation to the function of the liver (as estimated by the hippuric acid test) when jaundice has almost disappeared. Indeed, fairly severe liver insufficiency may be present in relatively mild cases of jaundice (Cases 25 and 39).

Ten of the more severe cases showing abnormal hippuric acid tests on discharge from hospital were readmitted after two to four

weeks' convalescence for the performance of further tests. Jaundice had totally disappeared, and all these patients stated that they felt well and fit for duty. Urines were negative for bile and excess urobilinogen, and in no case was the liver palpable.

Of these 10 cases 6 gave evidence of recovery of liver function, while in 4 cases the excretion of sodium benzoate was less than 90% of normal, indicating insufficiency (Table III). Of the 4 cases showing liver insufficiency after total disappearance of the jaundice, one (Case 2) had been deeply jaundiced and for at least two weeks had passed stools deficient in bile pigment. In Case 4 the liver was palpable for the first four weeks of the illness. In the initial stages Case 6 was acutely ill with persistent vomiting, which required the administration of saline and glucose intravenously. The remaining case (No. 13) was an apparently average one of 28 days' duration, the liver being palpable for only a few days at the beginning of the illness. Cases with a clinical picture similar to these, however (Cases 1, 3, and 5), had normal hippuric acid tests. Thus it is not possible to detect, on clinical grounds, cases which will show insufficiency of liver function (as measured by the hippuric acid test) after the disappearance of jaundice. Whether complete recovery of the detoxifying power of the liver eventually occurred in these cases is not known, as it was not possible to follow them further.

TABLE III.—Hippuric Acid Test

Case No.	Duration of Jaundice (days)	Jaundice Disappeared from Skin; Present in Sclerotics (% of normal)	After 2-4 Weeks' Convalescence Jaundice Totally Disappeared (% of normal)	Liver	Remarks
1	81 NF	104% (9)	—	+ for 2 wks.	Severe case, with vomiting ++
2	55 F	67% (15)	77% (7)	0	
3	52 NF	61% (20)	103% (12)	+ for 6 wks.	
4	52 F	60% (17)	89% (7)	+ for 4 wks.	
5	50 NF	115% (10)	—	+ for 2 wks.	
6	45 F	73% (13)	73% (8)	0	Severe case, with vomiting ++
7	45 NF	51% (10)	90% (5)	+ for 6 wks.	
8	45 NF	89% (15)	—	+ for 1 wk.	
9	35 NF	74% (20)	98% (6)	0	
10	33 F	112% (8)	—	0	
11	32 NF	101% (17)	—	+ for 1 wk.	
12	28 F	78% (10)	95% (10)	0	
13	28 F	66% (17)	65% (7)	+ few days	Average case
14	28 F	71% (18)	110% (10)	0	
15	28 F	117% (12)	—	0	
16	28 NF	84% (9)	—	0	
17	26 F	52% (12)	—	0	
18	23 NF	96% (11)	—	+ few days	
19	22 F	99% (11)	—	0	
20	20 F	110% (15)	—	0	
21	20 F	66% (15)	104% (5)	0	
22	20 NF	77% (12)	—	0	
23	20 NF	86% (8)	—	+ for 2 wks.	
24	18 NF	64% (17)	—	+ for 1 wk.	
25	15 F	51% (16)	—	0	
26	14 F	85% (10)	—	+ few days	
27	14 NF	101% (18)	—	+ few days	
28	11 NF	97% (8)	—	0	
29	3 NF	52% (8)	—	0	

Figures in parenthesis = Icteric index.
F = Febrile type of onset.
NF = Non-febrile type of onset.

Second Attacks

There are few references to second attacks of infective hepatitis. Findlay, Dunlop, and Brown (1931) have recorded a case in which jaundice recurred two months after the primary attack, and Bates (1936) described the case of a boy aged 15 years who had a recurrence of jaundice, more severe than first attack, 34 days after biliuria had disappeared. A recurrence three months after the first attack in a boy aged 35 years was noted by Newman (1942).

TABLE IV

Case No.	Intervals between Previous and Present Attacks (years)	Duration of Present Attack	Hippuric Acid Test when Jaundice almost Disappeared (Present in Eyes Only) (% of normal)
1	1	16 days	—
2	8	8 "	—
3	14	7 "	72%; later 84%
4	8 and 13	66 "	64%; later 86%
5	10	20 "	110%
6	15, 11, and 1	3 "	91%

In the present series 6 patients gave a history of one or more attacks of jaundice, which had occurred at least a year previously. These attacks had lasted from three to six weeks,

and the descriptions of them resembled average attacks of infective hepatitis.

It will be seen from Table IV that the subsequent attacks were, on the average, no more severe than an ordinary attack of the disease. Nor can it be said that there was evidence of much residual liver insufficiency. Hepatomegaly was not a feature in these cases, the liver being palpable in only 2 instances. Hippuric acid liver function tests carried out when jaundice had almost disappeared showed that there was little or no disturbance of the detoxifying power of the liver. Of the 4 cases tested, 2 showed normal liver function and 2 only slight impairment (84% and 86% of normal). In actual fact, at this stage in the disease there is no more disturbance of the detoxifying power of the liver in these cases than in cases which do not give a history of a previous attack. Unfortunately, it was not possible to perform further tests on these patients.

It will be appreciated that only one single function of the liver has been tested in this series of cases, and it is probable that had other liver function tests been employed different results would have been obtained. Evidence of liver damage many years after recovery from the disease has been discovered when other tests for liver function have been employed. Using the bilirubin excretion test, Soffer and Paulson (1934) found evidence of liver insufficiency in 9 out of 11 patients who had had catarrhal jaundice. In 6 of the 9 cases the attack had occurred 3 to 18 years previously. The degree of retention of injected pigment varied from 10.7 to 50%, and they remark that the severity of the attack bears no relation to the degree of residual hepatic involvement. Likewise, Bergmann (1932) found that many years after infective hepatitis there was evidence of liver insufficiency, as shown by the bilirubin and galactose tolerance tests.

Notes on Aetiology

During the war of 1914-18 so-called catarrhal jaundice occurred in epidemic form in the Middle East theatre of war. Much literature appeared on the aetiology of the disease, and the general opinion at that time was well summarized by Willcox (1919), who held the view that "epidemic catarrhal jaundice is due to an intestinal infection causing duodenitis and catarrh of the bile ducts. The area round the ampulla may be mainly affected, and in some cases there may be produced an ascending catarrh causing cholangitis. In either case obstructive jaundice may result."

During the last 20 years this type of epidemic non-spirochaetal jaundice, which is of world-wide distribution, has been extensively studied, and the view that jaundice is caused by local inflammation and obstruction has fallen into disfavour. A great deal of evidence now exists to show that icterus is caused by a hepatitis, the essential lesion being degeneration of the parenchymatous cells of the liver. The post-mortem evidence is well reviewed by Cullinan (1939) and Findlay (1940), and in the aspiration biopsy experiments of Roholm and Iversen (1939) diffuse hepatitis was demonstrated in all cases.

Hurst and Simpson (1934), Hurst (1940), and Barber (1937) recognize two different types, which they maintain can be differentiated on clinical grounds: (1) a primary hepatic necrosis (or infective hepatitis); and (2) true catarrhal jaundice which depends on obstruction to the flow of bile caused by catarrh of the duodenum and lower extremity of the common bile duct. Findlay (1940) also recognizes these two types, but is of the opinion that there are no symptoms by which true catarrhal jaundice can be differentiated from infective hepatitis.

In the present series there occurred cases the clinical picture of which were almost identical with Hurst and Simpson's clinical description of primary hepatic necrosis on the one hand and of true catarrhal jaundice on the other. The existence in the same epidemic of two clinical types each with an entirely different aetiology is unlikely. Furthermore, liver insufficiency as measured by the hippuric acid test was present in both clinical types. Cullinan (1939), in a review of 23 outbreaks in England, also considers that there is not enough evidence to justify the above subdivision.

Treatment:

Routine treatment consisted of a low fat and high carbohydrate diet, glucose twice or thrice daily, and a small dose of magnesium sulphate in the early morning. When the skin became free from icterus, patients were allowed up and were put on ordinary diet. When vomiting was frequent, excellent results followed the administration, by intravenous drip transfusion, of a few pints of normal saline with 5% glucose. Nausea and abdominal discomfort, persisting during the icteric stage, were sometimes troublesome symptoms. Some degree of relief was obtained by the use of sodium taurocholate, 4 to 6 gr. in cachets. Alkaline powder was also useful. Calcium lactate is indicated in unusually prolonged cases. The majority of cases require a spell of convalescence: alcohol should be forbidden during this period.

Summary and Conclusions

A short clinical description of 168 cases of infective hepatitis is given. Two fairly distinct types of onset are recognized and described. It is emphasized that the subsequent clinical course is almost identical in the two types.

The average duration of icterus was 24 days; the icteric stage lasted from 15 to 35 days in just over two-thirds.

The liver was palpable in 50% of cases and the spleen in 10%. Gross hepatomegaly was associated with prolonged jaundice, and the larger the liver the longer was the duration of icterus.

The diagnosis in the pre-icteric stage is often difficult, and in many cases will remain uncertain until bile pigment appears in the urine.

Hippuric acid tests for liver function by the oral method were performed in 14 cases when icterus was at about its height during the first three weeks of jaundice. Evidence of impaired function was found in all cases.

Recovery of liver function (as measured by the hippuric acid test) appears to be slow in some cases. In the convalescent stage of the illness, when icterus had just disappeared from the skin but remained in the sclerotics, evidence of liver insufficiency was demonstrated in 19 (65%) of the 29 cases tested. Impairment of liver function in the convalescent stage occurred in mild, average, and severe cases, and bore no constant relation to the presence or absence of hepatomegaly.

Evidence of liver insufficiency after total disappearance of jaundice was demonstrated in 4 cases.

Six cases with a history of one or more previous attacks of the disease are mentioned. Second attacks appear to be no worse than the first. The results of hippuric acid tests performed in 4 cases showed little or no evidence of residual liver insufficiency.

I wish to thank Col. H. D. F. Brand for permission to publish these cases, and Capt. A. D. Morgan, R.A.M.C., for help with the hippuric acid tests.

REFERENCES

- Barber, H. (1937). *British Medical Journal*, 1, 67.
Bates, R. (1936). *Ibid.*, 1, 521.
Bergmann, G. Von (1932). *Funktionelle Pathologie*, Berlin, p. 137 (quoted by Hurst and Simpson, 1934).
Booth, W. G., and Okell, C. C. (1927-S). *Publ. Hlth.*, 41, 237.
Brodbrick, H. S., and Cullinan, E. R. (1936). *Lancet*, 1, 1237.
Cullinan, E. R. (1939). *Proc. roy. Soc. Med.*, 32, 933.
Findlay, G. M. (1940). *J. R.A.M.C.*, 4, 72.
Dunlop, J. L., and Brown, H. C. (1931). *Trans. roy. Soc. trop. Med. Hyg.*, 25, 7.
Fraser, E. M. R. (1935). *British Medical Journal*, 1, 701.
Glover, J. A., and Wilson, J. (1931). *Lancet*, 1, 722.
Med. J. Austral., 1, 185.
of the War, London.
J. Hosp. Rep., 84, 173.
D. F., and Hollands, R. A. (1942). *Amer.*
and MacMillan, J. M. (1943). *J. Amer. med. Ass.*, 121, 723
Newman, J. L. (1942). *British Medical Journal*, 1, 61.
Pickles, W. N. (1930). *Ibid.*, 1, 944.
(1939). *Lancet*, 1, 893.
Probstein, J. G., and Londe, S. (1940). *Am. Surg.*, 111, 230.
Quick, A. J. (1936). *Arch. intern. Med.*, 57, 544.
(1940). *Amer. J. clin. Path.*, 10, 222.
Roholm, K., and Iversen, P. (1939). *Acta path. microbiol. scand.*, 16, 427.
Snell, A. M., and Plunkett, J. E. (1936). *Am. J. digest. Dis.*, 2, 716.
Sobel, L. J., and Paulson, M. (1934). *Arch. intern. Med.*, 53, 809.
van Nooy, 91, 213.
Weichsel, 91, 213.
Wilcox, 1, 671.

THE SIGNIFICANCE OF BLOOD-PRESSURE READINGS IN GENERAL SURGICAL WORK WITH SPECIAL REFERENCE TO THE CARDIAC INDEX

BY:

HAROLD DODD, Ch.M., F.R.C.S.

Surgeon to King George Hospital, Ilford, and to the Royal Hospital, Richmond; E.M.S. Surgeon to the London Homoeopathic Hospital.

Blood-pressure readings have been made before, during, and after general surgical operations in my practice since 1932. They have proved to be valuable and instructive. They were started with the need to detect and counteract the marked falls of blood pressure that occurred during spinal anaesthesia, and were used in the search for further aids in the detection of poor surgical risks with a view to excluding the necessity for the explanation "the operation was successful, but unfortunately the patient died" (Dodd, 1940). This note attempts to assess the significance of blood-pressure readings in general surgical work in the light of this experience.

Before Operations

The Cardiac Index.—It was from Mr. Ernest Miles that the significance of the Moot-McKesson cardiac index was learned. This estimation is more widely known than formerly, but it is seldom taught, and, because of this, when it is mentioned it meets with some scepticism. The cardiac index is estimated as follows:

The normal systolic blood pressure is 120 mm. Hg and diastolic 80 mm. Hg, the difference—the pulse pressure—being 40 mm. The cardiac index is reckoned by working out the percentage fraction which results by placing the pulse pressure as numerator over the diastolic pressure as denominator. Ordinarily the pulse pressure is 40 and the diastolic pressure 80, giving a fraction of $\frac{40}{80} = 50\%$.

The Significance of the Cardiac Index.—Clinical experience has shown that patients with a cardiac index between 33 and 80% are fair surgical risks, between 80 and 100% and between 25 and 33% they are doubtful and poor operative risks, while above 100 and below 25% no surgical procedure is safe: Miles said that opening a whitlow in such a patient is likely to prove fatal. This cardiac index has proved of assistance in the selection of patients for operation, and also after operations, when the blood pressure has been measured and serious disturbances found. It indicates the need for measures to improve the tone and fill the cardiovascular system—necessities that might otherwise be overshadowed by the problem of surgical diagnosis and the operation. Clinical improvement almost invariably follows these remedies, especially in elderly people, in whom the blood pressure is often around 140/70, giving a cardiac index of 100%. Pre-operative rest in bed for one, two, or three weeks, with a fluid intake of 6 to 8 pints daily and cardiac tonics, approximates these figures to, say, 130/80, and major operations have then been undertaken with consistently uneventful convalescences.

The opinion at present held as a result of these studies is that the blood-pressure figures in themselves mean little; it is the relation of the diastolic and systolic which matters—i.e., the cardiac index: a high or a low systolic blood pressure between 100 and 200 mm. is immaterial to the surgeon considering a major operation so long as the cardiac index is around 50%. Actually, in a period of ten years, during which the blood pressure of all new surgical out-patients has been taken, a systolic pressure of over 180 or lower than 100 has been rare in adults.

Condition of Heart and Blood Vessels

The taking of the blood pressure, apart from yielding the systolic, diastolic, and cardiac index values, gives good data concerning the regularity or otherwise of the heart-beats and, by the strength of the beat, the quantity of the heart output. These features, when noted with the stethoscope over the artery at the elbow, arrest the observer's attention more certainly than the routine clinical examination of the heart and pulse. Considerable variations in regularity and size of the pulse are detected, and the systolic and diastolic readings also sometimes

P. Freud, G. D. Rook, and S. Gurian (*Amer. J. Dis. Child.*, 1942, 64, 395), who report a case in a female infant aged 3 days, state that there are only five cases on record of herpes zoster in the newborn. Trauma and toxins could be excluded, so that an infectious origin was very probable. As in the other cases of herpes zoster in infants, evidence of pain and discomfort was absent. Complete healing took place in six weeks and there was no scarring.

vary from hour to hour and from day to day, denoting cardiac and vasomotor instability.

Sometimes when the diastolic pressure is being read it will be found that the arterial murmur continues until the pressure in the armlet is zero; this is interpreted as denoting aortic incompetence or a sclerotic or spastic artery, which is a further factor for consideration by the surgeon in a contemplated major operation on an elderly subject.

Illustrative Cases

Case 1: Coronary Thrombosis, ? Acute Abdomen.—A man aged 44 was admitted with an acute abdomen; the diagnosis was obscure: ? an acute gall-bladder, ? an acute appendix, ? an acute pancreatitis—certainly something "unusual." He was a stout, plethoric person. The blood pressure was 140/70, giving a cardiac index of 100%. In view of the uncertain diagnosis and the cardiac inefficiency, no immediate operation was proposed. The next day the picture was still confused; the blood pressure was 100/80, and a coronary thrombosis was considered. Operation was out of the question. Dr. Geoffrey Bourne agreed with the cardiac diagnosis. After a stormy period the patient recovered.

Case 2: Heart Efficient; Gangrenous Cholecystitis.—A man aged 69 was seen with apparently acute cholecystitis and colic. Five years before a partial gastrectomy for cancer of the stomach had been performed. The question was, "Was this a case of gall-stones or a metastasis obstructing the biliary apparatus?" He was in good condition; the blood pressure was 140/85 (cardiac index 64%). Operation was performed forthwith, and a gangrenous gall-bladder obstructed by a stone removed. He made an uneventful recovery.

Case 3: Auricular Fibrillation; Gall-stone Colic.—A woman of 67 was admitted with acute gall-stone colic. The question of immediate operation was excluded when the blood pressure revealed a fibrillating heart and figures of 140/60, giving a cardiac index of 133%. The patient was rested for four weeks. The blood pressure improved to 135/80 (cardiac index 68.75%), and a large stone was removed from the common bile duct. Although the operation was done under a local anaesthetic she had a stormy convalescence with four days of persecution delirium, and the fibrillation returned, but ultimately she recovered.

Case 4: Auricular Fibrillation, Gall-stones, and Jaundice.—A business man of 65 had had gall-stone colic and jaundice shortly before being seen. Operation was needed. His blood pressure was 120/50 (cardiac index 140%). The pulse was irregularly irregular, and there was considerable variation of the output at each systole. The heart was fibrillating. Rest in bed for nearly three weeks restored regularity, and the pressure improved to 140/80. Cholecystectomy and exploration of the common bile duct were performed. Convalescence was uneventful, and in spite of strenuous work (iron and steel trade) no further cardiac irregularity has been noted in five years.

Case 5: Diabetic Gangrene.—A woman with diabetic gangrene of the foot, and a blood pressure of 110/50 (cardiac index 120%), was undergoing amputation above the knee under open ether anaesthesia. She died on the table.

Case 6: Diabetic Gangrene.—A physician friend, J. B., related the following: A patient had diabetic gangrene of the foot. Immediate amputation was advised. The relatives asked for a physician's opinion. "My intuition," he said, "was that she was not fit enough then for the operation, but I could find nothing definite to back up my feeling, when I remembered the cardiac index. The blood pressure was 120/55, giving an index of well over 100%. I explained this to the doctor and surgeon, and they agreed to the delay. And she hasn't died," he concluded.

Case 7: Carcinoma of Stomach.—A man aged 66 was seen in consultation for indigestion which was clearly due to carcinoma of stomach. He looked reasonably well, and energetically discussed operation, its cost, time, place, etc. His blood pressure was 140/70 in the left arm and 70/60 in the right. I was puzzled as to the significance of this finding in an apparently fairly normal man. The usual pre-operative rest, transfusion, fluids, etc., were devised. He died suddenly that night.

Case 8: Varicose Veins.—A busy housewife had gross varicose veins. The operation of ligature and injection was advised. Her blood pressure was 140/70. She was rested two days, but it remained 140/70-80, giving a cardiac index of about 100%. Circumstances pressed for early operation, and as the procedure was small and was to be done under a local anaesthetic it was performed, although with uneasiness concerning the cardiac efficiency. She ran a high temperature after operation, and the pyrexia continued for several weeks, with malaise and a small pulmonary embolism as indicated by pain, cough, and blood-stained sputum.

Such has been our unsatisfactory post-operative experience when the cardiac index was less than 33 and over 85%: some complication develops—e.g., abdominal distension, chestiness, pulmonary embolism, delirium, strangeness of manner,

or sepsis. When the fundamental cardiac weakness is recognized and is treated by pre-operative rest in bed, a fluid intake of 5 to 6 pints daily, and gentle cardiac tonics—given orally, seldom by injection—these incidents are avoided. When the cardiac defect is found after the operation, then attention is focused on the cardiac and vasomotor condition, while local treatment to the operation area—e.g., meteorism—becomes a secondary consideration. Heart stimulants are given orally, not by injection, to feeble and aged subjects, because in the early days of this study two patients (aged 65 and 67) with carcinoma of the stomach who were being prepared for operation with nikethamide (coramine) 1 c.cm. subcutaneously t.d.s. died suddenly from cerebral embolism. It was considered that a thrombus had passed out of the left auricular appendage into the systemic circulation.

Blood-pressure Readings During Operations

The Anaesthetic.—By taking the blood pressure every five minutes during operations surprising falls and variations have been found, irrespective of the type of procedure, whether major or minor. They occur with all sorts of anaesthesia—a statement based on thousands of readings during the period 1933-43 (Dodd, 1940). The variations in pressure are wide during spinal anaesthesia, somewhat less with general anaesthetics, and much less with local infiltration of novocain or amethocaine hydrochloride (decicain). The progress of the blood pressure is unpredictable. A severe fall in blood pressure is not regarded as an indication of shock, but, taken with other factors, it is helpful.

Blood-pressure-raising Agents.—Remedies directed to the restoration and maintenance of the blood pressure around normal have lessened the post-operative morbidity and also the mortality. Certain drugs have been proved as pressor agents, particularly pholedrine (Dodd, 1942) and methedrine (Dodd and Prescott, 1943), and 30% hypertonic saline 20 to 40 c.cm. (Walker, 1936). Cardiac tonics such as nikethamide, leptazol (cardiazol), digitalis, strychnine, etc., have no pressor effect, while by contrast that of adrenaline and icoral is too violent for clinical use.

Position of Patient on Operating Table.—This affects the blood pressure. When the bridge of the operating table is raised for gall-bladder and kidney procedures a steady fall in pressure ensues, but with the lowering of the bridge the blood pressure recovers. This bridge is painful to patients: pneumatic pillows are more comfortable. Sudden changes from the Trendelenburg to the horizontal position also cause falls in pressure; lifting from the table to the ambulance and thence to the bed is also associated with a fall, which is considerable and recovers but slowly after major procedures.

The Operative Procedure.—Exploration of the abdomen and palpation of the common bile duct are nearly always followed by a fall in blood pressure, and in some cases with weakening and temporary irregularity of the pulse. With a well-planned local and regional infiltration this is largely eliminated. Pulling on the mesenteries or parietal peritoneum to close the abdomen causes a similar fall, as also does packing the intestines into the abdomen. Manipulation of the renal pedicle affects the pressure adversely, while in a radical breast operation the pressure is continuously low, with limited response to the usual dose of pressor drug.

Pentothal during Operation.—The interesting fact was noted that if pentothal in 5-10% solutions (say, 3-5 c.cm.) is injected quickly a prompt fall in blood pressure occurs, which gradually recovers as the respirations strengthen. The safe rate of injection is 1 c.cm. per half-minute.

Death on the Table.—Death on the operating table is an abrupt shock to a surgical team. Only one death has occurred on the table (from a ruptured thoracic aneurysm) when pressure observations were being made. One assistant said that patients "never look like dying" when such readings, and the necessary corrections, are made. With regard to conventional operations without pressure observations, there readily come to mind three deaths on the operating table which were first detected by the surgeon.

Post-operative

Choice of the Remedy in Collapse.—Taking the blood pressure gives an indication of the remedy required by a patient. Thus

a man may be cold and somewhat cyanosed, with a weak pulse, yet the blood pressure be within normal limits. This patient's need is a cardiac tonic such as nikethamide plus oxygen. On the other hand, the pulse may feel average but the blood pressure is below 80 mm. Hg; here a pressor agent is required. Observers who have taken thousands of pressure readings constantly report such findings, and also their inability to estimate the blood pressure by palpating the pulse.

A male, 24 hours after a three-quarter partial gastrectomy for a large gastric ulcer and a duodenal ulcer, collapsed and became unconscious. His respirations were 48 and forcible, the pulse was 160, but the heart-beat was regular and sounded strong at the apex. The blood pressure was 80/60 (cardiac index 33%) and his nails were white. In this case oxygen and a pressor agent to restore the blood pressure were necessary. Both were given, and in five minutes consciousness was regained and recovery followed. The conventional cardiac tonic would probably have been ineffective.

Another finding is that of simultaneous cardiac and pressure weakness or failure. The pulse is feeble and irregular and the pressure low. A combination of nikethamide or leptazol 1 c.cm. and pholedrine 1 c.cm., given together intramuscularly, yields a powerful effect.

Fluid Loss.—Should there have been a considerable loss of fluid, as after gross injuries or extensive operation, then an infusion of blood or plasma is necessary to fill up the circulatory system. Stimulants or saline will not act in this capacity; in fact, continuous saline is harmful to shocked patients because the body has no storage facilities for salt-and-water, which waterlogs the bases of the lungs.

Post-operative Observations.—Post-operative observations of the blood pressure are important after the use of spinal anaesthetics and after the shock-producing procedures. Low readings are found up to four days after operation. Response to pholedrine or methedrine or intravenous hypertonic saline is prompt.

Summary

The Moot-McKesson cardiac index is described and its value indicated in major operations.

Some factors affecting the blood pressure at operations are described.

After operations, the need to give primary attention to the cardiovascular system rather than to the operation area is emphasized.

The help available from blood-pressure readings in the choice of the correct remedy is described.

Continuous intravenous infusions of saline post-operatively in shocked patients are deprecated.

REFERENCES

- Dodd, H. (1940). *Lancet*, 1, 358.
— (1942). *Ibid.*, 1, 498.
— and Prescott, F. (1943). *British Medical Journal*, 1, 345.
Walker, J. B. (1936). *Brit. J. Surg.*, 24, 105.

CONTINUOUS ADMINISTRATION OF INTRAVENOUS ANAESTHESIA

A SIMPLE METHOD

BY

F. W. ROBERTS, M.B., B.S., D.A.

Honorary Anaesthetist, the Middlesex Hospital

AND

B. A. SELICK, M.B., B.S., D.A.

Senior Resident Anaesthetist, the Middlesex Hospital

In view of the increasing popularity of intravenous anaesthesia and the growing number and complexity of devices (Semans, 1941) for its administration, we would like to place on record a method which we have been using at the Middlesex Hospital for more than two years. It is simple to carry out, gives accuracy of dosage, and is economical in materials.

The Apparatus

This is a positive-pressure drip saline infusion apparatus (Fig. 1), consisting of a saline reservoir, drip-bulb and tubing, glass aspiration indicator, needle, and a means of providing positive pressure.

1. **Pressure.**—This is provided as follows: (a) By a hand bulb—e.g., of a sphygmomanometer or Higginson's syringe. A clip is often needed to prevent leakage back through imperfect valves. (b) By an oxygen cylinder. A Y-tube is connected in the tubing

from the reducing-valve of an oxygen cylinder to the flowmeter. The remaining arm of the "Y" is joined to the shorter tube of the saline reservoir. By restricting the flow from, say, 4 litres a minute to 2 litres, by means of a screw-clip on the tubing which

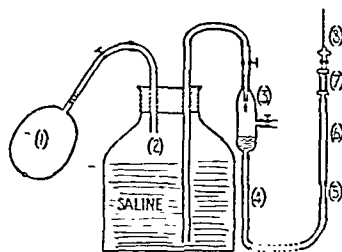


FIG. 1

leads to the flowmeter, enough pressure is built up to drive over the saline (Fig. 2). The 2 litres a minute from the flowmeter can be administered to the patient via a nasal catheter, B.L.B. mask, or in combination with nitrous oxide from a Boyle machine.

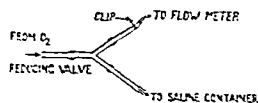


FIG. 2

2. **Saline Reservoir and Rubber Stopper.**—(a) The Baxter vacoliter screw-topped saline-bottle has the advantage that it is squat and not easily overturned, and the screw top cannot be blown off. (b) Any bottle in which sterile saline for intravenous use is supplied can readily be adapted by fitting a suitable-sized rubber stopper with two holes through it. Two tubes—metal, to prevent breakage—are pushed through the rubber stopper. One of these reaches almost to the bottom of the container; the other ends above the surface of the saline.

3. **Drip-bulb.**—A Murphy or similar drip-bulb is attached to the longer of the two tubes by rubber tubing; a clip on this regulates the flow of saline.

4. **Rubber Tubing.**—The latex type of tubing is the most satisfactory, as air bubbles can be seen through it.

5. **Glass Connexion.**—Apart from joining the latex tubing to the pressure tubing, this will show if blood had diffused back along the tube when the needle was introduced into the vein. If the connexion remains free of blood, only that part of the apparatus distal to it need be sterilized or changed between cases.

6. **Pressure Tubing.**—This is used as it withstands repeated needle puncture without leaking. It should be about 4 to 6 in. in length.

7. **Aspiration Indicator.***—This is a short straight glass tube with a small bulb blown in its centre. There are two metal mounts—one to fit a needle, and the other to fit a Record syringe. The indicator can first be used between syringe and needle (Fig. 3) when

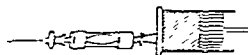


FIG. 3

the induction dose is given. The aspiration test of the position of the needle can be performed without contaminating the syringe with blood. The indicator is then removed and fitted between the pressure tubing and a larger needle.

8. **Needle.**—A short-bevel size 1 (Record) about 1½ in. long is quite large enough (equivalent to about 4 or 5 serum needle).

9. **Arm Splint.**—A piece of wood about 4 in. by 1½ in. by 4 ft. is padded for half its length. Two domette "tails" are attached to the padding to fix the arm in place.

10. **Tourniquet and adhesive tape** are also required.

Technique

Pressure is raised in the saline reservoir and the regulating clip opened, allowing saline to flow until all air bubbles are removed. The clip is closed, and the level in the drip-bulb is adjusted by the clip on the side tube. The patient is then induced, using up to 0.5 g. of 5% pentothal solution in a 10-c.cm. syringe. For ease of venepuncture and the patient's comfort use the aspiration indicator and a fine needle (Vann Bros.' "evipan" size) (Fig. 3). The

* Also known as "varicose vein mount": obtainable from John Bell and Croyden Ltd.

patency of the airway is maintained by positioning of the patient's head or by the insertion of a soft rubber oral airway (Guedel type); or a short nasopharyngeal tube is passed through the nose. We have found it beneficial to employ supplementary nitrous-oxide-oxygen anaesthesia (see below).

The patient is now transferred to any desired position on the operating table, and one arm is firmly bound to a splint, the unpadded end of which is inserted beneath his shoulder. The tourniquet is applied and the needle inserted into a suitable vein. With the drip turned off, the venous congestion produced by the tourniquet causes blood to diffuse back into the indicator—proof of the intravenous position of the needle. The drip is now started (40 to 50 drops a minute), and the needle is fixed in position by adhesive tape. We have found that the needle is held more securely and lateral movement prevented if a small piece (1 in. by 1½ in.) of tape is placed beneath the needle with the adhesive side uppermost. Two longer pieces are then applied over both needle and tape, securing them to the surrounding skin (Fig. 4).

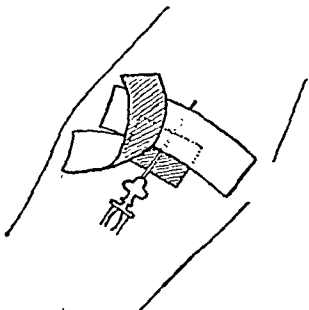


FIG. 4

Further injections of 5% solution of pentothal are made, as required, by syringe and needle into the pressure tubing, which should be pinched on the drip-bulb side during the injection to prevent "backwash" and consequent delay in the passage of the drug to the patient.

Advantages

Positive-pressure drip apparatus eliminates the cumbersome unstable stand required by gravity drips, and as the saline reservoir can be placed quite near the vein, long lengths of tubing are avoided.

The glass aspiration indicator facilitates venepuncture.

Should the needle become dislodged between the injections of pentothal, saline only will be introduced into the subcutaneous tissues. In other methods (Rivett and Quayle, 1940; Macintosh and Pask, 1941) irritant pentothal may so escape.

Accurate doses of pentothal can easily be injected and their full effect quickly assessed. The same concentration of the drug (5%) is used throughout, thus avoiding error due to different solutions.

The absence of Y-tubes joining separate containers of saline and pentothal (Rivett and Quayle, 1940; Thomas, 1942), syringes, multi-directional taps (Rivett and Quayle, 1940; Semans, 1941), and numerous lengths of tubing lessens the weight attached to the arm and hence there is less likelihood of the needle becoming dislodged. More important is the lack of "dead space" (Adams, 1941) in the apparatus we describe; hence there is minimal delay in action of the drug due to "backwash" and uncontrollable dilution.

Supplementary Anaesthesia or Oxygen

Organe and Broad (1938) reported a series of cases in which supplementary nitrous-oxide-oxygen anaesthesia was used. Various writers have advocated supplementary oxygen (Carraway, 1939; Carraway, C. N., and Davison, T. C. (1941). *West. J. Surg.*, 49, 514. Davison, T. C. (1943). *Anesth. & Analges.*, 22, 52. Macintosh, R. R., and Pask, E. A. (1941). *Lancet*, 2, 10. Organe, G., and Broad, R. J. B. (1938). *Ibid.*, 2, 1170. Rivett, L. C., and Quayle, G. (1940). *Proc. roy. Soc. Med.*, 33, 631. Semans, J. H. (1941). *J. Urol.*, 45, 249. Thomas, G. J. (1942). *Pennsyl. med. J.*, 45, 467.

views we have found that supplementary nitrous-oxide-oxygen anaesthesia is of value because: (1) The total dosage of pentothal required is considerably smaller, hence the degree and duration of post-operative respiratory depression are reduced to a minimum. (2) A continuous visual indication of the patency of the airway and the volume of respiratory exchange is provided by the movements of the rebreathing-bag. (3) The percentage of oxygen can be increased greatly in excess of that found in atmospheric air, thus overcoming anoxia due to shallow respiration. (4) Rhythmical pressure on a rebreathing-bag filled with oxygen provides the most efficient form of artificial respiration should apnoea occur.

REFERENCES

- Adams, R. C. (1941). *Proc. Mayo Clin.*, 33, 519.
Carraway, B. M. (1939). *Anesth. & Analges.*, 18, 259.
Carraway, C. N., and Davison, T. C. (1941). *West. J. Surg.*, 49, 514.
Davison, T. C. (1943). *Anesth. & Analges.*, 22, 52.
Macintosh, R. R., and Pask, E. A. (1941). *Lancet*, 2, 10.
Organe, G., and Broad, R. J. B. (1938). *Ibid.*, 2, 1170.
Rivett, L. C., and Quayle, G. (1940). *Proc. roy. Soc. Med.*, 33, 631.
Semans, J. H. (1941). *J. Urol.*, 45, 249.
Thomas, G. J. (1942). *Pennsyl. med. J.*, 45, 467.

A FATAL CASE OF CEREBRAL MALARIA

BY

I. B. SNEDDON, M.B., Ch.B., M.R.C.P.

Surg. Lieut., R.N.V.R.

(From a Naval Hospital)

Cerebral malaria is a rare cause of coma in this country, but with the return of large bodies of our troops from areas where subtertian malaria is endemic this complication may be seen more frequently. It is a medical emergency which often responds well to early treatment, but its gravity can be judged by the mortality of 40% recorded by Sandford, Crawford, and Warr (1940) in a series of 48 cases. The following description of a fatal case is presented as a reminder that malaria should be considered in the differential diagnosis of coma and that unless treatment is started early, gross irreversible pathological changes occur in the brain.

Case History

On Sept. 2, 1942, a 28-year-old stoker was admitted to a naval hospital in a semi-comatose state, having been sent from a destroyer whose previous travels were not divulged. He had been suffering from a severe headache for three days, but had not reported it as he had not wanted to miss going on leave. On the morning of admission he had reported sick, complaining of a severe headache, frequent vomiting, and fever. No abnormal physical signs had been found by the medical officer of the destroyer. The patient had lapsed into a semi-comatose state during his journey from the ship to hospital.

On examination he was found to be semi-comatose, but was easily aroused by a loud voice or a pin-prick; he was not able to speak and was incontinent of urine. T. 103, P. 120, R. 28. The skin was dry and muddy-coloured but burning hot. The teeth were tightly clenched. The pupils were contracted and slightly irregular, and reacted sluggishly to light; the fundi showed no abnormality. There was no paralysis of the limbs, and the muscle tone was normal. The deep reflexes were all present, but were sluggish. Abdominal reflexes were present. Plantar responses were flexor. There was no neck rigidity or positive Kernig's sign. A few moist sounds were heard at the base of the right lung. Heart sounds were normal. B.J. 110/70. The abdomen showed no rigidity and the liver and spleen were not palpable.

In view of the possibility that he might have a meningococcal septicaemia he was given 1 g. of sulphapyridine intramuscularly while the following investigations were being carried out:

Urine: Specific gravity 1014, acid; a heavy cloud of albumin blood-positive chemically, numerous red blood corpuscles and granular casts seen. **Blood:** Urea, 42.1 mg. per 100 c.cm.; sugar 85 mg. per 100 c.cm.; leucocyte count, 14,200 per c.mm. (poly morphonuclears 77%, lymphocytes 12%, large mononuclears 11%) C.S.F.: Lumbar puncture revealed clear fluid under normal pressure containing 3 cells per c.mm., no excess of globulin, 50 mg. of protein and 92.8 mg. of sugar per 100 c.cm.

In view of the negative findings it was thought that the diagnosis lay between septicaemia and cerebral malaria. Blood films were therefore taken; numerous ring forms of *Plasmodium falciparum* were found, but no crescents. An intravenous 5% glucose-saline drip was started immediately. 10 gr. of quinine dihydrochloride together with 10 min. of 1/1000 adrenaline hydrochloride was dissolved in 20 c.cm. of water and given slowly by a hypodermic syringe into the rubber tubing of the drip apparatus. The intravenous glucose-saline was continued throughout the night, and on the morning of Sept. 3 the patient was fully conscious and able to recognize his relatives. His general condition seemed much improved (T. 99.2° P. 100), but persistent vomiting prevented the administration of fluids by mouth. A further dose of 10 gr. of quinine dihydrochloride was given in the same manner as before. His condition continued to improve during the day. A blood count showed 4,400,000 red cells per c.mm.; haemoglobin 100% (Haldane); and 18,000 leucocytes per c.mm. On Sept. 4 his temperature rose to 104°; his appearance was more icteric, and he again lapsed into coma. Lumbar puncture was repeated and 10 c.cm. of clear fluid was removed. 10 gr. of quinine was given intravenously and a slow-drip blood transfusion was started. No improvement resulted from these measures, and by the morning of Sept. 5 his condition had greatly deteriorated. The blood urea was 118 mg. per 100 c.cm. His temperature had risen to 105°, and despite frequent tepid sponging it remained between 104° and 105° until death occurred on Sept. 6.

At necropsy the salient features were as follows. Brain: Congestion of the vessels on the surface of the cerebral hemispheres; numerous petechial haemorrhages present throughout the brain, but more so in the cerebral hemispheres than in the brain-stem. Spleen: Enlarged to twice normal size, dark, soft, and flabby; pulp purplish

ey in colour, with a semi-fluid consistency and general loss of ructure. The liver was also enlarged, and showed a purplish-grey able cut surface. Hypostatic congestion was present at the bases both lungs.

Dr. W. W. Woods, Consultant Pathologist to the Navy, reported sections of the brain, spleen, liver, and kidney as follows:

"In the two pieces of brain many of the capillaries contain numerous minute nodules of pigment which is negative to Perles's test for iron; this is in keeping with its being malarial pigment. Further, the general configuration of the numerous well-defined dots of pigment is strongly suggestive of malaria. Some of the pigment appears to be in red blood corpuscles, where it ought to be, but much of it seems to lie free in the lumen of the capillaries, perhaps because the corpuscles containing it are very indistinct. Also, I found it impossible to stain the bodies of the parasites themselves, in which the pigment is presumably contained; in a very few instances I thought I could see the faintly stained body of the parasite around a dot of pigment. I can only presume that this failure to demonstrate the parasites is due to post-mortem degeneration or poor fixation, or both. In the white matter of the piece of cerebrum there are numerous petechial haemorrhages, some of them obviously perivascular and some of them ring-haemorrhages; there are very few in the grey matter and a considerable number in the more heavily myelinated part of the other piece of brain, whose site I fail to recognize. In spite of the failure to show the bodies of the parasites, I think there can be no doubt but that this is a specimen of cerebral malaria.

"There is abundant pigment in the spleen and—which I think is more significant—it is abundant in the Kupffer cells in the liver and in the sinusoids, and is negative to the test for iron. There is very little pigment in the glomeruli of the kidney. I could not see any actual parasites in these three tissues."

Commentary

Lack of knowledge of the movements of the man's ship added to the difficulty of diagnosis in this case. It was afterwards ascertained that he had been in Sierra Leone two weeks before he was taken ill. The diagnosis was reached largely by exclusion, but on reviewing the presenting symptoms and signs they do fit in well with those of other cases which have been described. The comatose state with no abnormal signs in the central nervous system, the muddy sallow complexion, the moderate leucocytosis with a raised monocyte count, are all commented on by Sandford, Crawford, and Warr (1940). In the present case one striking feature was the in-point pupils.

Differential Diagnosis.—The differential diagnosis includes, of course, all the causes of coma, but those particularly apt to cause difficulty are:

1. **Alcoholism.** The drowsy irrational state with slurred speech usual in the early stage of cerebral malaria is very suggestive of alcoholism, as has been noted by Minett and Bernfield (1937).
2. **Meningitis,** in particular the fulminating meningococcal infections, may also be simulated. Wright (1941) stresses the fact that lumbar puncture should be carried out in every case, as cerebral malaria may cause neck rigidity, and the finding of *P. falciparum* in the blood does not exclude a coincident meningitis.
3. **Cerebral haemorrhage, thrombosis, or embolism** may also be simulated by cerebral malaria. Embolic phenomena may be produced by malarial parasites.

The conclusive proof of the diagnosis in this country is the finding of *P. falciparum* in the blood. Usually an infection severe enough to cause coma is a heavy one, and a blood slide will show numerous parasites. A few cases, in particular those with an embolic onset, may have only a light infection, and parasites in the peripheral blood may be difficult to find.

Treatment.—Treatment should not be delayed while further diagnostic procedures such as sternal puncture are carried out. If the history and physical signs are suggestive quinine should be given at once. This may be a life-saving measure, and is helpful in diagnosis if a favourable response is obtained.

The fatal outcome in this case was disappointing, particularly after the dramatic response to quinine in the first 24 hours. However, it serves to impress the fact that if treatment is to be successful it must be prompt. The delay in treating the malarial infection before the complication of coma supervened was due to the patient's own foolishness in concealing his illness: in most cases malaria should be diagnosed and treated before pernicious complications occur. In this case quinine dihydrochloride was administered solely by the intravenous route. The dosage used—i.e., 10 gr. daily—was higher than

the 5 to 7 gr. advocated by Manson-Bahr (1942). No toxic reactions were seen that could be attributed to the intravenous quinine, but care was taken to give it slowly through a hypodermic needle into the intravenous drip apparatus. Adrenaline hydrochloride, 10 min. of 1/1000 solution, was always given at the same time. Intramuscular quinine is advocated in these cases by Wright (1941), but he does not give any reason for avoiding intravenous injection. Fawcitt and Walters (1941) recommend a transfusion of reconstituted blood serum as a detoxicating and stimulant measure, and Manson-Bahr (1940) recommends blood transfusion if there has been great blood destruction. Lumbar puncture, with removal of 10 c.cm. of cerebrospinal fluid, had no effect in relieving the coma in the late stages of this case, but in view of the marked pathological lesions of the brain found at necropsy this is not surprising.

I wish to express my thanks to the Senior Medical Officer of this hospital for permission to publish the case, and to Dr. W. W. Woods, Consultant Pathologist to the Navy, for his report on the pathological sections.

REFERENCES

- Fawcitt, J., and Walters, A. H. (1941). *British Medical Journal*, 1, 14.
Manson-Bahr, P. H. (1940). *Manson's Tropical Diseases*, Cassell, London.
(1942). *British Medical Journal*, 2, 489.
Minett, J. S., and Bernfield, A. J. (1937). *Ibid.*, 2, 1120.
Sandford, C. H., Crawford, P. T., and Warr, O. S., jun. (1940). *Ann. intern. Med.*, 14, 72.
Wright, F. J. (1941). *E. Afr. med. J.*, 18, 226.

Medical Memoranda

Suppurative Mastoiditis in an Infant

I have been much impressed by Mr. P. W. Leathart's paper entitled "A Common Cause of Diarrhoea, Vomiting, and Dehydration in Infants" (Aug. 7, p. 168). It struck me as having been based on sound reasoning and wide experience in a field apparently little recognized, but one of considerable importance. Although parenteral infection is universally known to be an important cause of "D. and V." in infants, only too often it gives place to the diagnosis of gastro-enteritis after the more easily detectable and better-known sites of infection have been excluded. I would like to cite the case of an infant recently admitted to the Southend General Hospital. Besides being a practical example of the point made above, this case tests the truth of most of the criteria laid down by Mr. Leathart for enabling a diagnosis of suppurative mastoiditis to be reached in the ward instead of in the post-mortem room. It is to be regretted that the diagnosis suspected in this patient had to be confirmed in the latter situation instead of on the operating-table. It may be hoped, however, that the lesson learned has helped to offset a fatal end-result.

HISTORY OF CASE

The baby was first seen on July 27, 1943, with a history of vomiting after feeds since birth. Apart from rapid delivery, the previous history was negative. His birth weight was 6½ lb. and he was breast-fed. Stools were "loose" but otherwise normal. Examination revealed a healthy infant, weighing 7 lb. 14 oz. No abdominal mass was felt, nor was peristalsis seen. He was admitted for observation and weaning, and was discharged a fortnight later, having gained 1 lb. and having been taking five milk feeds daily without vomiting.

He was readmitted on Oct. 30, aged 4½ months. The mother stated that for one week he had vomited after every feed, that he "pumped it up," and that much clot was present in the vomit. As previously, examination was entirely negative. He looked a healthy, well-developed infant, and weighed 12 lb. 14 oz. He fed eagerly, even greedily, and was given boiled water and chloral before feeds. Vomiting was completely controlled after five days, while weight was gained after a small initial drop. During this time the stools remained normal in frequency and colour. Nov. 6: Weight 13 lb. 1 oz., feeding well but greedily. Nov. 11: Pyrexia (100° F.) noted: stools, though not frequent, were green, and vomiting occurred once; general condition good. From this time onward a remittent temperature of 102.4° was maintained; stools were frequent, green, and offensive (up to 7 in 24 hours), with occasional vomiting. The infant looked pale, but lay quietly and showed no signs of dehydration. Glucose-saline was given by mouth combined with a course of succinyl-sulphathiazole.

Meanwhile investigations were carried out. Radiographs of chest, examinations, and culture of the urine were negative. Blood examination showed Hb 84%, W.B.C. 13,600, with 59% polymorphs. Culture of stools revealed no pathogenic organisms, except on the second occasion, three days before death, when a few colonies of *B. proteus* were found.

Nov. 18.—In spite of treatment, which included restriction of everything by mouth to boiled water, glucose-saline, and amino-acids (in the form of casein hydrolysate), a slow subcutaneous normal-saline drip, and two courses of succinyl-sulphathiazole, the little patient was obviously going downhill. On examination he lay quietly, with the head persistently turned to the left, so that a bald patch formed over the left parieto-occipital region. He was irritable, and any examination caused him to cry, but light pressure over either mastoid was not especially resented. The right ear was noted to be pushed forward as compared with the left, but the surrounding skin was neither red nor oedematous.

Three observers, including a surgeon, who examined the drums, pronounced them normal. At no time was any discharge seen. The glands in the right posterior triangle were found to be palpable, in contrast to the left, but were not greatly enlarged or tender. The diagnosis of bilateral suppurative mastoiditis was considered, but the paucity of localizing signs did not seem to merit surgical intervention. Conservative treatment was continued. The patient went steadily downhill, and died on Nov. 25.

Necropsy revealed extensive bilateral suppurative mastoiditis, more marked on the right side. The alimentary tract, apart from distension of the small intestine, appeared normal. There was no injection of the mucous membrane or prominence of Peyer's patches. The lungs were congested and oedematous. The meninges and superficial cerebral vessels showed considerable congestion. Dehydration was not a prominent feature.

COMMENTARY

It is felt that had bilateral mastoidectomy been undertaken the infant's life would probably have been saved. The reasons for making this statement and the salient features of the case may thus be summarized: (1) A healthy infant who is a greedy feeder vomits as a result of the latter. Vomiting takes place in the horizontal position, and this, plus the manner of feeding, invites entrance of vomit and milk into the Eustachian tubes. (2) For no apparent reason remittent pyrexia, diarrhoea, and vomiting make their appearance. (3) Investigations prove negative, and there is no response to treatment, including chemotherapy. (4) A bald patch forms on the left side, while the right ear is pressed forward as compared with the left, and the glands in the right posterior triangle are found to be enlarged. (5) A steady downhill course ensues, ending fatally, with post-mortem findings of extensive bilateral suppurative mastoiditis.

I wish to thank Dr. R. Sleight Johnson for his permission to publish this case.

D. S. LEWES, B.M., M.R.C.P.
Medical Registrar, Southend General Hospital.

Sulphathiazole Insufflations as a Treatment of Gonococcal Vaginitis

Under present war conditions any method which promises well in the treatment of gonococcal lesions in the female should be made known without the customary prolonged and exhaustive private investigation. No claims are made, no conclusions or apologies offered, and no recriminations will be necessary if yet another treatment eventually proves ineffective.

There is nothing new about the treatment of gonococcal lesions in the female by sulphapyridine, sulphathiazole, and allied preparations as given orally. The results are not well known, but in many instances are disappointing. The chronic cases seem particularly resistant. The insufflation of "picragol" powder into the vagina for trichomonad infestations has been established, and is widely known. The combination of insufflation with sulphathiazole powder does not seem to have been suggested to date. My own experience with sulphathiazole insufflations in the gynaecological out-patient department of Sir Patrick Dun's Hospital, Dublin, in cases of chronic and subacute gonococcal vaginitis and endocervicitis, has been so dramatic that I draw attention to it so that others may, if they approve, put the plan to the test.

The treatment consists of the bi-weekly insufflation of 5 to 7 g. powdered sulphathiazole with a "picragol" insufflation apparatus and following the directions for its use. No oral chemotherapy or other treatment has been employed at the same time. In brief, the cases treated have been those of the troublesome subacute and chronic proved gonococcal variety which have defied every usual remedy. In each case three insufflations, as described, have caused almost complete cessation of all discharge and soreness. Such slight discharge as may then still be present is clear and would be regarded as normal but for the previous knowledge of the case.

This result seems too good to be true, and may be so. The truth or otherwise of the early results can be readily and simply put to the test. The principles on which the treatment, if successful, would depend are well known and need no explanation here.

O'DONEL BROWNE, F.R.C.P.I., F.R.C.O.G.
King's Professor of Midwifery, Trinity College, Dublin.

Reviews

MEDICAL MYCOLOGY

An Introduction to Medical Mycology. By George M. Lewis, M.D., and Mary E. Hopper, M.S. Second edition. (Pp. 342. \$6.50.) Chicago: The Year Book Publishers Inc., 1943.

In these days of authorized economy standards it is refreshing to meet with a volume in which the American skill in book production is allowed to have its head. The second edition of Lewis and Hopper's *Medical Mycology* is well up to the usual transatlantic level. We are glad that, in spite of the seriousness of the times which weighed upon the authors when considering republication, they have seen their way to produce this delightful volume and to embellishing it with two excellent coloured plates, which are a novel feature. As is customary in new editions, expansion has taken place and a few gaps in the original work have now been filled up.

It is beyond question that medical mycology grows in importance from year to year, and especially for the dermatologist. Perhaps the problem of greatest practical moment in the whole subject is that of epidermophytosis of the feet, popularly known as "athlete's foot." This no doubt is quite common, but during the last few years it has become fashionable to diagnose almost every inflammatory condition of the skin of the toes and sole under this label without any pathological proof, either from microscopical examination of the tissue or from cultural tests, of the presence of the dermatophyton. For this reason vast numbers of cases of simple dermatitis in these regions have been aggravated by the use of strong fungicides. We are glad to find that Drs. Lewis and Hopper are strongly of opinion that the diagnosis of epidermophytosis should never be made without laboratory confirmation. The same remarks apply, with even more force to the secondary eruptions which sometimes occur in conjunction with epidermophytosis and which are known as dermatophytids or trichophytids. They say that these are diagnosed much too often. The chapter on epidermophytosis deserves careful study by all practitioners, especially perhaps by the like the medical officers of the Forces, who have charge of large numbers of people living together in camps or institutions.

A new disease, which did not receive notice in the first edition is histoplasmosis. This is a rare but usually fatal disease that occurs in Central America, characterized by hepatosplenomegaly, and is interesting because clinically it resembles leishmaniasis. Histoplasmosis is also noteworthy because it appears to be only the second example of a fungoid infection which does not primarily affect the skin; the first one to be differentiated was the *Cryptococcus histolyticus*, which affects the nervous system. The recommendation made above, that medical men in general should study the chapter on athlete's foot, applies really in equal measure to the whole of this excellent volume.

GENETICS OF THE MOUSE

The Genetics of the Mouse. By Hans Grüneberg, Dr. Phil., Dr. Med. (Pp. 412; illustrated. 30s.) Cambridge: University Press, 1943.

In the field of genetics it is difficult to draw a line between pure and applied research. Small, cheap, rapidly reproducing animals present manifest advantages, and for many purposes must be the standard material of the investigator. But discoveries relating to larger animals may be no less fundamental, and research on any species, variety, or breed may on occasion contribute to the advancement of the subject as a whole. Man himself is not excluded. For example, more is known about geographical variations in the distribution of the blood-group genes than is known in the case of any other genes, whether plant or animal.

In this admirable book Dr. Grüneberg points out that, though the mouse is the best-investigated mammal, the omission of all results obtained from it would hardly affect the textbooks as

regards chromosome theory, population genetics, or evolution. But in developmental genetics, in physiological and pathological researches on the mode of action of genes, we should lose some of our best examples. This is the particular contribution of the mouse (though others must not be overlooked—for example, cancer studies and the genetics of resistance to infection). Large numbers of hereditary variations have been found, providing a rich field for the investigator, of whom one of the best known is Dr. Grüneberg himself.

The condition "myelencephalic blebs" may be chosen as one of many examples. A single gene is responsible for end-results which are highly diverse in kind and degree. It induces defects of the eyes ranging from slight atrophy of the eyelids to total disorganization with absence of the optic tract and involvement of the skull; foot anomalies, such as syndactyly, hypodactyly, polydactyly, and amputation; failure of hair growth in the saddle region. Extensive studies by several investigators, utilizing such techniques as the observation of the unharmed developing embryo through the transparent uterine wall, have elucidated much of the mechanism. Very briefly, a normal process, the oozing of cerebrospinal fluid through a temporary foramen in the fourth ventricle, is exaggerated. Blebs are produced which are guided by mechanical forces along the curvatures of the body to resting places where they are absorbed, usually after affecting organs which happen at the time to be differentiating in the neighbourhood. Modifying factors, known to be potent, act by determining the paths taken by the fluid.

It is clear that the pathologist is here presented with a fine field for study, and it is probable that in the future many a human problem can be illuminated by work on the mouse. We hope that this book will have a wide circulation. It is authoritative, well arranged, as clear as a complex subject permits, and an excellent guide to the literature. Apart from the difficulty of forgiving Dr. Grüneberg for the dreadful word "intrastomachal," it is hard to find anything to criticize. The illustrations are excellent, and the book is admirably produced.

HOME SECURITY

Fire Protection and A.R.P. Year-Book 1943-44. (Pp. 304. 7s. 6d., post free.) London: Lomax, Erskine and Co. Ltd.

Year-books mostly inspire a great respect for the profession or institution whose interests they serve, but this year-book does so in an exceptional degree. The whole subject is so new. It seems only yesterday that men were feverishly digging trenches in London squares by torchlight and trying out taxicabs converted into fire engines, and here the science of fire control and prevention is expounded in the most scientific and methodical manner. The compilation is indicative of the vigilance and high purpose of a service which has enlisted the enthusiastic co-operation of hundreds of thousands of people who had never expected to apply a first-aid dressing or to handle a rubber hose except for gardening. We may wonder whether the logarithmic equations given for such matters as the delivery of water in pipes or the velocity of bombs will mean very much to the average civil defence worker, but there is no end of information to be picked up—as, for example, that for complete protection against a one-ton bomb a thickness of 6 ft. 7 in. of reinforced concrete is necessary, and that for four houses well alight a thousand gallons of water a minute must be applied. One admires the N.F.S. and A.R.P. officers also for their absorbent capacity for regulations. A list is given of the statutory rules and orders covering, roughly speaking, A.R.P. since the war began. There are 240 of them, without counting those which have been revoked. The N.F.S. general regulations issued in 1941 have since been amended by twelve new sets of regulations. Standard specifications for A.R.P. equipment number 49.

This compact book contains a directory of N.F.S. and A.R.P. officers, maps of the fire regions, schedules of equipment for first-aid and rescue parties, an index of proprietary and trade names, a bibliography of war gases and decontamination, not to speak of a list of great fires since that of Alexandria, and a "perpetual" black-out calendar for this and subsequent years. The word "perpetual" has an ominous look, and we hope it will soon be proved a slip of the pen.

Notes on Books

MISS EVELYN C. PEARCE'S *Textbook of Orthopaedic Nursing* appeared first in 1927 with a foreword by Sir Robert Jones and an introductory chapter by Dame Agnes Hunt. In reviewing critically the second edition we said that the information given was accurate and up-to-date and that the book could be well described as "Elementary Orthopaedics for Nurses." For a third edition Miss Pearce has taken pains to preserve the simplicity of the original work, and has kept the emphasis, as hitherto, on the need for care and observation. The author has long been known as one of the most successful teachers in the nursing profession, and the new edition of this book with its excellent illustrations will no doubt make a wide appeal to the many women who intend to take up a branch of surgical nursing, which grows in importance every year. It is published by Faber and Faber at 8s. 6d.

The Industrial Health Research Board of the M.R.C. has issued as No. 1 of a popular series on Conditions for Industrial Health and Efficiency a pamphlet *Ventilation and Heating: Lighting and Seeing* (H.M. Stationery Office; 3d.). During the war there has been much evidence that the results of research into industrial health are not widely enough known and appreciated. This well-written and attractively produced pamphlet is not intended for experts, but has been compiled in order that the main facts discovered by research workers may become common knowledge to any interested person in industry, whether manager or worker. The Board proposes that in future the results of any important new research in industrial health shall be published both in a detailed scientific report and also in a short non-technical form in this series of pamphlets.

Preparations and Appliances

A NEW FORM OF SPLINT PADDING

Dr. W. O. SPENCE writes from the Salisbury General Infirmary:

Whether it be in the country practitioner's surgery or in a city ambulance's equipment very little attention seems to be given to the provision of adequate padding in the first-aid use of splints. Mr. Charles Harris, M.B.E., Commandant of the Wilts 5 Detachment of the British Red Cross Society, has made and patented a simple universal splint pad, constructed out of sponge rubber, on the lines illustrated in the diagram.

The chief advantages of this padding are as follows: (1) It is adaptable for use with any form of limb splint, whether of flat or "gutter" type; (2) it is rapidly secured in position by

FIG. 1.

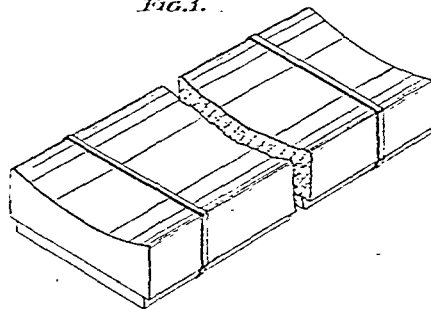
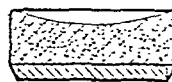


FIG. 2.



rubber bands; (3) it moulds itself comfortably to the limb as the fixing bandages are tightened (unlike the padding so frequently seen sewn on to wooden splints presenting a convex surface to the limb); (4) it is very easily and quickly cleansed when stained with blood, etc.; (5) it can be used time and again without deteriorating.

For splinting the upper limb during transfusion by the intravenous drip method I have found this padding particularly useful, and can recommend it as a valuable addition to our general hospital equipment.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY DECEMBER 25 1943

TETANUS IMMUNIZATION

It has long been an attractive idea that when a patient is exposed to imminent risk of infection we might give immediate protection with antitoxic horse serum and—while he is safe under this umbrella of passive immunity—so contrive that active immunity should develop rapidly before the passive protection faded. In 1939 the unhopeful opinion was expressed¹ that “combined active and passive immunization in human medicine is not feasible, the two types of immunization being incompatible with each other.” Yet Ramon confidently stated some years ago that the goal had been reached by the method of “sero-vaccination.” Downie, Wilson, and fellow-workers² shrewdly reviewed Ramon’s data and arguments as applied to diphtheria, and showed that the experimental results did not unreservedly support his hypothesis. They nevertheless felt that there might be a place for the simultaneous administration of antitoxin and prophylactic, with the important proviso that we ought to recognize and provide for the gap that must occur after the passive immunity has waned and before active immunity has grown. From carefully controlled observations on volunteers they concluded that for diphtheria the gap could be safely bridged. Fulton and co-workers³ estimated that this danger period of intermediate low immunity would be over in six weeks. In the schools where diphtheria occurred they swabbed all the exposed children, isolated the carriers, and allowed the other scholars to continue their routine. All exposed children received about 400 units of antitoxin as well as 0.1 c.cm. of A.P.T. A month later 0.3 c.cm. was given. Two weeks later—i.e., six weeks after the swabbing and combined immunization of the children—the carriers returned to school and mixed freely with their fellows. The procedure was apparently effective, for no further cases occurred.

In tetanus the same general considerations apply. The wisdom of active immunization in advance of exposure is generally accepted, and almost all Allied soldiers are thus protected. In Germany, Wolters⁴ urged active immunization with two spaced doses of tetanus-alum-toxoid, but the procedure does not seem to have become popular. We may safely assume that the course of two immunizing injections of tetanus toxoid with a six-weeks interval—followed by yearly reinforcing (“boosting”) doses of the prophylactic given to recruits joining the British Army—confers a high degree of protection, though a few cases recently reported indicate that this immunity may not be high enough to safeguard against every possible risk the soldier runs on active service. There is no unanimity, however, about the best method of giving a man protection against tetanus when wounded. The Americans give only

toxoid to their wounded men who have been immunized before. We have recently⁵ called attention to Zuger’s results, which suggest that this procedure is good, but maybe not good enough. A secondary stimulus—the injection of prophylactic into a person previously immunized—causes a dramatic rise of antitoxin titre, but it is doubtful if even the most delicate technique would detect this rise earlier than the third day. During this period the toxin may in case of infection “outpace”—to use Colonel Boyd’s expressive term—the antitoxin-making mechanism and attach itself, probably indissolubly and fatally, to the susceptible local nerve elements.

The British plan of giving antitoxin to all wounded men can be accepted as sound, on the evidence of the 1914-1 war. The Americans use a different and interesting method. If evidence is not at hand that a wounded soldier has been actively immunized he is given a prophylactic dose of antitoxin; he also receives toxoid. If he is in the Army he gets at the same time as the antitoxin the first of three injections of tetanus toxoid given three-weekly; if in the Navy, the first of two doses of tetanus-alum-toxoid, the second being injected four weeks later. Cooke and Jones have examined this combined passive-active procedure. They had under observation 9 children suffering from tetanus and 39 healthy children. The children in one group were given passive immunity with 10,000 units, higher doses of tetanus antitoxin; but multiple injections of tetanus toxoid the week after did not result in active immunity for many weeks, nor in that period did they so sensitize the children that another injection could cause a secondary stimulus effect, with the rapid production of antitoxin. To each child in another group a dose of 10,000 units of tetanus antitoxin was given, and then fortnightly injections of tetanus toxoid. Some of the children received the first of these at the same time as the antitoxin, and continued thereafter with an injection every two weeks; in others the first of the series of injections of toxoid was given not at the same time as the antitoxin but a fortnight later; in others the first two toxoid injections were omitted, the children receiving their initial dose four weeks after the antitoxin. The striking result was that the rise of antitoxin due to the development of active immunity occurred in all groups at about the same time—ten weeks after the injection of the antitoxin. With the doses of antitoxin and the intervals chosen in these experiments advantage was gained by giving the prophylactic at the same time as the antitoxin. In the Wilson-Downie-Fulton diphtheria investigations the alum-toxoid, though injected at the same time as the antitoxin, still apparently played a vital part of primary stimulus and prepared the way for excellent response to the second injection of alum-toxoid three weeks after the first. This discrepancy between diphtheria and tetanus attempts to achieve a measure of what the Americans have called “duplex” immunity may be explicable on a quantitative basis. Mixtures of toxoid and antitoxin, used with much success in the early history of immunization against diphtheria, were effective only when the amount of antitoxin was minimal and carefully adjusted to the amount of toxoid present. Over-neutral

¹ *J. Amer. med. Ass.*, 1939, 113, 1884.² *British Medical Journal*, 1941, 2, 717.³ *Ibid.*, 1941, 2, 759.⁴ *Z. Hyg. Infektkr.*, 1942, 124, 326.⁵ *British Medical Journal*, 1943, 1, 76.⁶ *J. Amer. med. Ass.*, 1943, 121, 1201.

mixtures did not immunize, the toxoid being "blanketed" or neutralized by the excess antitoxin. This presumably occurred in the Cooke-Jones observations. Their healthy children as well as the tetanus patients had very large doses of antitoxin, and in consequence could obtain no immunizing benefit from the synchronous toxoid prophylactic.

On a review of the whole evidence there appears to be an inescapable risk in combined active and passive immunization for the prevention of tetanus. If the dosage of antitoxin is adequate to protect against a heavy infection (for which we must always be prepared), then the dose of toxoid given synchronously with the antitoxin is likely to be ineffective as an active immunizer. If, on the other hand, the dose of antitoxin is optimal—i.e., minimal—the amount circulating in the blood stream may have dwindled to a dangerously low level well before the commencing active immunity has marched far enough to become effective. Animal experiments and the recent diphtheria investigations suggest that there will always be this period of low-level immunity following "combined" protection. Experience may show that for a disease with such a variable incubation period as tetanus this intermediate phase incidental to the combined method carries with it a material risk. It is of interest that this view has now gained utterance in the U.S.A. The author of a recent "Answer" in the *J.A.M.A.* writes: "It must, however, be borne in mind that the formation of antibodies consumes time. For this reason it is always good judgment in the presence of badly macerated tissues to give immediately a prophylactic dose of antitoxic serum while waiting for the effect of the boosting dose of toxoid. . . . There will be occasions when it will be wise to employ the antitoxic serum in addition to the toxoid immunization."

ROEHAMPTON AND REHABILITATION

Roehampton, the name of a small village in Surrey, first came into history during the last war, when the Roehampton House estate was converted into Queen Mary's Convalescent Auxiliary Hospital and became a centre for the manufacture and fitting of artificial limbs. Of 41,050 men who lost a limb or limbs in the last war 26,262 were treated at Roehampton for the supply of their first, and in many cases also their second, artificial limb. About seven years after the armistice, by which time the bulk of the first and duplicate limbs had been supplied to those who had suffered in the war, Roehampton was extended to accommodate general surgical and medical cases from the Ministry of Pensions hospital at Shepherd's Bush and facial cases from Queen Mary's Hospital at Sidcup, but it still remained primarily an institution for the benefit of ex-Service men who had lost limbs. All the surgeons of the Ministry of Pensions attached to the fourteen limb-fitting centres in various parts of the country were trained at Roehampton, and here also notable progress in design and manufacture has been made. The modern artificial limb, thanks very largely to what has been done at Roehampton, is a light and simple construction, permitting leg movements scarcely distinguishable from the natural gait. The making and fitting of such limbs is a highly specialized craft, and it is

not always appreciated how it can reduce the time-lag between amputation and a man's return to more or less normal life and employment. It is not merely a question of the mechanical adjustment of a prosthesis: it is a question of re-educating a faculty, and often of reviving a spirit which may have undergone something akin to the physical mutilation. Provision is made at Roehampton for occupational therapy, with gymnasium and workshops, and for the economic, educational, and recreational re-establishment of the individual.

Gradually the work has been extended to amputation cases among civilians, in the first instance railwaymen and miners. Since the autumn of 1936 over 3,000 civilian limb-fitting cases have been dealt with under this extension of Roehampton's activities. Arrangements have been made with the Ministry of Labour and National Service for the treatment of cases falling within its rehabilitation scheme for civilians, with the Board of Education for facilities for children of school age, and with the Ministry of Health for pre-school children, mostly congenital cases. In fact Roehampton has developed from a hospital exclusively for the provision of artificial limbs for men wounded in the wars to a general supplying centre for all who need this orthopaedic service. Just as in total war the difference between soldier and civilian wears thin, so Roehampton has shown how the work of treatment and rehabilitation can cover all alike, and not only war casualties, but the accidents of industry and transport. When the present war broke out Roehampton made preparations to meet the expected new demands, and people of every category, Service and civilian, who have lost limbs have been fitted. Seventeen new wards have been built, with ancillary buildings—indeed, to all intents and purposes a new hospital has been put up near the old. The Ministry of Pensions has doubled its bed accommodation at Roehampton since 1939.

Roehampton is now seeking a still wider service, for which purpose it has recently built, at a cost of over £12,000, a large extension to its limb-fitting centre with demonstration theatre and consultation rooms; and the factories themselves, which are immediately adjacent to the limb-fitting centre and hospital wards, have been much enlarged. The idea of the executive is that a further stage in its development should be as a centre for the teaching of medical graduates of the Allied nations, many of whom are now in England, in the methods of artificial-limb manufacture and fitting, so that the Roehampton experience may in due course be carried into all the countries of Europe and help to alleviate the terrible legacy of post-war crippledom.

PSYCHIATRIC IMPLICATIONS OF SURGERY

The familiar procedures of the surgery, the clinic, and the hospital, which are daily routine for doctor and nurse, may have surprising effects on the patient, and we must be prepared to analyse repercussions in the world of fantasy as well as in that of reality. Strong men may faint on venepuncture and intelligent women show intense anxiety with fear of suffocation and death in the process of submitting to a basal metabolism test. Some patients make satisfactory adjustments to life after serious operations, while others make poor adjustments after minor ones.

Michaels¹ has considered the problems encountered by a group of medical social workers in their work with surgical patients, and writes interestingly of the psychiatric implications of surgery. Some of the factors determining the patient's reaction are the type and purpose of the operation, the structure and organization of the personality, the psychosexual development, the age of the patient when the operation is performed, and the organ involved in the operation. An emergency or life-saving operation may be better borne than a palliative or cosmetic procedure. The personality of the patient is a significant factor for the outcome of the operation, which will in some measure reflect the same pattern of reaction as previous traumatic experiences. An individual whose feelings are predominantly of a distrustful suspicious nature may come to look upon the operation as having deleterious effects upon him, even to the point of regarding himself as an experimental guinea-pig. Psychosexual factors, based on fears of attack or assault, are more important in women than in men, and for this reason women react less well to operations and more often develop post-operative psychoses. Traumatic events appear to be most harmful during the first six years of life, at puberty and the climacterium, and whenever possible operation should be avoided at these epochs. Nothing could be more misguided than the prevalent view that operations such as circumcision and tonsillectomy are without effect on the personality when performed in the early years of life. Finally, it should be noted that the organ involved plays an important part in the fantasies of the patient, and operations on the generative organs, the eyes, and the skull are of special psychological significance. There is much less unjustifiable operating to-day than 20 years ago, much better physical preparation, and incomparably better anaesthesia. But it is doubtful whether we yet spend enough time on psychological preparation and full discussion of the pros and cons of the operation. It is so easy to acquiesce when the patient says, "You know best, doctor," and forget that such an attitude may conceal a good deal of apprehension. Many of us must have had the experience of seeing a child, who had hitherto undergone investigation with good grace, suddenly scream and refuse to co-operate on the arrival of the pathologist, and one who has been almost morbidly submissive in the ward may behave like a maniac in the out-patient department. We realize then that the iron has cut deeper than we knew. No trouble should be thought too great in preparing little children for operation, and deception and trickery of any kind should be most earnestly avoided.

ERADICATION OF ANOPHELES GAMBIAE IN BRAZIL

It is characteristic of mosquitoes, as of many other forms of life, that species seldom show much tendency to spread beyond the boundaries of their natural areas of distribution. The famous transgressor in this respect has been *Aedes aegypti*, the yellow-fever mosquito, now almost world-wide in its distribution where climatic conditions permit. Of anopheles almost the only species showing any indication of such a tendency has been *A. gambiae*, the chief carrier of malaria in tropical Africa. This has apparently established itself along the adjoining coasts of Arabia and in some of the islands near the African Continent as well as having been occasionally recorded from Mediterranean ports. Nevertheless it was with much surprise that students of the group learnt of the recording of *A. gambiae* by Shannon in 1930 from the port of Natal north of Pernambuco on the Brazilian coast, the first record of an Old World species of anopheles in the New World. Within a few years

A. gambiae had been recorded from many other localities over a wide area in North-East Brazil, and when this was followed in 1938 by a severe epidemic of malaria due to this species the seriousness of the menace both to Brazil and to America became only too manifest. In the circumstances a scheme was immediately instituted under the direction of the International Health Division of the Rockefeller Foundation not merely for the control of the species but for its complete eradication—a scheme which improbable as its success may have at first appeared, has actually within two years achieved its end. Under the title *Anopheles gambiae in Brazil*¹ Drs. Soper and Bruce Wilson of the Rockefeller Foundation have given a full, detailed and very interesting and informative account of the spread and retreat of *A. gambiae* in the "invasion area" and the operations taken against this species. During 1939 *A. gambiae* continued its march up the various branches of the Jaguaribe, Assu, and Apodi rivers and along the coast of Ceara at such a rate that it was feared the infected territory would become too extensive for available funds to cope with the situation—even with adequate methods. But in 1940, when after the dry season the rains had fallen, it became apparent that the measures during 1939 had already produced an effect. By November, 1940, the Brazilian-born *gambiae* had been destroyed. The report is illustrated by a number of excellent photographs and maps, and is an outstanding addition to the literature on anopheles control.

MEDICINE IN PERSIA

One pleasant instance of the close relations between our country and Persia was the inauguration of the Anglo-Iranian Medical Society in September, with more than 100 Persian, British, American, and Indian medical men attending a reception at Victory House. The idea originated with Col. S. M. A. Faruqi, I.M.S. and D.D.M.S. in Teheran who has been untiring in his efforts to bring members of the British and Indian medical professions now serving in the armed Forces in Iran into closer relationship with Persian doctors. Dr. Habibi Adle, president of the Iranian Medical Society, has given the movement his full support as has the Minister of Health, Mr. Amanullah Ardal. A cordial agreement having been reached on this new project Dr. Faruqi then talked to the 70 or so doctors present about the problem of typhus in Iran, where many lives were lost from this disease. He feared that an even more severe epidemic would come upon them, but there were now in Iran many doctors with much experience of typhus. Dr. Faruqi suggested that a small committee should be set up at once to co-ordinate information and personnel for dealing with the typhus problem in the most effective way possible.

COLONIAL RESEARCH

Evidence of the scientific approach now being made in Colonial problems is provided by a White Paper. The first progress report of the Colonial Research Committee appointed in June, 1942, under the chairmanship of Lord Hailey, to co-ordinate the whole range of research in the Colonial Empire. The most important feature of the report is that it marks a first attempt to survey the whole field of Colonial research and its requirements. The committee has not yet been able to complete its survey of the major problems with which it is concerned, but substantial progress has been made. The schemes actually approved so far are therefore only the smaller projects.

¹ *Anopheles gambiae in Brazil, 1930 to 1940*. By Fred L. Soper and Dr. Wilson. New York City: The Rockefeller Foundation.

which can be started even in wartime. Apart from the schemes made under the Colonial Welfare and Development Act of 1940 the committee has recommended to the Secretary of State a number of other proposals, which are now under consideration by Colonial Governments. These include the investigation of alternative methods of producing cinchona for quinine; the scheme contemplates the establishment of a new Cinchona Research Institute in East Africa to experiment in methods of local production. Rinderpest and tsetse-fly research are to form the subject of a special report to the committee by the East African Governments. The Colonial Products Research Council, which is an executive body, works in close association with (and is complementary to) the committee. The council's function is to organize and sponsor research into Colonial commodities, with the primary object of finding new uses for them. At the request of the Medical Research Council it is also engaged in reviewing the field of research into vegetable drugs. Among a variety of investigations concerned with foods or drugs the production of ergosterol is being studied at the Chemical Research Laboratory of the Department of Scientific and Industrial Research by Dr. A. C. Thaysen. The council is also co-operating with Government Departments in work of which details must for the present be kept secret.

INFANT'S REACTION TO FEEDING

The diligent study of the psychology of the child goes on. D. P. Marquis,¹ working in the Yale Institute of Human Relations, has published a study on frustration reactions in the newborn. This paper, which is part of a larger general investigation of the adaptation of the infant to his post-uterine environment, seeks to describe the nature of the reaction pattern, present in the newborn, to a type of frustration common to most bottle-fed infants; the variation of the reaction pattern from infant to infant; and the factors determining individual variations if they are found to occur. The author defines "frustration," in the sense of Dollard, Doob, and others, as "that condition which exists when a goal response suffers interference."

Seven newborn full-time infants from the paediatric department of the New Haven Hospital, unselected except for the factors of bottle-feeding and normal physiological condition, were observed so far as possible for two feedings each day over the 10-day period after birth. The infants were brought to an experimental room for feeding and were placed in a bassinet equipped for automatic registration of general bodily activity. The standard feed of the clinic was used and given in four equal parts. Observations were begun after a 5-minute interval, and made over periods of 90 seconds each, beginning before the feed, between the feeds, and after the total amount had been given. A break for expulsion of air from the child was made after the second portion of the feed, and a 90-second period preceded and followed this—thus six such periods in all. The onset and duration of bodily activity, mouth activity (sucking, etc.), and onset of crying were noted. A time-marker was used. The latency and duration of each of these phenomena at different stages of the feeding were recorded. It was found that newborn infants show marked frustration reactions in the feeding situation, varying with the strength of the hunger drive. Decreasing degrees of the hunger drive were accompanied by decreasing amounts of general and mouth activity and by correspondingly increased latencies after the bottle was withdrawn at the various stages of feeding. The pattern of the frustration reaction appeared to have fairly well defined

characteristics. The frustration became greater as the feeding pattern became more specific. Individual differences in the reaction were noted.

Five of the infants were observed after 3 months, and several differences were recorded. The author suggests that from the methodological point of view her technique is a more effective way of studying emotions in the newborn than the traditional methods of Watson and Morgan, that the feeding situation is a more common or less artificial one than the sudden loud noises, etc., which these workers have employed. She believes that her results lend support to Kleitman's theory of the development of the "wakefulness of choice" as opposed to the "wakefulness of necessity," which develops as the cerebral cortex develops greater functional activity. In the neonatal period the subjects described here tended to become more and more quiescent as hunger was satisfied, whereas at three months the level of general activity remained fairly constant throughout the feeding situation, and could no longer be employed as a differential criterion of frustration. Miss Marquis interprets this as an indication that, by reason of increasing cortical differentiation, the response of general bodily activity has become attached to a growing number of stimuli. Changes in the distribution of mouth activity in the situation were observed. Mouth activity begins in most cases only after feeding has taken place, and occurs with lessening frequency as feeding progresses. The author would explain this in terms of, first, the perseveration of a neuromuscular set initiated by the act of feeding, and, secondly, by the concept of the hunger drive, which, as it diminishes, no longer produces internal stimuli and resultant strong oral or other responses. The author subjects her observations to statistical analysis, but omits to give any idea of standard error, which necessarily limits their value. The total study of which this paper is a part promises to yield useful information on infant behaviour, even if it only seems to put a controlled scientific imprimatur on observations which every mother has made.

INADEQUATE HOSPITAL DIETS

The Duke of Gloucester, speaking from the chair of the General Council of King Edward's Hospital Fund for London, announced on Dec. 14 that grants totalling £280,000 are again being distributed among the voluntary hospitals. Referring to the report on hospital diet issued by the Fund and discussed in the *Journal* of Sept. 18 (p. 365), His Royal Highness said that this report had caused concern in hospital circles, both voluntary and local authority, throughout the country. It was important that hospitals should be prompt to apply the new knowledge of the science of nutrition for the benefit of the sick within their walls, whose recovery it was now realized might be directly affected by the food they ate and by the way it was cooked and served. There was a great work for the hospitals to do in this field, and a commensurate increase in expenditure was amply justified. Already several hospitals had sought the advice of the King's Fund, and there was evidence that many were re-examining their standards of feeding. He had therefore as President appointed a committee with Prof. J. C. Drummond, scientific adviser to the Ministry of Food, as its chairman, and Sir Wilson Jameson, Chief Medical Officer to the Ministry of Health, had also accepted an invitation to join the committee. Miss Margaret Broatch, who has had wide experience as a hospital dietitian, will be dietetic adviser and take up her duties in January. It is most satisfactory that the King's Fund has not rested on its oars: the matter is one that calls for early action and constant reminder.

¹J. exp. Psychol., 1943, 32, 123.

CARE OF CHRONIC SICK

A CASE FOR TREATING CHRONIC SICK IN BLOCKS
IN A GENERAL HOSPITAL*

BY

MARJORY W. WARREN, M.R.C.S., L.R.C.P.

Deputy Medical Superintendent, West Middlesex County
Hospital, Isleworth

This contribution to the problem of the chronic sick is an effort to make a case for their treatment in a special block in a general hospital. My reasons for advocating such an arrangement are fourfold: (1) that geriatrics is an important subject for the teaching of medical students and should form part of their curriculum; (2) that the care of the chronic sick should comprise an essential part of the training of student nurses; (3) that for the proper care of the chronic sick the full facilities of a general hospital are necessary, both for the establishment of a correct diagnosis and for treatment; (4) to encourage research work on the diseases of old age which can only be undertaken with the full facilities of a general hospital. These statements will be amplified in support of my arguments.

Although the term "chronic sick" includes patients of all ages, I understand that this discussion applies principally to the problem of the elderly sick, and I therefore intend to eliminate the younger age group. Before passing on to the main subject, however, I will make one or two cursory remarks on the care of these younger patients. First, I think that they should be nursed and treated with ample accommodation in small units, and *separate* from elderly patients. Secondly, there should be adequate opportunities for medical research into the chronic conditions affecting the young and those in the prime of life. Lastly, no pains should be spared in affording these patients all the possible amenities by which their cramped and restricted lives may be made pleasanter, seeing that many of them live for several years. I have in mind particularly mobile libraries and visiting librarians, forms of occupational therapy, and concerts for those fit to attend.

To return to the main subject—the elderly and aged chronic sick—first, it must be appreciated that the number of men and women over 60 years of age has increased and is still increasing, as shown by the Ministry of Health census figures:

Population Aged 60 and over in England and Wales

1901 Census figures:

Males, 1,071,519	} 2,408,426
Females, 1,336,907	

1939, July estimate: unquoted, unpublished:

Males, 2,511,200	} 5,708,600
Females, 3,197,400	

This statistical fact means not only an increase in the absolute numbers of elderly people living but also a relative increase in the proportion of elderly to middle-aged and young people. At the present time, in my own experience—and this I have confirmed so far as is possible from other sources—women outnumber men in all institutions and hospitals where the chronic sick are catered for. Two factors, I think, contribute to this state of affairs: that the average duration of life in a woman is longer than in a man; and that it more frequently happens that a man can be cared for at home by his womenfolk than vice versa. The increase in the number of elderly people has resulted from the steady practice of preventive and industrial medicine during the present century, and is therefore a problem which has been brought about in part, at least, by the medical profession and which can no longer be ignored by them.

Specialization in Geriatrics

Although I do not claim to be a specialist in geriatrics I have for several years been much interested in the problem, and in my opinion until the subject is recognized as a special branch of medicine in this country it will not receive the sympathy and attention it deserves. Only in comparatively recent times has paediatrics really been fully appreciated as a specialty—and certainly in my student days children were too often nursed in adult wards (there being no special wards set apart for

them), and too often junior medical and nursing staff were considered all that was necessary for their care. To-day much the same attitude is shown towards the care of the chronic sick—a class which includes the majority of elderly folk—and very frequently they receive but scant attention. The proper care of the aged chronic sick requires knowledge of the elderly and sympathy with their particular requirements—and most classes of these patients should be treated in blocks as part of a general hospital. It is quite as unsuitable to treat these patients in wards for acute cases as it is to relegate them, often unsegregated, to institutions for the chronic, where facilities for diagnosis, research, and treatment are unobtainable. In the former case these worthy people, whose lives have been every whit as useful as we should like to believe our own, are ill-housed with younger folk who are irritated by them and in turn annoy them, and usually the staff has neither time nor facility for treatment. In the latter case there is usually a lack of attention and of facilities should an acute condition supervene—and, moreover, the "chronic" institution tends to attract a less good medical and nursing staff. With these points in mind, and appreciating that the problem shows no signs of diminishing in the years to come, I cannot too strongly advocate the inclusion of geriatrics in the medical student's curriculum. A comparison of the numbers of chronic sick treated in the voluntary hospitals, where hitherto most of the teaching of medical students has taken place, with the numbers treated in the municipal hospitals and other institutions bear ample testimony to the attitude of the profession as a whole to this subject.

Classification of the Chronic Sick

In 1935, by the appropriation of the Poor Law institution the West Middlesex County Hospital inherited overnight several hundreds of chronic sick patients, unclassified and ill-assorted. Early in 1936, still overwhelmed by the problem of the proper care and treatment of these patients, I interested myself in a scheme of classification, and am much indebted to my chief, Dr. Cook, for allowing me to carry out this experiment, which has been working more or less satisfactorily ever since. The classification adopted was as follows:

1. Chronic up-patients—that is, patients who get up part or whole days and can get about with some help, but who cannot manage stairs.
2. Chronic continent bed-ridden patients.
3. Chronic incontinent patients—such wards are allocated only on the female side.
4. Senile, quietly restless and mentally confused or childish patients requiring cot beds for their own safety, but not noisy or annoying to others.
5. Senile dement—requiring segregation from other patients.

I am certain that wards for such patients should be small and that day-rooms, verandahs, and occupational therapeutic facilities should be amply provided. Elderly people are essentially individualists, and provision should be made for grouping together those congenial to each other—e.g., I have more than once had patients over 70 years of age complain of being warded with "old people," and invariably such patients have been considerably more alert, although no younger, than others present, and as such should be nursed with those of equal mental capacity. With such classification the special requirements for each group can be ascertained, and in addition to the comfort of patients there is the convenience to staff, regard to exercise, and experience in nursing care. These requirements include:

Diet.—Where large numbers of edentulous patients are nursed meat should always be minced and vegetables puréed.

Linen.—Additional stocks should be provided for incontinent wards.

Staff.—Nursing staff and attendants should be arranged for, give additional help to patients in dressing and in getting up and about the ward.

Equipment.—This should include tables for games, additional easy chairs, wheel-chairs, crutches, and sticks with rubber ferrules.

Blocks thus equipped should be—and I think this very important—easy of access to all special departments, including x-ray department, pathological laboratory (plus post-mortem room), gymnasium, ophthalmic surgeon, dental surgeon, chiropodist.

* Read to the London and Home Counties Branch of the Medical Superintendents' Society.

CARE OF CHRONIC SICK

Dec. 25, 1943

Advantages of the Block System

With these facilities such blocks should provide excellent experience for teaching both medical students and student nurses, and I claim that these blocks should not be relegated to the sole charge of the newly qualified or very junior medical staff, nor be used by the matron as punishment wards for nurses. Certainly all students should be taught to recognize geriatrics as an essential and interesting part of their work.

The more time spent in such wards with full hospital facilities the greater the number of patients that can be correctly diagnosed, treated, and discharged home to the care of relatives and friends. Often education to a slower tenure of dependent senescence and readjustment to a slightly more grateful existence are what is needed, and relatives are most grateful for such treatment of their elderly folk and for advice given as to their future care at home. The number of patients able to leave such wards varies, I think, immensely with the time available and the work done. Many of the so-called "incurable" cases only need the patience, tact, and quiet energy of a staff trained to work with this type of patient to show a considerable measure of improvement. Without easy access to special departments, however, there is a strong disinclination to undertake the necessary investigations in these cases, and in the absence of a correct and complete diagnosis treatment must perforce be less efficient.

It is unlikely that facilities on the scale that I advocate would be available at a hospital for chronic sick only. Nor is it likely at the present time that sufficient medical and nursing staff of the right type would be attracted to such hospitals.

Conclusion

The urgent need for research work on senile diseases cannot be overstressed, and should be organized in connexion with wards such as I have described. With the experience obtained during the last seven years, and for the reasons stated, I do very strongly advocate treating the chronic sick in blocks allocated, equipped, and suitably staffed for the purpose in a general hospital.

It is noteworthy that geriatrics has received more attention in America than in this country, and much of the literature on the subject has emanated from American writers, notably Thewlis.

TWENTY-ONE YEARS OF THE B.P.A.

The late Dr. J. F. Gordon Dill and his friends who founded the British Provident Association, which has just completed its twenty-first year, probably had no thought in mind save to help people of moderate means, whose resources were strained after the last war, when faced with the financial burden of a serious illness. At that time there appeared no real threat to the principle of unrestricted choice of doctor and institution, and although voluntary hospitals were in jeopardy as a result of falling income and rising demands, a State Medical Service was a subject only for academic discussion. The Hospital Saving Association, proceeding by different methods and providing for a different class of the community, came into existence at almost the same time and as a result of the same solicitude. In the narrowest sense both these movements were forms of insurance; to become a subscriber or contributor was as much a matter of business as taking out an endowment policy, yet the H.S.A. has created a great co-operative movement for the fortification of the voluntary hospital, and the B.P.A. has greatly strengthened the regard for what may be called unregimented medicine. Both these movements have to be reckoned with in the future shaping of hospital and health policy.

The British Provident Association had its forerunner in a local effort in 1920, known as the Sussex Provident Scheme for Hospital and Additional Medical Services, in which a number of Sussex hospitals co-operated. In the light of that successful experiment Dr. Dill, together with Lord Dawson of Penn, the late Sir Napier Burnett, Mr. W. McAdam Eccles, Sir Arthur Stanley, Sir Alan Anderson, and others, conceived a provident scheme on national lines, to be applied first to the Metropolitan area. After discussions with hospitals, friendly societies, and

with three large London hospitals co-operating. It provided benefits for its subscribers—people with incomes in excess of those who came under the contributory scheme of the Hospital Saving Association—and began by making grants towards the cost of hospital maintenance and of consultations, expenses of home nursing, and the like. In 1925 it instituted a new form of benefit—assistance towards the fees of operating surgeons—and this was later extended to include the fees of consulting physicians. Additional privileges have been accorded from time to time, including the provision of family doctor benefit. Surpluses have been used for providing additional benefits for subscribers who have been registered for three years or longer. These benefits include payments towards the cost of manipulative orthopaedic operations and various special diagnostic and therapeutic services.

In the course of its history the association has distributed benefits amounting to some £134,000. One-tenth of this sum during the last year. But there is much more behind these figures than the reward of thrift or foresight for certain people. A great deterrent to recovery after a serious operation is the thought of the financial adjustments looming ahead, and the reflection that the surgeon's fee will be met in whole or in great part by the association's contribution, and that a large percentage of the hospital or nursing-home charges will be similarly met, contributes greatly to recovery. We cannot here recapitulate the various benefits and the conditions under which they are made; they occupy an entire booklet, which can be obtained from the office of the Association at 30, Lancaster Gate, W.2.

A BIOLOGICAL CRITICISM OF EDUCATION

In a recent address to the Leeds Medical School Sir JOHN GRAHAM KERR, F.R.S., M.P. for the Scottish Combined Universities, made some criticisms as a biologist of the Government scheme of education. He recalled his own early experience of living for a time among a primitive race of the Gran Chaco in South America and observing the system of education practised among them. In their communal evolution these people had not reached even the stage of cultivating plants or of keeping flocks and herds, but the system of education among them, to sum it up in modern phraseology, consisted simply of training in good citizenship—training to be an efficient, and therefore a happy, member of the community. It relied upon training in observation of natural phenomena, the interpretation of such observation, and the development of the habit of constant mental alertness.

The fact that education to-day in civilized communities had departed so widely from this original type was due, paradoxically, to one of the most beneficent events in the whole history of civilization—the invention of the printed book. It was the printed book which brought with it the possibility of mass education. In the age of manuscript education was centred in the religious houses, and spread beyond them only into the circles of the well-to-do. With printing it could be extended to the common people, but the teaching so given was the teaching of authority—namely, pronouncements on subjects of an abstract kind, such as theology, philosophy, mathematics, and history—and an inevitable result of the domination of the printed book was the reduction to a position of relative unimportance of training in observation, judgment, and mental alertness, which had formed so important a part of education in the earlier phases of communal evolution. While he would not speak disrespectfully of superficial culture, he was reminded of a remark about an old Clyde steamer, that she was "held together by the paint." Did we not rely in these days too much upon the paint of culture to hold civilization together?

He believed that there was an urgent call for a far more thorough overhaul of the system of elementary education that was contemplated by those whose interest was centred in improving its administrative machinery. Imprisoned in the schoolroom, the young boy occupied himself no longer with observing and puzzling out the meaning of snippets of information but rather with an uncritical absorption of detail of a multiplicity of subjects, such as geography, history, and the vocabularies of foreign languages, was relatively trivial as a means of general

mental training. He pleaded for an increased proportion of school time to be devoted to science, or, better still, to instruction in scientific method. He deplored the unfortunate effect of the dominance of the printed book in encouraging the idea that the height of a man's education was to be expressed by his degree of literary culture.

The all-important function of education, as Sir John Graham Kerr saw it, was to produce effective, and therefore happy, citizens. Success in this depended upon the successful treatment of the individual's heritage of "biological wealth"—every child born into the world was in the biological sense a little capitalist—by adding to its amount and coining it into a currency with a high exchange value in the particular circumstances in which the individual lived. In his view the primary phase of education should be devoted to the general task of laying the foundations of good citizenship. Health and strength—physical, mental, and moral—powers of observation and the interpretation of what was observed, alertness of mind and body, command of the English language and its correct and clear expression, cleanliness and godliness, personal manners, capacity for team work with its attendant discipline—these were the components of the elementary or primary phase of education, and they provided the foundation upon which must rest the later stages of education in school and workshop, in university and vocational career. Here he emphasized again that technical subjects, which had their place in the workshop, studio, laboratory, or field, must by no means be placed on a lower level than those associated with the study and library.

"THE WEEK'S GOOD CAUSE"

The coming-of-age of the B.B.C. makes it appropriate to mention the work done by that organization as a director of public benevolence. When, on Sunday nights at 8.40, while listeners are still digesting the religious service, and not yet uplifted or depressed by the 9 o'clock news, a persuasive voice comes on the wireless and pleads the cause of some charity, a hospital or social welfare organization, the ordinary man hardly realizes how widespread are the springs of generosity which are being tapped. No doubt, if there were no appeal, a proportion of the money would still find an altruistic outlet, but without the Central Appeals Advisory Committee of the B.B.C. it would be less fairly and intelligently allocated. The largest sum netted by a single appeal, in either peacetime or wartime, was £100,000 given to the King George Fund for Sailors as a result of Lord Baldwin's five minutes' advocacy in December, 1939. Since then there has been largely increased taxation and many more demands upon personal resources, yet during the first ten months of 1943 well over £200,000 was raised for various charities. Of the appeals made since the beginning of the war twenty-six have each brought in over £10,000.

The volume of response varies with the inherently appealing nature of the work pleaded for, and to some extent with the voice of the pleader, but not too much must be made of the latter. We might have a poor opinion of the persuasiveness of the new Minister of Health, Mr. Willink, when we learn that only £200 came in in response to one appeal of his, but we find immediately that in response to two other appeals of his for another cause £10,000 and £15,000 were received. It is not easy to say why the campaign against tuberculosis should stir the generosity of the public while the campaign against cancer almost invariably evokes a large response. Two broadcasts in aid of the National Association for the Prevention of Tuberculosis each brought in only about £400, whereas Lord Horder's appeal for the British Empire Cancer Campaign brought in £10,000. Another point is that, while prevention is better than cure, it has less force in a charitable appeal. The word "hospital" seems to go straight to the heart of the listening public. During the last few months, to take a few examples, an appeal for the Christie Cancer Hospital, Manchester, and the Liverpool Radium Institute brought in £6,413, for St. Luke's Hospital for Advanced Cases £3,500, and for Queen Charlotte's, the London Chest Hospital, and the Swansea General and Eye Hospital, over £2,000 each. The largest response to a hospital appeal was to that made by Mr. Donald McCullough in February, 1942, which gathered over £10,000.

The number of separate donations was 6,300, and of only 750 came from the region of the hospital (Devon Cornwall).

At the beginning of the war appeals for individual hospitals were discontinued and group appeals for voluntary hospitals were made. The first of these yielded £19,443, but the second and third brought in comparatively small amounts, and became evident that the term "voluntary hospital" have a local habitation and a name if it is to inspire belief. In the early part of 1942 it was decided that appeals for individual hospitals should be made in the course of the year, and the experiment proved a success and has continued. Specialized hospitals or those which have seriously damaged by enemy action and are not in receipt of large E.M.S. grants receive first consideration.

Three wartime broadcasts for the Invalid Children's Association brought in altogether nearly £7,000. The Services Welfare Society, as a result of three appeals for an unknown soldier of the last war, received about £11,000. British Medical Missions in Africa, following an appeal by Mr. Justice Birkett, received £7,362. The work of the district nurse, which one might have expected to open many paths to able advocates, but the broadcasts brought in only small sums to the Queen's Institute. On the other hand, the Crippled Children's College at Leatherhead and the sister college at Exeter gained over £2,000 from one appeal. The fact that these sums are in small donations, and are given in addition to the steady support of the institutions by their own constituencies, suggests again the deep root which voluntary institutions have in the pride and affection of the British people.

FUTURE MATERNITY AND CHILD WELFARE SERVICES

Last February a conference of representatives of societies concerned with maternity and child welfare set up a committee to consider how the maternity and child welfare services could best be maintained and developed "in view of the changes in medical science which may be consequent upon the Beveridge report." That committee, whose chairman was Dr. P. V. Pritchard, in its comments on the suggestion that one doctor should be responsible for the preventive and curative medical services for all children, irrespective of age. While certain advantages would result from this, the report continues, general practitioners as at present trained are not always fitted to carry out this dual role—a fact should be borne in mind by those concerned with the planning of medical education. The committee's first general conclusion is that maternity and child welfare services should be administered by a local authority responsible for the personal health services in the area. It does not concur in the view that the education of the health authority should be responsible for the care of the child from 2 to 5. The health and management of the child, at least from the age of 5 and preferably to the end of school life, should be supervised at clinics equipped for the purpose and by health visitors. In the committee's view the preventive medical services should be under the control of one "Ministry centrally and one committee locally, with the medical officer of health as the responsible chief officer." The local authority should continue to provide: (1) a midwifery service, including maternity beds for normal and abnormal cases, adequate transport, and residential nurseries for the older children; (2) ante- and post-natal clinical consultant service with specialist staff and an emergency obstetric transfusion service connected with a hospital should also be available. The medical officer of a clinic must be experienced in the general principles of the work and in obstetrics, and, if recognized consultant, should have held a resident obstetric appointment. He must also be qualified to advise and guide mothers on all that concerns their own and their child's health. Each area should have a consultant paediatric service. The important role played by health visitors is emphasized in the report, and a plan is made for increased numbers and for extended training. Health education should not be confined to the expectant and nursing mother, but should be a feature of our educational system, so that the next generation may be brought to adult life and especially marriage and parenthood with constructive health habits.

The x-ray picture of the lungs in beryllium poisoning, according to Meyer (*Beitr. klin. Tuberk.*, 1942, 98, 388) shows in the early field in some cases streaky, sharply demarcated shadows, and in more severe cases a more intensive homogeneous shadow. Up to 10 per cent. of workers handling beryllium have slight affection of the respiratory organs, and in a smaller proportion of cases there is severe lung disease with a high mortality.

Nova et Vetera

THE DIGNITY OF THE MEDICAL PROFESSION

so many men past middle age the name of Conyers Middleton known because of a few sentences in one of Macaulay's essays; possibly some readers of Lecky or Leslie Stephen have even attempted to read Middleton's *Free Enquiry into the Iraculous Powers of the Christian Church*, an early example of "debunking." In an annotation in his copy of one of Middleton's rejoinders to critics Macaulay commented unfavourably on Middleton's querulousness. Most readers would agree with Macaulay. When a doctor of divinity claims to have roved that highly esteemed Christian Fathers were shameless ars he ought not to be surprised if some of his colleagues are ide to him.

A Bygone Squabble

This peevishness is amusingly illustrated in another of Middleton's quarrels, now quite forgotten. In 1724 Richard lead devoted his Harveian Oration to a eulogy of the medical profession, at least of physicians, and spoke disdainfully of the pinion that in Rome physicians were always slaves or foreigners. It was a short oration, in a pleasantly pre- or post-randial style, and it might seem a little odd that a Cambridge I.D. should publish a pamphlet of 35 pages dotting the i's and crossing the t's of a thesis that Roman gentlemen of the republican age did not think highly of doctors, that most doctors were foreigners and many of them slaves. However, that is what Middleton did. As Allbutt in our time, with far more rudition than Middleton, has painted a picture, not essentially different from Middleton's, it is not necessary to summarize the latter's arguments.

The pamphlet was courteously written, but, it evidently annoyed not only Mead but some of his colleagues, and several rejoinders were printed. Middleton again took the eld. His second pamphlet was much longer than his first (52 ages), and is aimed against three of the rejoinders. Middleton does not cite the titles in full and I have no access to the works themselves, but their authorship can be identified with reasonable confidence. No. 1, *Notae Quaedam Breves*, etc., was the work of Joseph Letherland (1699-1764), an M.D. of Leyden and, later, of Cambridge, admitted a Fellow of the Royal College of Physicians in 1737, and at the time of his death physician to Queen Charlotte. According to Munk he was a man "of deep and very extensive learning." At the time of the controversy he was 25 or 26. No. 2, *Responsio*, according to Middleton a substantial volume, was written by John Ward (1679-1758), an L.D. of Edinburgh and professor of rhetoric in Gresham College; he was not a medical man. No. 3, *Animadversio Brevis*, was, according to Middleton, by the author of No. 1; cannot identify it.

In the second pamphlet Middleton's courtesy had worn so thin as to be imperceptible, and he makes some preliminary remarks which remind one of Macaulay's annotation. Middleton had said in his first pamphlet that it arose out of a friendly discussion in his rooms at Cambridge. Now he tells us that he had found some doctors a little too high and haughty about their profession (*vel gloriola quadam elatos, vel artis suae caritate nimis fastidiosa incensos*), and thought they should be taken down a peg or two by a perfectly courteous account of the facts. Whether Middleton was really naive enough to believe that our predecessors would thank him for this service is matter for speculation. Anyhow, this time he is not quite so careful to avoid the use of contemptuous or harsh words. According to him, although the author of No. 1 described himself as a doctor of medicine (apparently all three rejoinders were published anonymously), judging from the writer's style he was more probably a quack who harangued crowds in market-places and was wholly devoid of either intelligence or modesty, unless the fact that he did conceal his name was evidence that he was conscious of his rashness and ignorance. The author of No. 2 was a mere rhetorician who wrote bad Latin and was even more stupid than the author of No. 1—in fact a cowardly hireling ready to assail anybody for money. Middleton's belief (probably correct) that the author of No. 2 was remunerated by Mead no doubt spurred him on to special oratorical efforts. Latin, like German, is very rich in resounding terms of abuse, and it must at least be set to Middleton's credit that he did not accuse any of his opponents of murder or unnatural vice.

Of the intrinsic merits of the performance there is not much to be said. Perhaps, in these days when compulsory Latin is a memory, we overrate the learning of the early eighteenth century. One small example may be given. Tully in a famous passage (*De Officiis*, Bk. I, cap. 42) included medicine among

professions honourable "iis quorum ordini conveniunt," usually translated: "to those to whose rank, or condition, in life they are fitting." The author of No. 1 accused Middleton of ignorance of Latin because he did not know that *ordo* implied a free-born status and could not be used of a slave or freedman, whose status was a *conditio*. This charge excited Middleton to a fury which flows over two pages; but instead of quoting, with deadly appositeness, the first words of Suetonius's *De Grammaticis*, xviii: "*L. Crassicus, genere Tarentinus, ordinis libertini*," Middleton quotes a line from a comedy! The oldest profession in the world is a familiar gibe, but not exactly authority for the serious use of the term "profession." Clifford Allbutt would not have failed to score the point.

Perhaps Fellows of the Royal College of Physicians and Doctors of Divinity two hundred years ago were not much more learned but only more childish than they are now.

M. G.

PLASTER SPLINTS IN THE AMERICAN CIVIL WAR

The United States Sanitary Commissioner, being apprised of the lack of essential medical literature for Army surgeons serving in the field, sought to mend the situation by distributing brief essays, similar to our modern memoranda, on the practice of wartime medicine and surgery. One essay, "T" of an alphabetical series, opens with a short historical summary and continues with the criticism that the early surgeons used plaster-of-Paris in a clumsy manner so that a hammer and chisel were required to remove it. The encasing moulds were likened to heavy stone coffins serving well enough the purposes of interment, but wholly unsuited to the function of a splint. The improved method was based on that of Maisonneuve, who had recently revived the use of plaster splinting for fractures. Little applied the treatment in the New York Hospital in 1861, and it was so successful in fractures that the starch bandage and other methods of dressing were supplanted. It is pointed out that in military surgery the advantages of plaster are that it adapts itself to the parts and dries quickly, thus permitting the patient to be transported to more comfortable quarters. Moreover, if applied so as to leave a portion of the limb uncovered there is no danger from swelling. Windows may be cut in the splint so that wounds could be dressed and cooling lotions applied.

The procedure adopted was as follows. First, shave or oil the skin. Then make a paper pattern of the area to be covered and cut to it two thicknesses of Canton flannel or old muslin, devising windows if wounds are present; the sides of the flannel should remain about one inch apart when in position. Sprinkle plaster into an equal quantity of water to a creamy consistence. Immerse cloth till thoroughly saturated, lay it on a flat surface and smooth with the hand. Apply flannel to limb and put snugly over it a roller bandage. The limb is then held for a few minutes, extension being made if necessary until the plaster sets, when the roller bandage is removed. If it is necessary to delay the "setting" of the plaster this may be achieved by adding a small quantity of carpenter's glue.

The dressing was recommended as a valuable aid in the transport of patients, and it could be maintained with advantage during the whole course of treatment in cases of simple or compound fracture of the joints and of the limbs except the femur. In the last the dressing was applied from the pelvis to the heel for steadying the limb during the journey to hospital, where Dr. Gurdon Buck's treatment should be applied. In wounds of the knee-joint it is interesting to note that "perfect quietude" was regarded as one of the most important points in the treatment.

An illustration is given of a much swollen elbow-joint of a patient wounded at the Battle of Cross-Keys. The joint had been entered by a round bullet, which was removed two weeks later, when free incisions around the joint were found to be necessary. At this stage a plaster splint was applied to the anterior surface of the arm and retained by a transverse band above the wrist and another at the middle of the humerus, the arm being flexed. This splint was worn for a month and then renewed. The head of the radius came away and the patient recovered with some degree of motion in the joint.

Dr. Swan employed the plaster splints in several cases of fracture after the seven days' fighting before Richmond, during McClellan's campaign, and the patients were comfortably transported to Washington. Confirmation of its value came also from another seat of war—far-away Schleswig, where Louis Stromeyer Little reported that "Plaster of Paris is universally employed in compound fractures. In ten of the femur particularly it answered very well, the patient could bear to have the limb moved about and all seemed in a fair way to recover."

[A complete series of these essays, A-T, published 1862-4, is to be seen in the Library of the Royal College of Surgeons of England.]

S. W.

¹ Little, James L., *On the Use of Plaster of Paris Splints in Military Surgery*, pp. 13, 1864.

² Lenzert, 1864, 1, 284.

Reports of Societies

BLOOD CHANGES IN INFECTIOUS DISEASES

At a meeting of the Fever Group of the Society of Medical Officers of Health on Nov. 19, with Dr. ANDREW TOPPING in the chair, a discussion on haematology in the infectious diseases was opened by Dr. G. W. GOODHART. In general, he said, the prodromal stage of most fevers was characterized by a polymorphonuclear leucocytosis; this persisted into the eruptive stage in coccal diseases, but in bacillary and viral infections there was a tendency to leucopenia or lymphocytosis. In scarlet fever a polymorphonuclear leucocytosis continued usually until the end of the second week of disease, and its absence in severe toxic cases was a bad prognostic sign. Eosinophilia, sometimes up to 10%, was characteristic.

Prominent in the group of diseases marked by leucopenia with a relative lymphocytosis was enteric fever. These changes were early, but their importance in diagnosis was diminished by modern bacteriological methods. Nevertheless, leucopenia was a help in diagnosis, particularly in clinically atypical cases, whereas a blood count could sometimes negative a diagnosis of typhoid which seemed clinically probable but lacked bacteriological proof. Not enough attention was paid to the characteristic absence of eosinophils in the leucopenia of typhoid. Leucopenia was not so constant in paratyphoid, and he had seen several mild cases with a persistent polymorphonuclear leucocytosis. The blood picture in measles and rubella was approximately the same: with the appearance of the rash there was leucopenia with a relative lymphocytosis which often became an absolute lymphocytosis and a rising lymphocyte count.

In rubella an additional aid to diagnosis was the appearance of plasma or Türk cells in exceptional numbers. The precise nature of these cells was uncertain, but their presence in rubella, although not constant, must be accepted as a diagnostic factor. Such a picture would be more helpful in differentiating rubella from scarlet fever rather than from measles, since Türk cells were sometimes present in increased numbers in the latter disease. Leucopenia with relative lymphocytosis occurred in mumps, and helped to differentiate it from septic adenitis, in which there was a polymorphonuclear response, and from glandular fever, although the rarer forms of this disease did show a leucopenia, distinguishable, however, from mumps by the presence of atypical monocytes in stained films. Whooping-cough differed from other infectious diseases in its absolute lymphocytosis. This was found in the catarrhal stage before the whoop developed, and might be helpful in deciding to isolate contacts early. Lymphocytosis reached its peak in the paroxysmal stage of the disease. Care was necessary in interpreting counts, particularly in the lower ranges, since the lymphatic apparatus in childhood could be readily stimulated by varying pathological processes. He would put no great stress on figures below 20,000 per c.mm., except perhaps in adults and older children, when he would require a high lymphocyte percentage unless the clinical evidence was strong. But with exceptionally high total counts comparatively low lymphocyte percentages could be accepted, for this might occur in complications. For example, in one case of whooping-cough pneumonia there were 165,000 leucocytes per c.mm., of which 46.5% were polymorphonuclears and only 42% were lymphocytes.

Summarizing, Dr. Goodhart felt it was unwise to talk glibly of characteristic counts in various fevers, since many cases ran a complete course without alteration from the normal blood picture other than could be paralleled in healthy people.

In the discussion which followed this paper, Dr. IAN TAYLOR stressed the difficulty of interpreting minor changes in the blood count in children in the absence of exact standards of normality for the various age groups. Dr. R. F. L. HEVLETT had noted that in enteric fever with a respiratory onset there was sometimes a polymorphonuclear leucocytosis rather than a leucopenia. Dr. R. CRICKSHANK wondered whether the eosinophilia of scarlet fever could be correlated with the allergic concept of scarlatinal nephritis. He had found a leucopenia with monocytosis in a number of typhus cases and

thought this blood picture might prove useful in diagnosis. Dr. A. B. ROSSER had found neutropenic 25 children of an average age of 9 years suffering from "catarrhal" jaundice.

Blood in Sulphonamide Therapy

Dr. B. BARLING said that cyanosis was commoner sulphanilamide than the later preparations. It could be in 15 to 30 minutes by intravenous administration of 10 of a 1% solution of methylene blue, or in 3 to 4 hours giving methylene blue by mouth. Thionin could be used the same way. A minor degree of anaemia was common during sulphonamide therapy. Acute haemolytic anaemia a rare but dangerous complication. In one child the haemoglobin fell from 90 to 30% in less than 36 hours, and cells might be reduced to 2 millions or fewer in an equal of time. Treatment in correct sequence was to stop the encourage free excretion by liberal fluids with alkalis, once it was known that the kidneys were working well, to blood transfusions of the correct group and Rh, remembering that one pint of blood raised the haemoglobin by about in an adult male and over twice that amount in child. Aplastic anaemia was another rare complication of sulphonamide therapy: a rapidly progressive anaemia with purpura and exhaustion was accompanied by reduction in red white cells, and platelets in the circulation and bone marrow. Rapid elimination of the drug, repeated transfusions, pentnucleotide offered the best prospect of recovery. Thrombocytopenia had been recorded in America in only 12 during sulphonamide therapy. Serious reduction in platelets could be caused by other drugs. Short of these catastrophic and rare cases of thrombocytopenia, some reduction of platelets did occur during sulphonamide treatment. A leucopenia might follow the use of sulphonamides, agranulocytosis rarely appeared until comparatively large doses of the drug had been taken over a long time. It perhaps the commonest of the unusual blood changes during sulphonamide therapy, and about 50% of the patients did

As vitamin K was synthesized by the intestinal flora, when in turn, was disturbed or inhibited by sulphaguanidine, prolongation of clotting time might be expected during use of the drug. This had been observed experimentally in animals and was accompanied by a reduction in rate of growth. Both effects could be negated by giving *p*-aminobenzoic acid or liver extract, while vitamin K corrected the hypoprothrombinaemia. In view of this it was suggested that vitamin K or liver extract should be given during sulphonamide therapy and perhaps "sulphasuxidine" therapy to lessen risk of hypoprothrombinaemia in the patient. Dr. WILLIAM GUNN said that nicotinic acid as well as pentnucleotide was doubtful benefit in agranulocytosis. He felt that repeated blood transfusion was the most hopeful line of treatment. Dr. W. H. KELLEHER described the case of a child of 1 who had been given a total of 70 g. of sulphaguanidine (daily) without any toxic effects. Dr. E. N. ALLOTT felt that "sulphasuxidine" might be more readily absorbed than sulphonamide, as could be demonstrated by blood sulphathiazole levels of 5 to 6 mg. per 100 c.cm. Similarly, in some cases over 50% of sulphaguanidine had been found excreted in urine.

CLINICAL PATHOLOGY

The first general meeting of the European Association of Clinical Pathologists was held in London at the Royal Society of Medicine on Nov. 26 and 27, with the president, Dr. S. DYKE, in the chair. At the business meeting the association formally adopted a constitution and made plans for future action, in particular towards the establishment of local branches on the Continent of Europe, and for the development of a scheme for the interchange of workers in clinical pathology between laboratories in the countries of Europe after the war.

At the scientific meeting Dr. H. BAB (Berlin) discussed the clinical symptoms of adrenocortical hypoplasia and hyper-trophy. He showed numerous photographs demonstrating the effects, resulting dwarfism, gigantism, and intersexuality, of disturbances of the axis of the adrenal cortex and also of the effects of treatment by means of preparations embodying its active principles. Dr. MANDELBAUM (Munich) described a micro-organism of the Neisseria

roup isolated from mice, peculiarly sensitive to the action of alphonamides; within two hours after being brought into contact with very high dilutions of any of the drugs of this group the micro-organism showed characteristic morphological changes. He suggested the use of this micro-organism as a means of testing the therapeutic value of new preparations of the sulphonamide group.

Prof. S. JELLINEK (Vienna) discussed the peculiarities of electrical lesions, which, he maintained, were incorrectly described as "burns." He showed numerous gross and microphotographs demonstrating that the reaction of the tissues to electrical lesions was entirely different from that to burns due to heat. Tissues affected by electrical lesions showed distortion, and although such lesions may come to harbour micro-organisms they did not become truly septic; he strongly deprecated the treatment of electrical lesions as true burns. Dr. H. POLLAK (Prague) discussed the value of the hippuric acid test of liver function in peptic ulcer cases. He recorded numerous observations to the effect that in treated patients suffering from peptic ulceration this test showed a marked deterioration of liver function with improvement as a result of successful treatment of the gastric conditions. He pointed out that the results of this investigation were capable of giving valuable information as to the fitness of the patient for surgical intervention.

Prof. M. REISS (Prague) recorded numerous experimental observations on the role of the corticotrophic hormone in secondary shock. Using rats he had found that the shock induced by the intraperitoneal introduction of hypertonic glucose could be largely prevented or neutralized by the corticotrophic hormone; further that the withdrawal of this hormone by ablation of the hypophysis rendered the animals more susceptible to shock. He suggested that shock could be more readily treated by the use of the corticotrophic hormone, which stimulated the production of a whole series of hormonal responses, rather than by the use of cortin or such similar preparations of the adrenal cortex alone. Prof. Reiss showed a hand-haematocrit for field use, capable of being worked from any rapidly rotating wheel such as that of a jacked-up motor-car.

Dr. J. UNGER (Prague) discussed the principles underlying the testing of chemotherapeutic substances *in vitro*, *in vivo*, and in tissue culture. Dr. B. L. DELLA VIDA (Rome) demonstrated crystals of the various types of drugs of the sulphonamide group as appearing in the urine of patients under treatment. Dr. ELIZABETH DELIKAT (Bratislava) demonstrated films and cultures from a case of acute and fulminating pulmonary aspergillosis. Dr. I. FREIDMANN (Prague) demonstrated the preparation and use of commercial dried egg powder as a substitute for fresh eggs in the preparation of media for the cultivation of tubercle bacilli. Dr. F. PICK (Prague) showed microscopical sections from the organs of a child who died showing extensive and generalized cellular reactions which had been variously diagnosed as infectious granuloma or as due to a congenital lipid dystrophy.

At a meeting held at Derby on Dec. 3 it was unanimously decided to revive the School Medical Group of the Society of Medical Officers of Health, and a temporary committee was formed. All those who are interested, whether at present members of the Society or not, are asked to communicate with the honorary secretary, Dr. A. A. E. Newth, 28, Chaucer Street, Nottingham.

The second annual report of the Bristol and District Divisional Hospitals Council bears out the contention of its opening paragraphs that the setting up of this council was a wise procedure in view of Government declarations on hospital policy. Recommendations have been made to the Bristol Planning and Public Works Committee on the principles to be observed in siting new or extended hospitals in the area. The council has received the report of the Bristol Hospitals Commission, and a subcommittee has been appointed to consider the geographical problem of replanning hospital and medical services in the area. The council's report on the future of pathological services in Bristol is completed and has been submitted to the Public Health Committee, the University, and Bristol Royal Infirmary. During the year a second grant of £1,000 was made by the Nuffield Trustees towards the development of hospital and ancillary medical services in the area, and of £250 towards the Council's administrative expenses. Work is still proceeding, states the report, on the preparation of a constitution for a central hospitals contributory scheme on the lines suggested by the Bristol Hospitals Commission. Reference is made to this also in a report for 1942 just to hand of the Bristol Hospitals Fund, "the official contributory scheme for Bristol voluntary hospitals." The Fund states that it has always been a keen advocate of union of all contributory schemes in the area. In the meantime it publishes some striking figures: its total income in its first year (1939) was £476, last year it was £48,394; the total income of the five Bristol associated voluntary hospitals was £178,561 in 1939 and £252,204 in 1942; the hospitals showing a surplus over expenditure of £5,027 in 1941 and £4,635 in 1942—no small testimonial to the value of contributory schemes.

Correspondence

Teaching of Anaesthetics

SIR.—The advance in modern methods of anaesthesia tends to make this branch of medicine more and more the field of the specialist. This is obviously of great advantage to the patient and surgeon for all major surgical work, and it is increasingly recognized throughout the country that the best surgical results are obtained where anaesthetist and surgeon form part of a highly specialized team. This tendency is likely to develop in the future and is much to be desired.

I would, however, put in a plea for more adequate training for the medical student in those comparatively simple forms of anaesthesia which he will be called upon to administer as soon as he is qualified. It is a commonplace these days to meet newly-qualified doctors who are incapable of giving any inhalation anaesthetic unless provided with their own particular form of gas-and-oxygen apparatus, though some are more confident than one could wish of administering the less controllable intravenous barbiturates, often with no means of resuscitation at hand.

This is a sad condemnation of our present methods of teaching anaesthetics. The contention that anaesthetics should be left to the specialist alone is an impracticable one. The newly qualified doctor is expected to do minor surgical work—such as opening abscesses, circumcisions, removal of nails, sebaceous cysts, etc.—and he should equally be capable of giving some simple form of anaesthesia for small surgical procedures.

I would suggest that the proper place for teaching medical students practical anaesthesia is, as a rule, not the main operating theatre but the dental department, the casualty department, the minor operating theatre, and the labour ward. Here they can be taught the principles of general anaesthesia, the prime importance of maintaining a clear airway whatever form of anaesthetic they employ, the use of such apparatus as they are likely to meet in general practice—i.e., simple N₂O apparatus, open-mask methods, local and intravenous methods—and how to deal with the results of an inadvertent overdose. They would not be precluded from attending operations in the main operating theatre as onlookers, but many surgical cases are as unsuitable for the anaesthetist to put into the charge of the student as they would be for the surgeon to hand over to his dresser. The student is often invaluable as a supporter of the jaw, a watcher of the rebreathing-bag, or an observer of the blood pressure, but it is not justifiable to make these duties the substantial, if not the main, part of his anaesthetic training, as so often happens to-day.

Honorary anaesthetists to teaching hospitals should naturally be prepared to give the necessary time to teaching the simple methods, and it is here under present conditions that difficulty often arises. They cannot afford the time to attend dental sessions, the casualty department, and minor surgical operations, as well as administer anaesthetics for long surgical lists. Some solution must and doubtless will be found for this. A sounder groundwork must be provided for the training of the casual anaesthetist so that he may recognize the anaesthetics he should or should not embark upon. This will in time raise the general standard of anaesthesia and improve the status of the specialist anaesthetist.—I am, etc.,

London, W.1.

K. G. LLOYD-WILLIAMS.

Nitrous Oxide Anaesthesia

SIR.—Dr. R. Blair Gould's article on nitrous oxide anaesthesia (Nov. 13) is unconvincing for several reasons. As a "non-expert" anaesthetist who has, nevertheless, occasion to give a number of anaesthetics, I should like to mention the following: (1) In his opening words Dr. Gould refers to nitrous oxide as being considered the "best" anaesthetic. Surely this statement is somewhat sweeping; there is, unfortunately, no such thing as a "best anaesthetic"; each individual case must be considered on its merits. (2) Dr. Gould sees fit to disagree with such authorities as Clement and Macintosh after first quoting them at the beginning of his article. (3) Throughout

while to repeat the opaque meal on the same day is to my mind a waste of time. If after this course the spasm and the tenderness still persist, then the evidence is very much in favour of early ulceration and probably of the mucosal type. This type of ulcer is similar to the small pin-point haemorrhagic ulcer found in the stomach, and which on occasion can produce quite a large haemorrhysis and almost invariably eludes demonstration by an opaque meal and x-ray examination.

It should be kept in mind that only a small percentage of duodenal ulcers present an ulcer crater that can be demonstrated by x-ray examination. Further, the large proportion of these showing craters have a history of long standing, but with recurrent attacks an acute exacerbation may simulate an ulcer in the acute stage. If the radiologist always waited until he could demonstrate a definite ulcer crater before diagnosing a duodenal ulcer, then he must assuredly miss many cases of early ulcer, which entails the art of finer radiology.

I prefer to retain the term "chronic duodenitis," and use it only for those cases showing chronic inflammatory changes of the duodenum, where the walls show definite thickening, sometimes with "honeycomb" effect of the structure. In these cases the primary cause has most probably been an ulcer, now healed but finally leaving these general hypertrophic inflammatory changes of the walls, which remain more or less for long periods afterwards and are noted at subsequent examinations.—I am, etc.,

London, W. L.

NORMAN P. HENDERSON.

Radiology

SIR.—In your issue for Nov. 27 you publish an article and four letters concerning radiology which together illustrate a principle very imperfectly appreciated by most practitioners—namely, the principle of relative evaluation of x-ray findings. Some doctors expect the radiologist to make a complete diagnosis in every case, while others profess complete distrust of the radiologist's report; the ideal course, in which the x-ray report on a given case is considered as one link in the diagnostic chain and is given neither too much nor too little significance, is rarely followed. Two great authorities—Sir Arthur Hurst and Dr. A. E. Barclay—have indicated the value of the x-ray examination in diseases of the gastro-intestinal tract, but in other fields the position is not at all clear.

Dr. Kemp, in his article on the use of pheniodol in cholecystography, gives a most lucid and balanced exposition of the value of the method described, and indicates the exact clinical significance of the results of the examination, while in contrast, letters on pneumonitis, duodenitis, and the value of x-ray diagnosis in tuberculosis show the confusion which may be produced in other forms of examination; and Dr. Norman Henderson finally makes an appeal for the rationalization of the practice of radiology. It has been most unfortunate that the science of diagnostic radiology depends on the interpretation of screen and film images which look as if they were actual pictures of the part concerned, and this has made many people imagine that radiology is an exact and fundamental method of examination, in which the living body is visualized and from which definite information can be obtained about its structure and function. No one imagines that an electrocardiogram or a test-meal curve is anything more than the graphical representation of the results of certain investigations, but an x-ray film is nothing more than another such graph, which can only be interpreted by comparison with records of similar appearances obtained in the past from cases of known disease. It is quite unjustifiable and misleading to attempt to place direct values on abnormal appearances which do not correspond with any known pathological condition, and such diseases as "duodenitis" and "pneumonitis" owe their existence to the need for terms to describe consistent x-ray appearances obtained in the absence of any clear-cut clinical complexes. In both these cases there must be some disease present, but only radiologists are convinced that a definite pathological entity exists, and I must admit that I often find it convenient to describe my x-ray findings in these terms, just as Dr. Wroth states in his very apt remarks on duodenitis. Dr. Fawcitt points out in his letter on tuberculosis that an x-ray examination of the chest may produce x-ray evidence of disease, but does not diagnose the disease, and his comments apply to all examinations.

Let it be quite clear what information can be obtained from an x-ray examination. First, we cast a shadow of some part of the body on a fluorescent screen or film, if necessary filling hollow organs with contrast media to enable them to make a shadow, and then we study this shadow and compare it with other shadows which have been obtained in the past and have been found to accompany certain pathological conditions. If we find that it resembles one of these we say that there is x-ray evidence of that disease and no more than that. We are not justified in saying that the behaviour of certain hollow viscera when filled with barium bears any relationship at all to their normal behaviour when dealing with physiological products, and the existence of spasm, for example, in a barium-filled colon is, as Sir Arthur Hurst recently pointed out in your columns, no indication that any spastic condition actually exists in that colon. Similarly, there is no real reason why the excretion of iodine compounds from the gall-bladder and kidneys should be related to their excretion of body substances, and, as Dr. Kemp stresses, we must be guided in our evaluation of the shadows cast by the foreign substances we place in organs by considerations of criteria which have been established by following examined cases into the operating and post-mortem rooms.

The radiodiagnostician can only perfect his power, first, by assimilating the results of past examinations, and, secondly, by following any cases which do not conform to past experience into the wards, theatre, and mortuary, and by discussions with clinical colleagues so that the correct value may be placed upon any unusual sign. Clinicians may be of the greatest possible assistance in such cases by correlating physical signs with the x-ray appearances, and Wing Comdr. Trail has published several most instructive works on chest examinations from this point of view. There is a most unfortunate tendency for radiology to drift away from clinical medicine and to attempt to become a separate science, and this is obviously not in the best interests of medical progress. It is also unfortunate that the present training of radiologists lays very little stress on the clinical aspects of disease, and the Cambridge D.M.R.E., which was the only diploma to insist on any clinical experience, is now withdrawn. The higher diploma of F.F.R. requires a high clinical standard, but few radiologists aspire to this very difficult qualification, which has acquired very little recognition outside the world of radiology.

There appears to be need for some new authority to supervise the training of future radiologists along the lines of the Royal Colleges, and to direct the general lines of radiological research into clinical channels. The present three radiological institutions take no part in education; but possibly the British Institute of Radiology may resume its educational activities, which lapsed with the Cambridge D.M.R.E., on a broader scale after the war, and so avoid forming yet another body which may, like the Faculty of Radiologists, not entirely fulfil the purpose for which it is organized.—I am, etc.,

Have.

E. MILLINGTON.

Shock Treatment of Mental Disorder

SIR.—The even course of medical evolution has been interrupted and set back, according to my view, by the treatment of mental disorder by the induction of fits—a short cut to psychotherapy and a wonderful way of doing psychiatry without having to know anything about human nature. I do invite general practitioners to state clearly whether they favour this treatment, which has features that remind one of the more violent of the mediaeval attempts to drive out evil spirits.

Actually I do not see how permission is ever obtained for the treatment to be done, as there is good evidence that when an adult gives permission for it to be done on himself he does it out of an impulse which is akin to a suicidal one. What makes a man feel like hurting himself makes him feel like allowing and even asking for shock treatment. The ethics of collaboration with this suicidal impulse is doubtful. It must be remembered that the treatment is certainly not being given only to hopeless cases; it is being tried in all types of psychological illness. Personally, I would never give permission for this shock therapy, simply because I see no way of proving that it is harmless. But I think that the profession as a whole could reasonably oppose the treatment on the grounds that it offers a by-pass to true understanding of human nature,

his article Dr. Gould fails to draw a proper distinction between the nitrous oxide anaesthesia for minor surgery, dentistry, etc., and the "secondary saturation" technique of McKesson for major surgery. (4) No clinical evidence is used by Dr. Gould in the support of his views. (5) The statement that "anaemic patients, in surgery, provide the great majority" is scarcely true of minor surgery or dentistry, but here again no distinction has been drawn.

In the course of some sixty-odd nitrous oxide anaesthetics administered in this establishment, the majority having been given by the nasal route for dental extractions, no instance of nausea, headache, or vomiting was noted, though it is admitted that patients judged likely to be anaesthetic-resistant were usually given an intravenous barbiturate. The advantages of nitrous oxide for these patients are its simplicity and the portability of apparatus, quick recovery, and freedom from after-effects. It has been my experience that the above method and anoxaemia need not be present provided that some expert barbiturate is available for those cases judged to be unsuitable for nitrous oxide. In using the gas for major surgery a full-scale Boyle's (or similar) apparatus is required, including the necessary auxiliary agents which the anaesthetist should be prepared to use, as most authorities are now agreed that the secondary saturation technique has little to commend and much to condemn it.—I am, etc.,

M. H. W. HOLLOWAY,
Surgeon-Lieut., R.N.V.R.

Trigeminal Paralysis after Trichloroethylene Anaesthesia

Sir,—Dr. McAuley's memorandum (Dec. 4, p. 713) describing cases of trigeminal paralysis following closed-circuit anaesthesia with trichloroethylene is opportune. Similar, though at present unpublished, cases are known. Silber (*Arch. Gewerbe-path.*, 1931, 2, 398) reviews the literature relating to the toxicity of trichloroethylene from the industrial point of view, and describes a further collection of cases presenting similar features. Briefly the specific toxic effect is attributed to possible decomposition products. It is pointed out that trichloroethylene may decompose to a variable extent when exposed to a temperature certainly lower than that reached by certain brands of soda lime during reaction, and also in the presence of caustic soda.

Hewer (*Proc. Roy. Soc. Med.*, 1943, 36, 463) refers to cases following the use of previously contaminated triene. Certainly in many ways the available evidence for decomposition products being formed within the apparatus itself is unsatisfactory. However, under the circumstances, and having in mind the clinical course of many of the cases already known, it would seem wise to reconsider the use of trichloroethylene in the closed-circuit parts of anaesthetic apparatus, where possible to toxic substances would collect and concentrate, at least until further observations have thrown more light on the problem.—I am, etc.,

H. J. V. MORTON,
Hillingdon County Hospital, Middlesex.

Treatment of Facial Palsy

Sir,—In the *Journal* of Dec. 11, in the annotation on treatment of facial palsy, this point is made: "The information in forming a prognosis." Unfortunately, scarcely any neurologists of to-day have received any training in testing electrical reactions of paralysed muscles, and they depend on reports sent from the massage and electrical departments, which to my knowledge are only too frequently quite unreliable. When I was house-physician at the National in 1895-7 the two residents had to do all the electrical tests themselves, and so we by practice acquired a knowledge that has proved invaluable in later life in assessing the severity and prognosis of lower neurone lesions. I may say at once that I disagree entirely with the statement I quote above from your article. Proper testing with the faradic and galvanic currents will give absolutely certain information as to the severity and prognosis of facial palsy and of other paralysed muscles.

days) after the damage has occurred, it is quite certain that if the muscular contractions are still active to faradism ten

the nerve injury is slight and will recover. At the same time the connections to the galvanic current will be brisk, but sluggish. The polar reactions, whether A.C. or K.C.C. is the greater, are of little importance. If faradic muscular irritability is totally lost ten days after the onset of the palsy, and the galvanic reactions become sluggish, then we know at once that the lesion is severe, and will lead to marked secondary contracture with overaction, and only partial recovery. If in addition to the faradic loss the galvanic reactions after a period of hyperexcitability slowly diminish and disappear after 4 to 6 weeks, then no recovery at all is likely. The only exception is when a nerve is damaged by compression, as may happen from scar, or by a haemorrhage in the bony canal. Here the loss to faradic irritability and the presence of full reaction of degeneration described above prove a severe lesion, which will be followed either by no recovery, or only slight, and accompanied by severe contracture, and perhaps clonic spasm, unless the nerve is decomposed or grafted.—I am, etc.,

London, W.1.
WILFRED HARRIS.

Ophthalmia Neonatorum

Sir,—Many years ago, when I was assistant to Dr. Henry Jellett, argyrol was substituted for silver nitrate. The late Mr. Crawley, who was consulting oculist to the Round, said he thought this step was a mistake and that the incidence of ophthalmia, which at the time was infinitesimal, would increase. He was correct! Very soon Dr. Jellett ordered silver nitrate to be used as a routine again: ophthalmia scarcely ever occurred.

Times may have changed, but in those days 1% silver nitrate seemed to prevent ophthalmia, and argyrol was definitely less effective. During my own Mastership, when 1% silver nitrate was used as a routine, there were 7 cases during the 7 years—i.e., 7 in upwards of 16,000 deliveries. We felt that the disease occurred it was due to the fact that the silver nitrate had been carelessly applied.—I am, etc.,

Dublin.
BETHEL SOLOMONS.

"Duodenitis"

Sir,—In the *Journal* in 1937 I suggested that results of the radiological studies of the mucous membrane in examinations of the alimentary tract should be received with reserve, and strongly condemned the radiologist who claimed that by employing this new technique "no duodenal ulcer would now go undetected." In fact at that time I recorded an instance of a case diagnosed by the "Berg technique" (which, incidentally, contradicted an earlier diagnosis in the same case, where other radiological technique was employed), while at operation no ulcer was discovered. This therefore supported the contention that no present-day method of radiological investigation is infallible. To-day I endorse these remarks, and fully support the observations of Sir Henry Tidy (Oct. 16, p. 473) that "radiological studies of the mucous membrane leave an unsatisfactory position." Dr. Charles Wroth (Nov. 27, p. 688) also deprecates the term, "duodenitis," which Sir Henry Tidy rightly states "is a radiographical conception without clinical, surgical, or pathological support, and without agreement among radiologists."

Dr. Wroth details a number of observations as noted in the routine examination of the typical difficult case, in which the outstanding features are spasm of the pylorus and "duodenitis" with "inverted commas." For many years past I have rejected the term "duodenitis" in such cases, and prefer to describe this appearance as that of "an irritable duodenum which may be the result of a small mucosal or submucosal ulcer not as yet having a crater large enough to be demonstrated by x-ray examination." If the spasm of the "cap" is mild or indefinite, to suggest to the clinician that the patient should be placed on a mixture containing tr. belladonnae min. 5 i.d.s. for 7 to 14 days, and then repeat the opaque meal and determine whether or not the spasm has disappeared. My experience is that it is preferable to "soak" the patient in belladonna rather than give a single injection of atropine hypodermically.

while to repeat the opaque meal on the same day is to my mind a waste of time. If after this course the spasm and the tenderness still persist, then the evidence is very much in favour of early ulceration and probably of the mucosal type. This type of ulcer is similar to the small pin-point haemorrhagic ulcer found in the stomach, and which on occasion can produce quite a large haemoptysis and almost invariably eludes demonstration by an opaque meal and x-ray examination.

It should be kept in mind that only a small percentage of duodenal ulcers present an ulcer crater that can be demonstrated by x-ray examination. Further, the large proportion of those showing craters have a history of long standing, but with recurrent attacks an acute exacerbation may simulate an ulcer in the acute stage. If the radiologist always waited until he could demonstrate a definite ulcer crater before diagnosing a duodenal ulcer, then he must assuredly miss many cases of early ulcer, which entails the art of finer radiology.

I prefer to retain the term "chronic duodenitis," and use it only for those cases showing chronic inflammatory changes of the duodenum, where the walls show definite thickening, sometimes with "honeycomb" effect of the structure. In these cases the primary cause has most probably been an ulcer, now healed but finally leaving these general hypertrophic inflammatory changes of the walls, which remain more or less for long periods afterwards and are noted at subsequent examinations.—I am, etc.,

London, W.1.

NORMAN P. HENDERSON.

Radiology

SIR.—In your issue for Nov. 27 you publish an article and four letters concerning radiology which together illustrate a principle very imperfectly appreciated by most practitioners—namely, the principle of relative evaluation of x-ray findings. Some doctors expect the radiologist to make a complete diagnosis in every case, while others profess complete distrust of the radiologist's report; the ideal course, in which the x-ray report on a given case is considered as one link in the diagnostic chain and is given neither too much nor too little significance, is rarely followed. Two great authorities—Sir Arthur Hurst and Dr. A. E. Barclay—have indicated the value of the x-ray examination in diseases of the gastro-intestinal tract, but in other fields the position is not at all clear.

Dr. Kemp, in his article on the use of pheniodol in cholecystography, gives a most lucid and balanced exposition of the value of the method described, and indicates the exact clinical significance of the results of the examination, while in contrast, letters on pneumonitis, duodenitis, and the value of x-ray diagnosis in tuberculosis show the confusion which may be produced in other forms of examination; and Dr. Norman Henderson finally makes an appeal for the rationalization of the practice of radiology. It has been most unfortunate that the science of diagnostic radiology depends on the interpretation of screen and film images which look as if they were actual pictures of the part concerned, and this has made many people imagine that radiology is an exact and fundamental method of examination, in which the living body is visualized and from which definite information can be obtained about its structure and function. No one imagines that an electrocardiogram or a test-meal curve is anything more than the graphical representation of the results of certain investigations, but an x-ray film is nothing more than another such graph, which can only be interpreted by comparison with records of similar appearances obtained in the past from cases of known disease. It is quite unjustifiable and misleading to attempt to place direct values on abnormal appearances which do not correspond with any known pathological condition, and such diseases as "duodenitis" and "pneumonitis" owe their existence to the need for terms to describe consistent x-ray appearances obtained in the absence of any clear-cut clinical complexes. In both these cases there must be some disease present, but only radiologists are convinced that a definite pathological entity exists, and I must admit that I often find it convenient to describe my x-ray findings in these terms, just as Dr. Wroth states in his very apt remarks on duodenitis. Dr. Fawcitt points out in his letter on tuberculosis that an x-ray examination of the chest may produce *x-ray evidence* of disease, but does not *diagnose* the disease, and his comments apply to all examinations.

Let it be quite clear what information can be obtained from an x-ray examination. First, we cast a shadow of some part of the body on a fluorescent screen or film, if necessary filling hollow organs with contrast media to enable them to make a shadow, and then we study this shadow and compare it with other shadows which have been obtained in the past and have been found to accompany certain pathological conditions. If we find that it resembles one of these we say that there is *x-ray evidence* of that disease and no more than that. We are not justified in saying that the behaviour of certain hollow viscera when filled with barium bears any relationship at all to their normal behaviour when dealing with physiological products, and the existence of spasm, for example, in a barium filled colon is, as Sir Arthur Hurst recently pointed out in your columns, no indication that any spastic condition actually exists in that colon. Similarly, there is no real reason why the excretion of iodine compounds from the gall-bladder and kidneys should be related to their excretion of body substances, and as Dr. Kemp stresses, we must be guided in our evaluation of the shadows cast by the foreign substances we place in organs by considerations of criteria which have been established by following examined cases into the operating and post-mortem rooms.

The radiodiagnostician can only perfect his power, first by assimilating the results of past examinations, and, secondly by following any cases which do not conform to past experience into the wards, theatre, and mortuary, and by discussion with clinical colleagues so that the correct value may be placed upon any unusual sign. Clinicians may be of the greatest possible assistance in such cases by correlating physical signs with the x-ray appearances, and Wing Comdr. Trail has published several most instructive works on chest examinations from this point of view. There is a most unfortunate tendency for radiology to drift away from clinical medicine and to attempt to become a separate science, and this is obviously not in the best interests of medical progress. It is also unfortunate that the present training of radiologists lays very little stress on the clinical aspects of disease, and the Cambridge D.M.R.E., which was the only diploma to insist on any clinical experience, is now withdrawn. The higher diploma of F.F.R. requires a high clinical standard, but few radiologists aspire to this very difficult qualification, which has acquired very little recognition outside the world of radiology.

There appears to be need for some new authority to supervise the training of future radiologists along the lines of the Royal Colleges, and to direct the general lines of radiological research into clinical channels. The present three radiological institutions take no part in education; but possibly the British Institute of Radiology may resume its educational activities, which lapsed with the Cambridge D.M.R.E., on a broader scale after the war, and so avoid forming yet another body which may, like the Faculty of Radiologists, not entirely fulfil the purpose for which it is organized.—I am, etc.,

Hove.

E. MILLINGTON.

Shock Treatment of Mental Disorder

SIR.—The even course of medical evolution has been interrupted and set back, according to my view, by the treatment of mental disorder by the induction of fits—a short cut to psychotherapy and a wonderful way of doing psychiatry without having to know anything about human nature. I do invite general practitioners to state clearly whether they favour this treatment, which has features that remind one of the more violent of the mediaeval attempts to drive out evil spirits.

Actually I do not see how permission is ever obtained for the treatment to be done, as there is good evidence that when an adult gives permission for it to be done on himself he does it out of an impulse which is akin to a suicidal one. What makes a man feel like hurting himself makes him feel like allowing and even asking for shock treatment. The ethics of collaboration with this suicidal impulse is doubtful. It must be remembered that the treatment is certainly not being given only to hopeless cases; it is being tried in all types of psychological illness. Personally, I would never give permission for this shock therapy, simply because I see no way of proving that it is harmless. But I think that the profession as a whole could reasonably oppose the treatment on the grounds that it offers a by-pass to true understanding of human nature.

just at a time when we are becoming able so tremendously to enrich our medical practice through the assimilation of recent researches in psychology.

I would go further. Planning, if it is to be as good as joggling along, must take into account unconscious factors.

There is such a thing as a doctor's unconscious antagonism to ill people who do not respond to his therapy. In my opinion shock therapy is too violent a treatment for us to be able to make use of it, at the same time being sure that we are not unconsciously intending it to hurt the patient.

Psychiatrists must know themselves very well indeed to feel happy when administering the treatment, and to withstand criticisms and even antagonism, which we must expect sooner or later in the lay press. (Attention has been drawn by your correspondent Dr. Martin Cuthbert (Nov. 20) to one type of public reaction.)

This letter is intended as an invitation to the profession generally to discuss this matter, which, on account of its ethical implications, cannot remain a purely psychiatric or scientific problem. And I should very much like to know how many there are who feel as I do that no one could have the right to sanction the giving of fits to a child.—I am, etc.,

D. W. WINNICOTT.
London, W.1.

Vasocostrictors in Coryza

Sir,—I read with pleasure the thoughtful letter of F/O T. M. Davie (Dec. 11, p. 763). One must respect the desire not to interfere with the defence mechanism of the nose, I feel, however, that this defence mechanism can be helped.

During the last few years I have had a series of x-rays of the nasal sinuses during an attack of coryza. The local treatment of these attacks has fallen into three groups: (1) no local treatment; (2) ephedrine 1% in normal saline, and volatile vasocostrictors; (3) vasocostrictors plus the addition of local medicaments which would not damage the cilia or inhibit ciliary action. Groups 1 and 2 showed no variation in the incidence of either sinusitis or transient subacute otitis media; whereas in group 3, even in those severe catarrhal epidemics which are prone to develop sinus complications, these complications were greatly diminished, and those which did occur were mild.

My tentative conclusion therefore is that nasal vasocostrictors are of real therapeutic use if the shrinkage of the nasal mucosa is not carried to excess by too strong a vasoconstrictor and the ironing out of the nasal mucosa is used to allow access of a bacteriostatic drug.

On physiological grounds I feel that the best vehicle for any nasal application is normal saline. I have had excellent results with ephedrine and argyrol in normal saline, but the solution must be in a stable form, otherwise unpleasant side-effects, such as nasal congestion and crusting of the nose, are produced, and these, of course, increase the risk of sinus or middle-ear involvements. Further, I think that the best way of applying any solution to the nose is by means of a good nasal spray.—I am, etc.,

E. CAREW-SHAW.
London, W.1

Examining the Neurotic

Sir,—Surge-Lieut.-Cmdrs. Stephenson and Cameron are to be congratulated on their comprehensive review of the symptomatology of anxiety states in the Navy (Nov. 13, 1943). This does not materially differ from the symptomatology of anxiety states identified in the Army.

The retention of symptoms alone, which is so prevalent in current literature, is unlikely to advance our knowledge of anxiety states with special reference to their precipitation in certain types under Service conditions. It is important, therefore, to correlate personality types with the relevant anxiety reaction and consider these in conjunction with remote and recent environmental factors. We wonder whether the authors have not confused physiological anxiety with morbid anxiety when they state that "the general result of our observations has been that there is a remarkable capacity for recovery from anxiety states in the average individual endowed and stable individual." We venture to suggest that the average individual does not develop an anxiety state unless predisposed to neurosis, and that otherwise the recovery of such individuals after exposure to various stresses is not in

any way remarkable. The prompt alleviation of symptoms is the most necessary part of any treatment, and the indications for the choice of treatment must be determined by the clinical condition, the intelligence of the patient, and any restricting environmental factors.

We cannot subscribe to the opinion that gastric investigation should be undertaken in all cases of neurotic dyspepsia prior to the psychiatrist being asked to examine them, for the reasons that hospitalization and investigation tend to produce gastric fixation, and psychiatric examination can in many instances positively identify neurotic dyspepsia with consequent economy in time and hospital accommodation.

Sir Henry Tidy (Journal, Oct. 16), writing on peptic ulcers and dyspepsia in the Army, states that "prolonged investigation and minute inquiries tend to produce or increase a psychoneurotic factor, and a man rapidly progresses to the state of being useless as a soldier." This is particularly true of dull highly suggestible patients who are prone to exhibit neurotic dyspepsia, and who, if investigated for a transient gastric disturbance, may permanently imitate all the symptoms which they hear and observe in the wards. The final result may well be a gastric hypochondriasis. We contend that neurotic dyspepsia should be identified by means of positive psychiatric criteria and not by the negative findings of a gastric investigation.

The early diagnosis and suitable treatment of neurotic symptoms is the only effective method of preventing their hysterical elaboration and prolongation. It is hoped, therefore, that too much attention will not be devoted to the investigation of symptoms in that class of case in which prompt recognition of the neurotic constitution is so essential in deciding appropriate treatment.—We are, etc.,

ELLIS STUNGO,
Major, R.A.M.C.
E. P. H. CHARTON,
Captain, R.A.M.C.

A Case of Conversion Hysteria

Sir,—It is encouraging to find an analytical article, however untechnical, in the *British Medical Journal*, and Dr. Kanyard West is to be congratulated on having made his material so interesting, not to say exciting.

One can understand that many omissions were doubtless due to lack of space and need for condensation, but I cannot feel that even this is adequate excuse for the omission of all sexual factors in the aetiology. These factors are relatively specific in all such cases, both psychologically (early sexual trauma, libidinal fixations, inhibitions and regressions) and that in the case referred to the patient is engaged to be married, but is evidently not experiencing normal sexual relationship, with the result that immescence is presumably relatively in excess of detumescence. One can only think that the omission of this important aetiology is in deference to an assumption of general medical bias. If so it seems a pity, as it detracts from the practical and scientific value of this clinical note.—I am, etc.,

CHARLES BERG.
London, W.1.

Scabies and Impetigo

Sir,—Dr. Frewen Moor (Dec. 11) appears to suggest that scabies is commonly transmitted by the communal use of towels. Major Kenneth McIlhenny has investigated this matter, and in his book *Scabies* makes the following statement:

"Communal towels, particularly in schools, have often been blamed for transmitting scabies. I do not think that these are of much importance. In some experiments towels have been used by many hundreds of cases of scabies and later used again by unaffected volunteers without a single instance of transmission."

No doubt Dr. Moor has evidence, equally well controlled, to prove Major McIlhenny's statement is incorrect, and if he will publish such evidence the profession will be much in his debt.

As to impetigo, I imagine that the danger of spread by towels has entered the minds of most dermatologists, even though they may enjoy undisturbed nights, and that they take measures to advise their patients accordingly.—I am, etc.,

A. M. H. GRAY.
London, W.1.

Iodine Deficiency

SIR.—Referring to the letter of Dr. W. Mitchell Stevens, *ibid.*, p. 620, I should like to remark that the Swiss and, a year later, the at-that-time still independent Austrian governments realized the value of iodine in daily food long before the publication of Dr. Stevens's articles and pamphlet. The Austrian Salt Monopoly was selling, since the year 1923, so-called *Vollsalz* (full salt), which contained in each gramme of salt 5 mg. of iodine (consuming about 10 g. daily means for the day 0.05 mg. iodine). The addition of iodine to salt was introduced on the recommendation of the Nobel prize winner Wagner-Jauregg of Vienna, the inventor of the malaria therapy in G.P.I., as prophylaxis of the endemic goitre. He suggested general use and sale of iodized salt as early as 1898, but he himself mentioned that as early as 1852 recommended iodine as prophylaxis against goitre in individual cases. Dr. Stevens should therefore wonder that Dr. Fischler, the "German scientist," did not mention him as the author of the idea. I should like to add that J. Wiesel and J. Kretz (*Wien. klin. Wschr.*, 1928, p. 234), both of Vienna, called attention to the harm caused by the general sale of iodized salt, and that after careful investigations and many interesting debates in the *Gesell. d. Aerzte* in Vienna the order was given to Austria to sell pure salt generally and iodized salt only on demand.—I am, etc.,

Cambridge.

ALBERT BAUER.

Ligature of Innominate Artery

SIR.—Mr. G. F. Langley's interesting article on this subject prompts me to add another case to the recorded instances of its operation. During the last war, when Comyns Berkeley and I were the surgeons-in-charge of the Military Branch of the Middlesex Hospital at Clacton-on-Sea, I had to operate on a soldier who had had two severe secondary haemorrhages from a wound in the root of the neck on the right side. The bleeding came from the first part of the right subclavian artery, and it was impossible to place a ligature proximal to the hole in the vessel: I therefore exposed the common carotid and followed it down. I then cut away part of the sternum and sternoclavicular joint, and then, by means of a ring-forceps, pulled strongly on the carotid until the innominate could be reached. By means of an aneurysm needle I got a ligature of No. 6 silk round it and successfully tied it. I think I was lucky in that the innominate seemed to be unusually long. It is certain that by strong traction on the carotid the innominate can be lifted considerably.

The wound suppurated, but there was no further haemorrhage, and the man left Clacton for an auxiliary hospital quite well except for a sinus discharging a little pus. His subsequent history is instructive. He went from convalescent home to convalescent home, but the sinus refused to heal, and finally he was sent to one of the London base hospitals. The surgeon under whose care he came had no notes of his previous operation and did not know the nature of it. The sinus was therefore explored in the hope of finding a foreign body or an unabsorbed ligature. The result was a terrific haemorrhage of which the man died on the operating table.—I am, etc.,

London, W.1.

VICTOR BONNEY.

SIR.—In pursuance of Mr. G. F. Langley's account of gunshot wound of the innominate artery I think the following case, which occurred in the Far East 25 years ago, should be put on record.

After a midnight brawl with Japanese sailors an American seaman was admitted to the Shanghai General Hospital with a bullet wound in the right side of the neck. He was a short, stocky man, slightly deformed with hunched shoulders, some upper dorsal kyphosis, and a left-handed twist of the head. The bullet entered the neck from behind just above the margin of the trapezius, traversed the occipital triangle, and emerged above the sternoclavicular joint. Very little actual haemorrhage had occurred, but an arteriovenous aneurysm was apparent, springing from the depths behind this joint.

On the following day the swelling had increased in size, reaching upwards to the level of the lower margin of the

thyroid cartilage. As it seemed too hazardous to approach from below, I decided to try the effect of distal ligature, and tied the common carotid and jugular vein above the margin of the tumour. No ill effects ensued, and in two days' time the pulsating swelling was reduced in size by about one-third. For the next two days conditions became rapidly worse, the globular, vibrating mass filling the whole of the right side of the neck. For the first time the man's pluck and dry humour deserted him, the constant noise swirl, and vibration prevented any rest, and immediate intervention was imperative.

The dissection to the lower margin of the tumour was through a mass of seething, frothy, pulsating tissue, quite unrecognizable anatomically. The artery deep below the xiphisternum was isolated and ligatured with strong silk, and almost immediately the huge swelling subsided under one's eyes like a pricked bladder. At the same time pulsation in the brachial and radial pulse ceased entirely, to reappear twenty-four hours later. Recovery was complete without any untoward cerebral symptoms, and in two or three days' time the man was his old humorous and contented self.

My purpose was to find the artery, whatever it was, that entered the aneurysm from below, and, not having removed any bone to reach it, I assumed it to be the base of the carotid. The signs of complete cessation in the subclavian circulation, however, unless due to a sympathetic spasm of the artery, would point to my ligature having been placed below the bifurcation of the innominate artery. The drag of the rapidly expanding tumour on the artery and the kyphotic abnormality seemed to make it possible that this was so, but I hesitate to suggest this case being added to Sir William Wheeler's list of innominate ligations.—I am, etc.,

Guildford

W. B. BILLINGHURST.

Toxic Goitre

SIR.—I should be glad if you would allow me to enlarge on the remarks on toxic goitre in the excellent and concise paper by Drs. Linnell and Thomson (*Nov. 6, p. 574*), with which I agree heartily. Up to 1933 the young and gifted surgeon Prof. A. W. Meyer, Berlin, had operated on 200 cases of thyrotoxic goitre as a rule with previous preparation by a 3-weeks period of rest and of iodine treatment (Plummer). Although many of these cases were in an advanced stage of the disease he had not lost a single case. A number of the patients had been sent to him by myself, and like many other doctors I have since made it a rule to have all cases of thyrotoxic goitre operated whose B.M.R. was raised by more than 30%. In all these more serious cases internal treatment by rest, C.H. diet, or x rays had given poor results. Since then I have seen only one failure of the operative treatment, and that proved to be a cancerous growth in the remainder of the gland leading to the fatal end.

It remains to be seen whether the most recent types of internal treatment will give the same good results.—I am, etc.,

Buxton.

E. M. FRAENKEL.

Medical Boarding for the Merchant Navy

SIR.—I have read Dr. S. H. Waddy's letter (*Aug. 21, p. 248*) with great interest and also those of Dr. Alec Wingfield and Dr. C. E. Sundell in subsequent issues. I feel that these letters are written from two different aspects of the same subject. Dr. Waddy is speaking mainly of malingers wishing to "sign off" who obviously will not go to the Seamen's Hospital but to their own panel practitioner, whereas Drs. Sundell and Wingfield see the genuine sick of the Merchant Navy at this hospital. I have been at sea with the Orient Line for seventeen years and have also held various posts at the Seamen's Hospital, Greenwich, and can therefore speak from both aspects.

The first point that I should like to emphasize is that the problem is different in war from peace. In normal times a man comes to sea for various reasons, but in the main because he wishes to adopt that life, and, having found a shipping company to suit his particular taste, may remain in its service for twenty years or more. These men do not mangle. On the other hand, in war, and increasingly so of late, there is the youngster who has joined the Merchant Navy because of better pay or living conditions than he would get in the Services, who has no interest in the sea or in the shipping company. These are the men who cause the trouble. There seem to me to be two major problems.

1. How to deal, on a national basis, with the man who is totally unfit for sea service and is sick most of the voyage, "signed off" on the return to the United Kingdom, goes on the pool only to return to another shipping company, and so on for the duration? I have had among my crew neurotic, depressed men, who have been invalided out of the Army as unfit for further service, also men with recurrent duodenal ulcer, etc. No short examination by a ship surgeon can avoid these cases being "signed on." My suggestion is medical history cards for every man, which would at least prevent these cases being taken on ships again and again.

2. How are we to deal with the seaman who goes on leave, reports to his general practitioner with some trivial complaint, and obtains a medical certificate of unfitness, and has to be "signed off"? This practice is on the increase, and is not entirely due to true malingering, but often to a natural tendency to "wangle" extra leave on the pool. This voyage, covering four weeks, in a crew of 350 we have had 8 cases of this kind. Sometimes, to my knowledge, in the case of a trivial complaint where the man has previously been my patient, the certificate is inaccurate. In others the certificate should never have been given. For this, blame attaches to the overworked and possibly too sympathetic practitioner. These cases, I think, can only be met by insisting on certificates from medical referees, such as Board of Trade doctors, Admiralty surgeons, Navy or Army medical officers, etc.

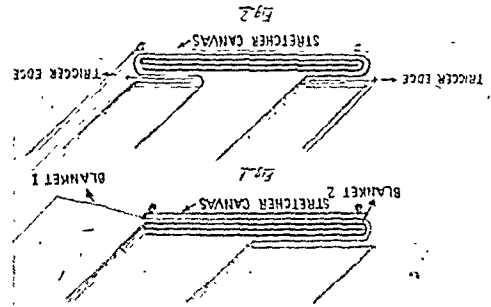
The problem is important, and increasingly so. It is no help to say, as Mr. Greany of the Shipping Federation states in his letter (Oct. 2, p. 435), that ships are not prevented from going to sea by the low physical standard of the crew. This is true, but the ship has to sail, and other members of the crew do the work of the sick and of the men who fail to return owing to "medical certificates." This results in increased genuine sickness, and in prejudice among the rest against the system which allows it—I am, etc.

H. M. ROYDS JONES.

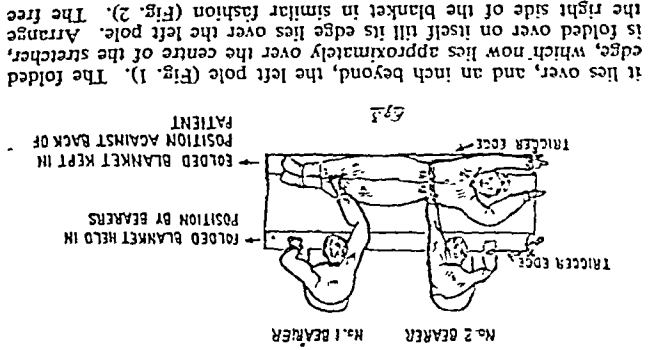
"Load Stretcher by Two Bearers"

Sir,—The following method of loading stretcher when only two bearers are available is suggested as an improvement on the present, generally accepted, R.A.M.C. mode of procedure. The modern trend of first aid is towards simplicity, ease of performance, and economy in personnel—i.e., two bearers per stretcher. The method described renders the task of loading a heavy patient quite an easy matter for two light bearers.

Blankets: Prepare stretcher with two blankets in the usual manner. Blanket No. 1 lies across the stretcher; No. 2, folded in three, lies downwards from shoulders to feet. The lower ends of No. 2 are opened out to provide later cover for the latter. Now carry the left free end of No. 1 across the stretcher and back again till



Position of Blankets



P.S.—Since writing the above I have tested the suggested "load" in the following manner: Two recruits who had joined only a fortnight before with no knowledge of stretcher work, one weighing 9st. 2 lb. and the other 9 st. 3 lb., were asked to load a sergeant who weighs 16 st. 7 lb. Using the above method no difficulty at all was experienced. An attempt to load by the R.A.M.C. method was distinctly a failure.

Agents Provocateurs

Sir,—Mr. Reginald Payne's admirable expose of the nefarious activities of the *agent provocateur* (Dec. 4, p. 725) is strong. Yet on mature consideration it might appear over-lentient toward this most deplorable practice and its instigators. If the desideratum of "mutual confidence between a doctor and his patient" is not always achieved nowadays, it is perhaps because the patient senses that his medical adviser is insidious, a quasi-judicial role, as Mr. Payne has pointed out. But this aspect of the doctor's work is merely emphasized by wartime conditions of life and work. Where he has to grant or withhold a certificate of a consequential nature, the conscientious medical man is always alive to his legal status and responsibilities, and tries fully to understand and justify to determine as the issue between the patient and his employer, or the State, as the case might be; a *fortiori* he will do so in time of war. In return for this service to the community, is he not entitled to expect that the evidence laid before him will be substantially true? Ought it not to be an offence to fabricate evidence for the purpose of getting a certificate under the National Service Acts or even the N.H.A. Act?

The honest G.P. will own frankly that he often gives a certificate without examining the patient properly, for the proper examination so often demands the use of apparatus he has not got and the co-operation of colleagues not to hand. If a man makes out anything like a *prima facie* case for a duodenal ulcer (albeit verbally, with no physical signs) is he to be refused his note pending the x-ray examination and the test-meal? Shall we be influenced by the fact that he may easily be a malingering who has conned his symptom-complex from some simple book on medicine for the layman? The judge or magistrate would admit that he has to make a hot of "interlocutory injunctions" or "provisional orders" before he has fully gone into the rights and wrongs of a case. In practice there may be little to be feared. The *agent provocateur* will always have to be a new case in a stranger's

I fortunately we know at least 95% of our human material in a given individual can roughly gauge the "coefficient of exaggeration" (if I may coin the phrase) and duly allow it. But in principle the thing is all wrong. It becomes Executive that shows such a complete failure to understand true doctor-patient relationship to be proposing the imposition of an autocratic control over and management of medical transactions. A few more cases like this one and Government will have alienated its most fervent supporters control within the ranks of the profession. Such a policy will do more than all the resolutions of committees and references to dispel the last fond hankerings after the projected State Medical Service.—I am, etc.,
Birmingham.

PETER PARRY.

The Army's Steel Helmet

SIR.—There have recently been several references in the lay press to the future issue of a more efficient steel helmet for the armed Forces. The issue of this new-pattern helmet seems long overdue. The present type was introduced in the 1st war to give protection against falling shrapnel—i.e., rounded steel balls which were discharged when the shrapnel shell burst in the air. This type of shell is now obsolete, and the present need is for protection against bomb and shell fragments moving more or less horizontally. For this reason a design of helmet that affords protection to the side of the head and the back of the head and neck is essential.

The brim on the present old-fashioned helmet was useful against small objects falling nearly vertically, and is still useful to the police, wardens, and others who have to be out of doors in a heavy anti-aircraft barrage. But in the front line there is the danger that blast from shells or bombs bursting on the ground near by may get under the brim and throw the helmet forcibly upwards, causing injury to the neck by action on the chin-strap. As the old-fashioned helmet is worn high up on the head it is liable to fall off during violent combat.

It is to be hoped that a large-scale issue of the new-pattern helmet, in which the old faults are eliminated, will be made with the least possible delay. The present intention, so far as can be learnt from Press reports, is to withhold the new helmet until an individual's present one becomes unserviceable. As a steel helmet does not ordinarily wear out, the present policy would appear to delay unnecessarily an obvious protective policy. It would be of interest to know the views of cranial surgeons on the necessity for the rapid large-scale issue of the new-pattern helmet, which remedies the defects of the old model.—I am, etc.,

London, W.1.

CLEMENT FRANCIS.

Pre-Nazi Medicine in Vienna

SIR.—As a native of Vienna who worked there in hospitals and in general practice for some 20 years may I be allowed to ask Dr. Alan Maberly (Nov. 20, p. 661) what he means by "State medicine in action in Socialist Vienna"?

There were in Vienna nine hospitals under State administration. One big general hospital, several children's hospitals, some other institutions, and welfare centres of various kinds were run by the city administration. A number of hospitals were private—you may call them voluntary institutions—on a non-profit-making basis. Save in a few private hospitals the whole staff were salaried, but the chiefs of the departments and senior assistants were allowed private consultant practice.

I found no difference in the treatment of the patients as human beings either here or there. I wonder where Dr. Maberly found his "Case No. 793." There was nothing like that in my time, and no patient was referred to by a number. As a matter of fact, in all my 13 years of hospital practice in Vienna we used to call the patients by their names; no number was ever known to me, though, of course, each case had to have a file with a number, but this was no concern of either doctor or nurse. The treatment was the responsibility of the senior, without any outside interference. Not even the director of the hospital, though a medical man himself, had any say in the treatment.

There was certainly no "State medicine" in general or specialist practice. It was either private or health insurance practice, which latter included all specialist and ancillary

services as well as institutional treatment. Thus the health insurance patient could see the specialist without cost to himself, either in the specialist's rooms or in certain clinics arranged by the H.I.; and, of course, the specialist could be consulted at the patient's bedside, if necessary, at H.I. expense. Therefore the out-patient departments of the hospitals were not overcrowded. Co-operation between G.P., specialist, and hospital was smooth and easy; there was never any difficulty about seeing the senior surgeon or physician at his round at hospital. Operations were arranged, when desired, at a time convenient to the G.P., and in any case he was invited by telephone. The family doctor was thus in a position to follow up his patients at all stages, for the mutual benefit of patient, doctor, and hospital staff. True, this smooth co-operation was only possible because the average doctor in Vienna was not so overworked as his British colleague, and usually there was no morning surgery occupying the better part of the morning.

As to the political side, the Government of the Republic of Austria, which controlled the nine State hospitals, was never Socialist, though for a short time, in a Coalition Cabinet, the Socialist Prof. Tandler was Under-Secretary of State for Health. He was later, as an alderman, responsible for the health services of the City of Vienna, which included, as mentioned above, a fraction of the hospitals only. His work in this sphere was undoubtedly to the credit of the Socialist administration which was then in office.

I am grateful for Dr. Maberly's kind remarks about the Viennese doctors and surgeons, but cannot see his point in comparing them with tax collectors. I felt it a duty of gratitude to my old teachers, as well as to this hospitable country, its splendid medical men and women, and its admirable people to correct a slight misconception.—I am, etc.,

Birmingham.

E. REICHENFELD.

Medico-Legal

FRACTURE OR PERTHES'S DISEASE?

In a case which came before Mr. Justice Oliver at the Leeds Assizes on Nov. 24 Mrs. Wheeler claimed damages against Dr. F. J. Stevenson on the ground of his alleged failure to diagnose a fracture of the neck and head of the femur following an accident when she was knocked down by a motor car in January, 1937, and after receiving emergency hospital treatment for injuries to the head and bruising of the right hip, came under the care of Dr. Stevenson, her panel doctor, who attended her for a period of about three weeks. She further alleged that his failure to recognize the condition or advise x-ray examination resulted in the fracture remaining undetected until March, 1943. At the time of the accident Mrs. Wheeler was aged 27 years.

The defence, which was undertaken by the London and Counties Medical Protection Society, claimed that the plaintiff had never suffered a fracture and that her condition was due to another cause—namely, Perthes's disease (osteochondritis deformans juvenilis; pseudocoaxalgia).

Mrs. Wheeler stated in her evidence that she complained of pain in the hip to Dr. Stevenson, that he examined her hip once or twice and told her she could get up. When she did so her leg was stiff and her hip painful. Before she returned to work she again saw Dr. Stevenson as her hip was painful, and he told her it was rheumatism. She continued at her work until 1938 when she married, and although she had continued pain she did not consult a doctor until 1942. It was then, as a result of x-ray examination, that she was told that she had an old fracture of the neck of the femur, impaction of the head of the bone, comminution of the head, and there appeared also to have been a fracture of the roof of the acetabulum.

Mrs. Wheeler called Mr. R. Broomhead, F.R.C.S., Dr. J. A. Thomson, and Dr. W. A. Rowden. The Society, on behalf of Dr. Stevenson, called Sir Charles Gordon-Watson, F.R.C.S., Dr. H. K. Graham Hodgson, and Brigadier W. Rowley Bristow, F.R.C.S. Brigadier Rowley Bristow, in his evidence, said he considered the x-ray photographs revealed evidence of long-standing abnormality in the hip-joint which had occurred during growth. He saw no evidence of a fracture. His evidence was supported both by Sir Charles Gordon-Watson and by Dr. Graham Hodgson.

In his judgment Mr. Justice Oliver said that the plaintiff had to satisfy him on two points: (i) that the doctor was negligent, and (ii) that as a result she had suffered damage. He went on to say that if the plaintiff satisfied him as to negligence he was quite satisfied that she had suffered no damage. He was quite satisfied that

Dr. JESSIE MILLNER CAMPBELL GRAY, a veteran medical missionary, died suddenly at her home at Church Streeton, Shropshire, on Dec. 6 in her 85th year. Dr. Gray was the eldest of seven daughters of the Rev. A. C. Gray, for many years a Baptist minister of Lewisham. She was a student at the London School of Medicine for Women from 1888 to 1892, when she graduated L.R.C.P. & Ed., L.R.F.P.S.O. & Glasg., and proceeded to the mission field in India. The first post in connexion with the Zenana Bible and Medical Mission was at the Victoria Hospital, Benares, of which later she became the head. She was in charge of hospitals for women at Patna, Lucknow, and Nasik. While on furlough in 1916 she studied recent improvements in the treatment of tuberculosis and returned to take charge of the sanatorium for tuberculosis at Alimora. At the age of 70 she retired to England, but at the urgent request of the Society for the Propagation of the Gospel she again returned to India to take charge of St. Columba's Hospital, Hazaribagh, until her health failed a year or two later. Dr. Jessie Gray was a woman of great determination and strength of character. Her whole life was devoted to her work in India, where she left many devoted colleagues and friends.—R. W.

UNIVERSITY OF DUBLIN

The following candidates have been approved at the examination indicated:

M.B., B.Ch., B.A.O.—W. E. C. Allt, W. H. Ashmore, Mary B. Kelly, H. Links, Mary E. G. Millidge (formerly Fleming), I. B. O. Ogun, O. Onibwe, Margaret S. O'Riordan, A. K. D. Rutherford, Sheila Sheehan, D. H. Siddons, J. T. Sweetnam, A. P. Whyte, F. B. B. Woods.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a meeting of the Council held on Dec. 9, with Sir Alfred Webb-Johnson, President, in the chair, Sir Girdling Ball was appointed Bradshaw Lecturer for 1944.

Diplomas of Fellowship were granted to the following candidates:

R. B. K. Risford, G. Wynn-Williams, K. W. Powell, G. B. Jones, M. D. M. O'Callaghan, D. MacG. Jackson, B. P. Moore, A. G. Leacock, H. E. Lockhart-Mummery, R. Bewick, C. R. Rapp, H. D. Drury, W. G. Holdsworth, A. D. McLachlin, O. B. Dickinson, R. A. Christianson, Margaret R. Dix, J. D. T. Jones.

A Diploma of Membership was granted to T. A. Quilliam.

Diplomas in Anaesthetics were granted jointly with the Royal College of Physicians of London to the following candidates:

G. Bellman, J. Sauter, J. A. Cochrane, Doreen M. E. Cranch, J. M. Cribb, H. W. Davies, R. G. B. Gilbert, L. M. Hampson, R. L. H. Harris, K. O. Harrison, Margaret Hawksley, R. A. C. Herron, J. T. Hunter, R. S. Kay, Rosalind S. McGowan, Dorothy B. J. Montgomerie, F. L. E. Musgrove, A. Pearlman, J. M. Pusey, E. N. D. Repper, Alison Ritchie, W. M. Shearer, R. G. Sheppard, W. J. Stevens, S. V. Strong, Helen M. Wood, J. W. Woodward.

Medical Notes in Parliament

Medical Officer at Detention Barracks

Major GATES inquired on Dec. 14 whether any decision had been reached with regard to the medical officer in charge at Fort Darland detention barracks immediately before the death of Rifleman Clayton.

Sir JAMES GRIGG replied that immediately after the death of Clayton on March 17 arrangements were made for a court of inquiry to investigate and report on the cause of his death. It reported that Clayton had died from natural causes, but that his death was accelerated by ill treatment and injuries which he had received. A separate second court of inquiry set up to inquire into the medical aspect of the case found that the medical officer at Fort Darland had made an error of judgment in the diagnosis of the case after carrying out a full examination of his patient, but that he was not guilty of negligence. This opinion was confirmed by the Director-General of Army Medical Services and the Consulting Physician to the Army. Sir James Grigg said he had accepted this opinion.

The report of the Oliver Committee was published on Nov. 22.¹ Its recommendations had been and, to some extent, still were being examined. They had all been accepted in principle, and most of them were being implemented.

Sir James Grigg circulated a statement showing the progress so far made in implementing the recommendations of the committee which concerned the Army. On the recommendation that a whole-time medical officer should be appointed for each establishment and that changes of such officers should be infrequent, the statement said that with the present shortage of doctors it was impossible to implement this recommendation in full now. Steps had, however, been taken to ensure that a medical officer was immediately available at each establishment if required. Medical officers were, however, attached for full-time duty at the larger detention barracks, of which Fort Darland was one. The committee also recommended that sick quarters should be provided in all establishments where they did not exist, and the statement said that "a full report on detailed requirements to implement this recommendation has been called for from the Commands concerned." Finally, the necessary improvements in night sanitary arrangements were now being carried out.

Medical Man-power

On Dec. 7 Sir RALPH GLYN asked the Minister of Health to consult the medical committees of the London general hospitals as to steps to be taken to meet the most recent requirement of doctors to join the Services. Mr. WILLINK said his medical officers would, as always, consult with, and so far as possible advise, any hospital in special difficulty with regard to medical staff. The decision to accelerate the recruitment of a certain number of recently qualified doctors holding house appointments in hospitals affected far less than half the total of doctors

holding such appointments, although in individual hospitals the proportion could be as high as one-half of the house officers. The recruitment referred to should not result in depriving civilian patients of essential treatment. Special arrangements were being made whereby the doctors would not be required to take up duty with the Forces for a few weeks. In addition, the Service Departments were prepared, on the request of Ministry of Health officers, to make the services of their medical officers available so far as possible to hospitals in urgent need of such assistance. The average number of civilians per general practitioner was rather under 3,000 over the country as a whole.

Water Supply Survey

On Dec. 7 Miss HORSBROUGH informed Mrs. Wright that it was the duty of every local sanitary authority to take such steps as were necessary from time to time to ascertain the sufficiency and wholesomeness of the water supplies in their district. The systematic long-term measurement of water resources was a matter for the Inland Water Survey, whose work consisted of recording, collating, and publishing measurements of the flow of rivers, and, in conjunction with the Geological Survey, estimates of yield of underground sources. The activities of the Inland Water Survey had been generally suspended during the war, since the central and local personnel concerned had necessarily been engaged on work more closely related to the war effort.

Reorganization of Medical Services

On Dec. 8 in the House of Lords Lord Addison opened a debate on the problems of reconstruction. He moved that the House welcomed the appointment of a Minister of Reconstruction—Lord Woolton—with Cabinet rank, and urged early announcement of decisions on the matters of policy affected.

When the debate was resumed on Dec. 9, Lord HORDER said that Lord Addison, in discussing the province of the Ministry over which Lord Woolton now presided, had not mentioned health services. In that matter they were back at scratch after a first start which had not been too happy. He understood for these services they had not to look primarily to the Ministry of Reconstruction but to the Ministry of Health. For the medical profession Lord Horder offered Mr. Willink the utmost help in his difficult work. He wished to correct an erroneous assumption about the attitude of doctors toward Assumption B of the Beveridge report. That assumption was that all preventive and curative medicine, knowledge, and skill would be available to every citizen. Lord Horder said he spoke for no official body of his profession, but he felt that, as a profession, doctors were anxious to assist in implementing that assumption, which had received in principle the Government's support. For Lord Woolton to suggest policy in this matter of reorganizing the medical services would be a great help. He was satisfied there would be conference and suggestion about the reorganization. To begin with the machine rather than with the man who drove the machine might be more fruitful of results. With regard to the machine, the voluntary hospitals were a large body of highly efficient, well-administered institutions. Team work was based on hospitals, not on individuals. Until there was a proper linking from the domiciliary medical service up to and including the large teaching and research centres based on a university, a large part of the doctor's time, especially of the country doctor, would continue to be absorbed in making the necessary contact to get what he knew his patient required. The body of knowledge and skill in medicine could never be made available to the citizens until the machine was improved by regionalizing hospitals. Doctors had pressed for years that dependants of the workers should be included in the National Health Insurance scheme. "Health centres" and "preventive medicine" were becoming a cliché, but they were doing nothing about positive health. Peckham, the pioneer health centre, had gone into cold storage, but what had been done at Peckham should be a national effort. By regional hospitals, by centres for dealing with positive health, and by expanding the National Health Insurance scheme to include the dependants, reorganization of medical services could be obtained more quickly and with less bitterness of heart than by saying to the doctor, "We wish you to be a civil servant." He thought the public now shared the feeling that it would not be in the public interest to convert the medical profession into a civil service. But if Parliament was going to hand voluntary hospitals and doctors to local authorities, should not something be done first to prepare local authorities for exercising these new powers and availing themselves of these new opportunities? Quite early in the conversations there had been a feeling that a spirit of partnership was not shown between those who stood for the local authorities and those who stood for the fortunes and for the efficiency of the voluntary hospitals. So the conversations broke down. Now they were back at scratch, and a great opportunity existed for

¹ See *British Medical Journal*, Dec. 11, 1943, p. 764.

The new Ministry of Health, with the suggestions and even guidance of the Ministry of Reconstruction, announced that the primary responsibility for housing would continue to rest with the Ministry of Health.

Influenza Epidemic

In reply to Mr. Douglas on Dec. 9 Mr. Willink said: "Arrangements have been made with the Services for temporary transfer of the call-up of doctors. I have, in consultation with other Departments and with voluntary organizations, considered what can be done to assist, particularly in regard to medical and nursing services, special help in the home, and arrangements for meals. I am issuing a circular informing local authorities of this action and making suggestions for their guidance."

Parliamentary Medical Committee

On Dec. 9 the Parliamentary Medical Committee met at the House of Commons and elected its officers: chairman, Dr. A. B. Howitt; vice-chairman, Sir Henry Morris-Jones; hon. secretary, Mr. Hugh N. Linstead; representatives on the Central Medical War Committee, Dr. Haden Guest; hon. treasurer, Sir H. Morris-Jones. Sir H. Morris-Jones becomes hon. treasurer for the fourteenth year.

World Problem of Adequate Food

During the debate on reconstruction in the House of Lords on Dec. 10 Lord SOUTHWOOD said that it was conceded that in the years before the war about half the children in this country and more than a quarter of the adults were not properly fed. Since then considerable improvements had been made, but the world as a whole, 50% of the people lived on inadequate diets. In Asia the underfed amounted to 75% of the population. The problem was a world one, and its solution must be international. He urged the Government to plan for increasing foodstuffs. All families should be in a position to have liberal supplies of milk, eggs, fruit, dairy produce, and other health-giving foods. The Government should include an educational campaign on food in its post-war plans. No. 1 priority should be milk.

Surgical Staff of Central Mediterranean Forces

Sir James GRICE on Dec. 14 assured Mr. Barile Bull that the surgical staff in the hospitals of the Central Mediterranean Force was sufficient to deal with the casualties. He was satisfied that the universal short-rotation of doctors the Army could not have as many doctors as age of doctors. When Armies moved across the seas, as in the case of the Forces which invaded Sicily and Italy, hospitals were established on the other side. Sir James added that he was unaware that at one hospital of the C.M.F. there were only one or two surgical specialists, who were responsible for over 2,000 beds, with an average of 900 surgical cases.

Price of Insulin.—Miss HONSBROUGH, in reply to Mr. Alfred Edwards, said Mr. Willink was not aware that materials used for treatment of special diseases prescribed by doctors under the N.H.I. were exorbitantly priced and, in one case, rose from £1 10s. to £1 15s. The price of these glands was considerably higher than the price of the raw material itself, which had fallen very much since insulin was introduced in 1923 and was not now much higher than just before the war. Mr. Willink did not see any necessity for instituting control of such material.

Resentment of Disabled.—The arrangements for interviewing men and women who are discharged from the Forces on medical grounds or because of disability include interviews at hospitals and other invigilating establishments as well as at employment exchanges. Special medical advice as to the individual's condition and as to the most suitable kind of occupation. All local offices of the Ministry have full particulars of the training and other schemes designed to assist the satisfactory resettlement of persons suffering from any form of disability, whether as the result of service with the Forces or from other causes.

Conscription for Work in Mines.—Mr. ERNEST BEVIN announced on Dec. 2 that it would be necessary to call up men for the coal mines in the same way as they were called up for the Armed Forces. A scheme for the selection of men for this purpose had been worked out from other causes.

Medical News

The American Pharmaceutical Manufacturers' Association has made its Award of Distinction for the year 1943 to Prof. H. W. Flory for his study of penicillin as a therapeutic agent.

At a meeting of the Clinical Society of the Royal Eye Hospital to be held at the hospital on Friday, Jan. 14, at 4.30 p.m., a talk will be given by Mr. Frederick Ridley on "The Tears."

Wing Commander Kenneth Robson will give the Goulstonian Lectures before the Royal College of Physicians of London on Jan. 13, 18, and 20, at 2.30 p.m., at the College, Pall Mall East.

Dr. T. Simpson Crawford, medical officer of the Welshpool Road first-aid post, Glasgow, has arranged a series of popular lectures for the present winter and until next June with the theme and subject of both subjects and lectures. The syllabus is evidence of actual war, though he has given to the choice of both subjects and lectures. There are, of course, lectures on certain aspects of actual war, but other subjects include plastic surgery (Mr. T. Gibson), brain surgery (Mr. J. Sloan Robertson), anaesthesia (Dr. Alex. Forrestier), fracture and rehabilitation clinics (Mr. James Fairclough), immunity (Dr. A. Miller), sick children (Dr. Finlay Ford).

Medical officers of health are asked to supply the Ministry (on Form T.147) with the necessary particulars of all male persons born in the year 1926 who have a history of tuberculosis.

The Ministry of Health and the Department of Health for Scotland announce that in view of the influenza epidemic the Ministry of Labour and National Service has agreed to a temporary suspension of the call-up of pharmacists and dispensers to whom an enlistment notice has not already been issued.

The Pharmaceutical Society of Great Britain announces the arrival in this country from North Africa of a cargo of red squill for killing rats. Other shipments are said to be following the first. Our use of medical students. The books were collected as a result of an appeal issued in the medical and lay press by the vice-president of the Students' Representative Council at the University of Valencia. The Association has received the thanks of the Secretary of State for the Colonies for its help to the medical students of Malta. Dr. F. Y. McKendrick, Southland, has been commended for brave conduct when an aircraft crashed and caught fire.

Dr. M. M. Walker, resident medical officer at the Winchester Emergency Hospital, has been appointed to the Colonial Medical Service as assistant medical officer in the Kingston Public Hospital, Jamaica.

Dr. Edward A. Stuecker has been appointed special consultant to the Secretary of War for the Air Forces of the United States Army.

Notes in Brief

They were finally posted to a colliery.

Far as possible this would be done at the training centre before reasons why he was not fit for coal-mining. Arrangements would also be made for men to be medically examined again at a later stage.

Facilities for mass radiography are to be made available in Yorkshire so far as is at present practicable in view of wartime limitations on the manufacture of apparatus required for this system. One unit is being sent to Leeds almost immediately, and another to go to Sheffield within the next few months.

The increases in the number of men over 65 during each of the past two years have been estimated at about 50,000 and 60,000 respectively. Comparable figures for women over 60 are about 93,000 and 102,000, and 2.9%, respectively.

Proposals for providing additional beds for tuberculosis cases in Liverpool by an extension of one of the corporation's hospitals have been approved in principle by the Minister of Health. Plans for the extension are under immediate consideration.

The Pharmaceutical Society of Great Britain has completed arrangements for sending from London a representative collection of 49 volumes to form the nucleus of a pharmaceutical library for the Pharmaceutical Society of China, which, since last year, has its headquarters at Hsinchia, Chungking.

The Spanish Cultural Institute at Buenos Aires has recently dedicated a histological laboratory to the memory of Ramon y Cajal under the direction of Prof. Ortega, one of his pupils.

Dr. Eugenio A. Galli has been appointed president of the National Department of Hygiene of Argentina.

The Ophthalmological Society of Egypt (42, Kasr El Ainy Street, Cairo) has drawn up regulations for the award of a gold medal for the most valuable contribution brought up before its annual congress.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In England and Wales the prevalence of the various infectious diseases changed considerably during the week. Only pneumonia and influenza showed rises in incidence, notifications of the former mounting by 644 cases, and deaths due to influenza increasing by 334 cases to a total of 709. Influenza deaths for the week ending Dec. 11 totalled 1,148. Falls were recorded for scarlet fever, by 463, diphtheria by 122, measles by 67, and whooping-cough by 43.

Influenza.—The largest rises in influenza mortality were those of London from 29 to 72 deaths, and Birmingham from 20 to 57. In Manchester 47 deaths were registered, an increase of 3. The largest totals in the remaining towns were Leicester 19, Liverpool 18, Rochdale 18, Nottingham 17. The greatest rises in the notifications of pneumonia were those of London 83, Middlesex 66, Lancashire 59, Yorks West Riding 58, Essex 56.

Notifications of scarlet fever fell in Middlesex by 80, Lancashire by 68, Yorks West Riding by 54, and in Essex by 36. The decline in diphtheria was fairly general: three counties—Lancashire, Yorks West Riding, and Durham—accounted for 37% of the total notifications. The chief local variations in the incidence of whooping-cough were declines in Yorks West Riding by 56, and London by 30, and an increase in Staffordshire of 30. In contrast to the general trend, the only variation of any size was an increase of 26 cases of measles in Cambridgeshire; they all occurred in Newmarket R.D.

There were 3 fewer notifications of dysentery than in the preceding week. There were no fresh outbreaks of any size, but increases were recorded in existing outbreaks. In Yorks West Riding, Harrogate M.B., the cases rose from 2 to 14, and in Caernarvon, Conway M.B., from 1 to 15. The other principal centres of infection were London 31, Kent 12, Middlesex 10.

In Scotland there were rises in the notifications of acute primary pneumonia 87, and of dysentery 14. Decreases were recorded for scarlet fever 72, diphtheria 27, whooping-cough 20, and cerebrospinal fever 9.

In Eire an outbreak of measles in Kilkenny, Thomastown R.D. 20 cases, was responsible for the increase in this disease.

Quarterly Returns for Eire

During the September quarter the number of births were equivalent to a rate of 22.4 per 1,000 of the population, this rate being 1.5 below that for the third quarter of 1942 but above the rate for the September quarters of the preceding years. Infant mortality was 71 per 1,000 registered births, the highest figure for this quarter during recent years, and was 14 more than the rate for the third quarter of 1942. The general death rate, 12.2 per 1,000, was also the highest for recent September quarters; during 1938–42 the rate varied between 11.4 and 11.7. 551 deaths were attributed to the principal infectious diseases, compared with an average of 344 for the third quarters of 1938–42. The principal causes of deaths from infectious diseases were infantile diarrhoea and enteritis 385, whooping-cough 74, diphtheria 72, the average for the five preceding third quarters being 224, 43, and 44 respectively. Deaths from pulmonary tuberculosis numbered 739 and from other causes 172, compared with 804 and 154 in the September quarter of 1942 and 651 and 166 for the average of the third quarters of 1938–42.

The Week Ending December 11

The returns of infectious diseases in England and Wales during the week included: scarlet fever 2,564, whooping-cough 1,641, diphtheria 634, measles 444, acute pneumonia 2,956, cerebrospinal fever 77, dysentery 166, paratyphoid 2, typhoid 5. The deaths attributed to influenza in the great towns rose by 439 to 1,148.

No. 43

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Dec. 4.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	60	5	21	—	2	73	9	19	2	9
Deaths	—	—	—	—	—	—	—	—	—	—
Diphtheria	610	29	161	101	50	1,011	42	234	84	33
Deaths	21	1	3	2	1	22	2	3	6	—
Dysentery	144	31	58	—	—	191	14	52	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	3	—	2	—	—	3	—	2	—	—
Deaths	—	—	1	—	—	—	—	—	—	—
Erysipelas	—	—	56	8	2	—	60	10	3	—
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	46	5	8	11	5	55	8	10	51	3
Deaths	—	—	—	—	—	—	—	—	—	—
Measles	451	32	66	49	1	11,205	415	523	31	27
Deaths	—	—	—	—	—	15	1	2	1	—
Ophthalmia neonatorum	52	2	16	—	—	73	2	20	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	2	—	2	—	—	5	—	2	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza*	2,291	204	84	5	6	390	77	6	2	3
Deaths (from influenza)	709	72	50	4	3	33	6	1	—	—
Pneumonia, primary	—	—	413	28	15	—	—	185	30	—
Deaths	—	161	—	—	—	—	—	—	11	11
Polio-encephalitis, acute	1	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Polio-myelitis, acute	4	—	—	2	—	11	1	—	18	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	2	10	—	—	—	1	18	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia†	136	7	18	—	—	145	7	14	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	2,694	219	330	27	104	2,900	146	378	75	69
Deaths	5	1	—	—	—	3	—	1	—	—
Smallpox	—	—	—	—	—	—	—	0	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	8	—	2	7	—	4	1	2	6	—
Deaths	1	—	—	1	1	2	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough	1,757	133	205	26	30	1,195	60	33	79	9
Deaths	16	2	1	—	—	8	—	—	2	1
Deaths (0–1 year)	425	24	83	40	22	353	40	70	41	13
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	8,031	1,352	360	246	153	4,816	742	662	226	116
Annual death rate (per 1,000 persons living)	—	—	19.4	16.2	—	—	14.9	15.1	—	—
Live births	5,731	663	338	369	223	5,767	691	322	365	246
Annual rate per 1,000 persons living	—	—	17.1	24.3	—	—	17.0	24.4	—	—
Stillbirths	169	23	—	—	—	221	21	28	—	—
Rate per 1,000 total births (including stillborn)	—	—	—	—	—	—	33	—	—	—

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The

EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE,

LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are under-

stood to be offered to the British Medical Journal alone unless the contrary

be stated.

Authors desiring REPRINTS should communicate with the Secretary of the

Journal Board, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1, on receipt of

proofs. Authors overseas should indicate on M.S.S. if reprints are required.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours

9 a.m. to 5 p.m.). Members' subscriptions should be sent to the Secretary

of the Association.

REPRINTS No. B.M.J. : EUSTON 211.

Advertising Addresses—EDITOR, ALLOY WESTERN, LONDON: SECRE-

TARY, MEDICAL WESTERN, LONDON. ADVERTISEMENTS, ARTICLE

WESTERN, LONDON.

B.M.A. SCOTTISH OFFICE: 7, DRUMSHUGH GARDENS, EDINBURGH.

ANY QUESTIONS?

Serum Sickness from A.T.S.

Q.—A boy aged 5½ cut his foot badly while digging in the garden and was therefore given 2 c.c.m. of tetanus antitoxin. Confirmed irritation and lid oedema in one eye developed within half an hour of the injection, and four or five days later there was a sharp attack of serum sickness. Presumably the immediate reaction was due to immunization against diphtheria four years before, when I believe toxoid-antitoxin floccules were used. What will be the risks if serum has to be given again and how could they be forestalled? Would anything be gained by active immunization against tetanus?

A.—What type of tetanus antitoxin was used? Broadly speaking,

there are three types of antitoxin: (a) Unaltered blood serum of

horses immunized against tetanus. This was in common use many

years ago; perhaps three-quarters of the patients receiving this

suffered from some form of reaction, "serum sickness." (b) "Con-

centrated antitoxin." About 30 years ago it was discovered that

by the use of salt—mostly ammonium sulphate—one could remove

much of the protein of serum without any great loss of antitoxin,

and so "concentrate" the antitoxin. By its use the incidence of

serum sickness was reduced to perhaps 20 to 40%. (c) Enzyme-

and Parfenyev in the U.S.A. described in medical journals methods

of "protein disaggregation" or partial digestion. By treatment with

ferments such as pepsin these authors could get rid of further

relatively useless protein, and alter the antitoxin-containing protein.

The incidence of reaction caused by this anti-

toxin is very low, perhaps 1 to 4%. Teachers in large fever hospitals

often find it difficult now to discover in their wards a single case

of "good serum rash" for demonstration.

Natural antitoxin serum (a) is now of honoured historic interest.

Antitoxin b, owing to early war excess demand, is probably still

in circulation. Antitoxin c has no readily recognizable common

name. Probably "enzyme-treated" would be the best designation;

but titles like "refined," which was at one time applied to b, are

in use. Though c is not entirely devoid of the ability to "sens-

itize" a patient, its liability to do so is so low, and the volume con-

centrating the prophylactic dose is so small, that its use, but for war

emergencies, would have become almost universal. If the doctor

feels compelled ever again to give this boy serum of any kind,

he would be wise to use enzyme-treated antitoxin.

What would be the risk if serum has to be given again? Obviously

a dogmatic statement can be made or rigid rules stated. The

... often quoted for anaphylactic death after serum is about

from their records believe that the incidence is much lower and

that the figure should be in the millions). In some of these fatal

cases there had been a previous history of reaction after serum,

but there does not seem to be any large collection of figures showing

the risk of recurrence of undesirable or dangerous serum reaction.

Most physicians would be chary of giving antitoxin a second time

to a patient with this history. If it became unavoidable, probably

the wisest course would be to inject intramuscularly a small amount

of serum—e.g., 0.1 c.c.m.—and wait a short time, perhaps an hour,

insistently available whenever serum is being injected. Would active

immunization against tetanus be an advantage? The evidence

strongly suggests that active immunization gives a high degree of

protection, though this may not be adequate in all circumstances.

The risk of tetanus in peacetime civil life in England is so small

that it is doubtful if ever a great demand for immunization will

arise, though a recent American writer speaks of the increasing civil

demand there

If the boy is not Schick-negative, prudence would insist that he be immediately immunized against diphtheria with A.P.T. (not T.A.M., or T.A.F.) and tested later to ensure that he is Schick-negative. Also, a "reinforcing" dose of A.P.T. two or three years later would be wise. If permanently Schick-negative, the boy should never need diphtheria antitoxin.

Q.—As a country doctor I meet with numerous wounds, large and small, which may be infected with tetanus. I give a prophylactic dose of serum when I have any fears in the matter. Naturally the same patient turns up after an interval with some new damage sustained on the farm, and perhaps need to have another prophylactic dose of A.T.S. well after the period has elapsed for sensitization to take place. One patient who had such treatment recently developed a very severe rash, with itching, shivering, and malaise, one week later, for two days. She had had two prophylactic injections of tetanus in life, at very long intervals. What danger exists of anaphylaxis in such cases, more especially in those who have had more than one previous injection? Can illness arise after one week or two dangerous, and can it be prevented?

A.—The problem described allows of no completely satisfactory solution. It is conceivable that danger may arise even after the exclusive use of enzyme-treated serum, but experience suggests that it is rare. Even with the old-fashioned salt-concentrated antitoxin, the risk of dangerous reaction and anaphylactic symptoms or even severe muscle have been very small. The present writer (though I cannot trace the record in what the war has left of his papers) once knew of a large hospital in the U.S.A. which, after several cases of diphtheria among the nursing staff, made a practice of injecting monthly prophylactic diphtheria antitoxin into all its nurses. Though these repeated injections went on for a long time, probably with the discovery of active immunization, there had been no serious fatal cases of anaphylaxis at the time the data became available.

Orchitis of Mumps

Q.—If there is substance for the assertion that the contracting of mumps in adult life impairs fertility, what measures, if any, can be taken with regard to this in the diffusion of immunity either from

infecting mumps or from such a result?

A.—Orchitis is the commonest complication of mumps and occurs in 15 to 30% of affected young adults, among whom the infection commonly occurs in epidemic form during wars. As a rule only one testis is affected, but even when both are involved loss of fertility due to testicular atrophy need not follow. Though orchitis rarely the infertility of mumps is low, the abnormal conditions in the Services make it almost impossible for the young adult to avoid exposure during an outbreak. In civilian life the young father should avoid intimate contact with his infected family. Infection is by direct droplet spread during the early stage of the disease. Consequent serum, used as in measles, has given inconsistent results. Any male adult who becomes infected should immediately go to bed and rest for 10 to 14 days in order to lessen the risk of complications. If orchitis develops, usually in convalescence but sometimes earlier or even as the first symptom, the serum is supported with a suspensory bandage, and cold compresses, glycerine of boric acid or lead and opium fomentations, are applied. If the swelling is very pronounced or if both testes are involved, multiple puncture of the tunica albuginea may be done to relieve tension and thus avoid subsequent testicular atrophy. Indeed, for such cases Westphal and Vose (*New Engl. J. Med.*, 1942, 287, 217) recommend exposure of the swollen organ and incision of the tunica albuginea. This gives immediate relief and is followed by a rapid fall of temperature. Operation should be done early before the inflammation has reached its height, but is recommended only for the severe fulminating case.

Q.—I have come across lately several references to oestradiol benzoeate for Dysmenorrhoea

—breasts, distribution of hair, genital fat, clitoris, libido, etc.?

A.—Oestradiol benzoeate is occasionally used in the treatment of spasmodic dysmenorrhoea and sterility, but only when the uterus is to cause increased vascularity and hypertrophy of both myometrium and endometrium. It promotes spontaneous rhythmic contractions of the muscle and increases its sensitivity to other stimuli. Suitable dosage would be 5 mg. intramuscularly every 3 days for 5 doses commencing after a menstrual period. No injections should be given during the 10 days preceding menstruation, but during this time progesterone may be usefully employed as an

—breasts, distribution of hair, genital fat, clitoris, libido, etc.?

A.—Oestradiol benzoeate is occasionally used in the treatment of spasmodic dysmenorrhoea and sterility, but only when the uterus is to cause increased vascularity and hypertrophy of both myometrium and endometrium. It promotes spontaneous rhythmic contractions of the muscle and increases its sensitivity to other stimuli. Suitable dosage would be 5 mg. intramuscularly every 3 days for 5 doses commencing after a menstrual period. No injections should be given during the 10 days preceding menstruation, but during this time progesterone may be usefully employed as an

—breasts, distribution of hair, genital fat, clitoris, libido, etc.?

adjunct. Three courses of treatment over three successive cycles should be given in all. On the whole, however, the results of oestrogen therapy for dysmenorrhoea are disappointing. The effect of oestradiol benzoate on the secondary sex characters is a stimulating one. The breasts may temporarily increase in size and sensitivity, and sometimes the areolae become pigmented as in pregnancy. Sexual feeling and the clitoris, however, are not likely to be affected. The distribution of hair and the figure remain feminine, but the amount of pubic hair, if previously scanty, may be increased.

Recurrent Ulcerative Stomatitis

Q.—A patient aged 24 suffers from recurrent ulcers of the mouth. Duration 3 months. He was treated in hospital: (1) locally, chromic acid 5% and hydrogen peroxide, also arsenical paints; (2) generally, nicotinic acid and ascorbic acid; (3) teeth were x-rayed and two infected wisdoms were extracted. He was discharged from hospital 3 weeks ago with a letter that said these ulcers were incurable and would return from time to time. One ulcer developed 7 days ago. Is there anything more I can do?

A.—Ulcerative gingivo-stomatitis, or "trench mouth," must be distinguished from recurrent aphthous or vesicular stomatitis which goes on to the formation of ulcers or "canker sores." Trench mouth commonly begins in an area of stagnation in the gums, whence it spreads by direct continuity. It is often associated with oral sepsis, and can usually be cleared up by scaling the teeth, removing areas of stagnation, and applying zinc peroxide or chromic acid and hydrogen peroxide locally. The value of intravenous arsenicals is still debated. The aphthous type of stomatitis commonly begins with a crop of small infiltrating aphthae or vesicles, 1 to 2 mm. in diameter, usually surrounded by an intensely red areola. It affects the cheeks, tongue, and pharynx, and the onset is often associated with headache, malaise, and a variable amount of fever and sore throat. The lesions break down and form shallow ulcers which may occasionally by coalescence attain a large size. They may be exquisitely painful. The attacks may rarely be accompanied by simultaneous ulceration of the perianal region and vulva. The aetiology of the disease is unknown, but a herpetic origin is favoured. Cases are sometimes associated with anaemia or agranulocytosis, and may then cease to recur on improvement in the primary disorder. In other cases there is a familial predisposition to the disease. Women seem to be affected more than men, and the recurring attacks may coincide with menstruation. In the past the condition has been extremely intractable, and little but disappointment has come from treatment by removal of foci of sepsis, the use of vitamins, anti-allergic measures and desensitization by protein inoculations or vaccines, attention to the digestion, etc. Local treatment should be carried out with mouth-washes of potassium chlorate (10 gr. to the ounce) or sodium sulphite (1 drachm to the ounce), painting the ulcers with equal parts tincture of myrrh and glycerin of borax, touching them with resorcin 2% in spirit or silver nitrate, or dusting them with benzocaine or chlorotone and boric acid (boro-chlorotone). Very recently, however, Grace (*Arch. Derm. Syph.*, Chicago, 1943; 48, 151) has reported improvement from repeated inoculations of smallpox vaccine. This was given on the assumption that the disease is caused by a virus akin to herpes simplex, which is frequently controlled by the same treatment. The first four or five injections were given at intervals of a fortnight and then the interval was increased to a month; the dose was not stated.

"Spots" in Children

Q.—Many mothers believe that "spots" in children are due to eating fruits, especially apples. Some doctors believe and say the same to mothers. Is there any truth in this belief? If so, how can we explain the absence of such skin trouble in countries where fruit is eaten in enormous amounts?

A.—Many articles of diet, including fruit, are capable of producing "spots" in children, and this reaction has been observed in every country. It should, however, be pointed out that, contrary to popular opinion, food allergy is distinctly uncommon, and that the spots may be due to other causes, such as the itch mite, a common source of error at the present time.

Recurrent Styes

Q.—Can you suggest treatment for a girl of 17 who has been suffering from recurrent styes in both eyes for about a year? She is otherwise very healthy. All the usual remedies have been tried, including argyrol 5%, and albucid, but without avail.

A.—There are two kinds of stye—external and internal. The external stye is a suppurative inflammation of one of Zeiss's glands. It begins as a small painful swelling on the outer aspect of the eyelid; pus develops, and this small abscess points near the attachment of one of the cilia. The infection is staphylococcal, and recurrence may be due to persistence of the staphylococcus on the eyelid or on the hands. An antiseptic cream—e.g., containing 5% sulphathiazole—should therefore be applied morning and night to the eye-

lids and hands for some time after the stye has healed. Sometimes an autogenous vaccine containing in addition staphylococcus toxoid will prevent recurrence, but the foregoing measures to prevent reinfection must not be neglected during vaccine therapy. The internal stye is an infection of a meibomian gland—sometimes called a meibomian or tarsal cyst—and is intensely painful because of the unyielding fibrous capsule. Recurrences are usually in the same site and can only be prevented if the cyst is removed by an ophthalmic surgeon.

INCOME TAX

Official Quarters in Hospital

H. H. has received a demand note for tax on the estimated value of the official quarters he recently had in a hospital. Is this income liable?

* The exemption of hospital premises to income tax under Schedule A does not extend to the value of such portions as are occupied by an individual officer whose total income amounts to £150 or more. This is an old statutory rule and operates not so much by authorizing a charge on the officer himself but rather by leaving liable a portion of tax which would normally be collected from the hospital authority. The tax is due to the Revenue; whether it should be paid by the hospital or the individual officer is a matter for settlement between them. (The entry of the amount due as "land tax" in the demand note is clearly a clerical error.)

Commission for Appointment

C. D. inquires whether commission paid by him for obtaining his present employment as an assistant can be deducted for income-tax purposes.

* No. The payment is not an expense incurred wholly, exclusively, and necessarily in performing the duties of his employment; it is in fact incurred anterior to and in order to obtain that employment. (Such expenses are usually allowed in the case of a medical man holding a series of engagements as a locum tenens, the employment being regarded as continuous over a period notwithstanding the changes in locality and principal.)

Cost of Maid or Work in a Practice

"X. X." now keeps only one maid as the other is working on munitions. When he kept two maids he was allowed the cost of one. What should be allowed now?

* The only test likely to satisfy the income-tax inspector or the Commissioners, if the point is taken to appeal, is in what proportion is the maid's working time divided between work on the professional and private sides. As when two maids were kept it was accepted that a fair division was half and half the same ratio will probably be insisted upon now unless "X. X." can show that the maid still retained spends more time on the professional than on the private side.

Fees received from Medical Board

A. M. is not on any Medical Board but sees cases in a consultant capacity. The local inspector of taxes claims to assess the fees under Schedule E.

* On the face of it there seems to be no reason why the ordinary procedure should not be followed, and the fees accordingly treated as part of the gross income of the practice and included in the Schedule D assessment. If the inspector will not agree, and does not furnish specific reasons for not agreeing, we suggest that A. M. might write to the Board of Inland Revenue, Imperial Hotel, Llandudno, explaining the facts. (On a strict legal basis, the Schedule E assessment may be correct; although not on a Medical Board, A. M. may hold an appointment—i.e., an office of profit—as consultant to one or more such Boards.)

Break in Work owing to Illness

"PATER'S" son qualified in 1940 and was employed in a hospital until January, 1941. Owing to illness he was unemployed until January, 1943, when he started work as an assistant at £25 a month. How should his liability be calculated for the year ending April 5, 1944.

* The "employment" in respect of which liability arises for 1943-4 is his present employment, and should be calculated at the amount of his earnings for the current year—i.e., for the year to April 5, 1944.

Subscriptions

"UPSILON" asks whether he can deduct (a) commission paid to a medical agency for introducing him as an assistant, and (b) subscriptions to the B.M.A. and a medical protection society.

* (a) No; such expenses are incurred prior to and not in the course of the employment. (b) Yes—assuming that membership of these associations is required as a condition of the employment.

Treatment of Tapeworm

Dr. A. GREENWOOD (Godmanchester) writes: I think that we

Destruction of Schistosome Larvae

Dr. F. G. Cawston writes from Durban: For destroying the fragile schistosome larvae there is no more practical remedy than forced dislodgement of the water under pressure, as by a ram, or cart-loads of soil, thrown over rushes on river banks in a dry season, destroy not only, species of *Limnaea*, which depend on light and convey huge infection of stock, but large numbers of the snail-shelled hosts for human parasites. The method deserves to be more extensively employed on farms and villages affected areas.

Colour Film of Air-raid Casualties

night always attracts *Blatta* with deadly effect; specimens will be ready for next morning's dispan.

Back Numbers Wanted

under certain conditions, details of which may be obtained from the manager, Mr. Magill, 17, St. Quintin Avenue, London, W.11.

Some weeks ago we printed an appeal to members who do preserve the Journal for binding to send their copies (preferably) to B.M.A. House, Tavistock Square, W.C.1, addressed to the Secretary of the Journal Board, who will repay the cost of cartage to B.M.A. House. There is a constant demand for it so they need no reminder. There is a constant demand for numbers from libraries, medical institutions, and other sources home and abroad, and each issue goes quickly out of print; but any spare copies published during the war will be welcomed for present purposes and to set aside for the reconstruction of medical and scientific libraries in countries now overtaken by enemy. A member who returns his *Journal* at any time after the Head Office for the benefit of others, including the qualified who are joining the Association in large numbers.

Postural Bizziness

Postural Bizziness

remains constant. Rotation of the head, therefore, produces rotation of the fluid in the semicircular canals, without creating a differentiation of pressure over the sacci. On the other hand, turning a corner on a motor-cycle, a cycle, or on foot may involve a movement of the head only equivalent to that involved in looking over the shoulder, and yet may produce a violent disturbance of equilibrium which requires correction. Any such movement causes differences in pressure over the two sacci, and its automatic correction establishes equilibrium. A slight stenosis or obstruction of the duct leading from one of the sacci to the corresponding saccular nitch would produce the symptoms. On assuming the upright position the change in pressure within the cranium would be conveyed more rapidly from the sacculi to the vestibule on one side than on the other with perservation of the equilibrium on one side than on the other with rapidity from the sacculi to the vestibule on one side than on the other with the patient well forward with the head between the legs for a few seconds and then suddenly sit upright; here will be intense giddiness without any feeling of faintness or change of colour, and the patient may approach the observer and turn up with the utmost rapidity without any giddiness. Looking upwards also is frequently accompanied by rotation of the head about an oblique axis.

1980

Anti-Rabies Care

that I confined my treatment to it alone, one pill three times a day. It tides the patient over the symptoms—depression, flushing.

Research in Senile Diseases

considered the child as well as the mother, and should save him from

Research in Scullie Diseases

BRITISH MEDICAL JOURNAL

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

SUPPLEMENT

containing

War Notices

Notes on the Work of the Association

Future of Health Services

General Medical Council

Postgraduate News

Meetings of Branches and Divisions

Service Appointments

Correspondence, etc.

VOLUME II 1943

Published at the Office of the British Medical Association, Tavistock Square, London, W.C.1, and
Printed by Fisher, Knight & Co., Ltd., Gainsborough Press, St. Albans

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 10 1943

British Medical Association ANNUAL REPORT OF COUNCIL, 1942-3

Every Member is requested to preserve this Supplement, which contains matters referred to Divisions, until the subjects have been discussed by his Division]

During the year there has been a marked increase in both the central and local activities of the Association. This has been due in large measure to the interest which has been aroused among all sections of the profession by the proposals made in the Beveridge Report on Social Insurance and Allied Services for a comprehensive health service for the community. Further reference to this matter will be found in the section on the future of medical services (see below).

There has been a gratifying increase in the membership of the Association during the year. At the end of 1942 it was 41,239. The figure on June 23 reached the high level of 42,500.

THE ROLL OF HONOUR includes the names of 29 medical officers killed on active service, 26 who have died on active service, and 4 civilian members killed through enemy action. In addition, the Association has to deplore the loss by death of 370 members.

The Association was invited to give evidence to the Interdepartmental Committee on Medical Schools appointed by the Minister of Health and the Secretary of State for Scotland to consider questions relating to the provision for medical education after the war. The Memorandum of Evidence, which was published in the *Journal* on June 5, was submitted to the Interdepartmental Committee in March, 1943.

Mr. H. S. SOUTTAR was re-elected Chairman of Council. During Mr. Souttar's temporary absence as chairman of a commission investigating medical services in India, Prof. R. M. F. PICKEN was appointed Acting Chairman.

The Council reminds members that the emergency conditions have imposed and will continue to impose a heavy burden on all sections of the Association's staff. The Council desires to express its appreciation of the untiring efforts of the officials and the clerical staff in connexion with the work of the Association, the *Journal*, and the Central Medical War Committee.

FUTURE OF MEDICAL SERVICES

The Council reported in its Supplementary Annual Report for 1941-2 that the Medical Planning Commission had issued a Draft Interim Report with the object of provoking discussion and criticism before the Commission proceeded to formulate definite principles concerning the future of medical practice and the organization and reorganization of medical services. The resolutions adopted by the A.R.M. in Sept., 1942, together with the observations of the other bodies represented on the Medical Planning Commission were duly reported to the Commission, which then began to consider its

subject in more detail in the light of the criticisms received.

In Dec., 1942, the report prepared for the Government by Sir William Beveridge on Social Insurance and Allied Services was published. A series of extracts indicating its medical implications was published in the *Supplement* of Feb. 6, 1943. One of the assumptions on which Sir William Beveridge based his social security scheme was the provision of a comprehensive medical service available to the whole population of the country. He stated that the organization of the medical services would need further immediate investigation, but the trend of his thought is indicated in the sentences:

"If a contribution for medical treatment is included in the insurance contribution, contributions will cover not 90% of the population (the present insured persons and their dependants), as is assumed in the Draft Interim Report issued by the Medical Planning Commission, but 100% of the population. This will not, of itself, put an end to private practice. Those who have the desire and the means will be able to pay separately for private treatment, if the medical service is organized to provide that, as they may pay now for private schooling, though the public education system is available for all. But no one will be compelled to pay separately. The possible scope of private general practice will be so restricted that it may not appear worth while to preserve it."

As the issue of the 90% or 100% was of fundamental importance in any planning of future medical services, special meetings of the Medical Planning Commission and of all the relevant committees and group committees of the Association were called to discuss the attitude to be taken by the profession if the Government accepted Assumption B of the Beveridge report. After considering the views of the various committees the Council resolved to submit a motion on the 100% issue to the Special Representative Meeting called for March 31 (*Supplement*, Feb. 13, p. 24).

Before this Special Representative Meeting was held, however, the House of Commons debated the Beveridge report, and the Government spokesman informed the House that the Government accepted, with certain reservations, the assumptions and principles of that report. With regard to the comprehensive medical service, the Lord President of the Council said:

"... This assumption implies the reorganization of the various existing services—the panel practitioner system of National Health Insurance, the existing general and specialized health services of local authorities, the major hospital and institutional services, and so on—and their development into one unified and comprehensive service. By 'comprehensive' I mean, first a service covering the people as a whole, and secondly the inclusion of institutional treatment. ... The Government welcome this conception of

a reorganized and comprehensive health service... the Health Departments will seek the help of those main organizations—local authority, voluntary, or professional—on whose active participation the success of any new reorganization must depend. In consultation with them, the shape of a reorganized service will be worked out, and then the necessary legislation will be prepared. ... The object is to secure, through a public, organized, and regulated service, that every man, woman, and child who wants it can obtain, easily and readily, the whole range of medical advice and attention, through the general practitioner, the consultant, the hospital, and every related branch of professional up-to-date methods. The fullest possible use must be made of existing resources, including existing public services, such as the tuberculosis, cancer, and other services of the local authorities. The idea of the new service must be one of the co-operation of public authorities, voluntary hospitals and other voluntary agencies, and the profession, towards one common end. ... Professional interests, the well-being and integrity of the medical profession, which is not only one of the oldest and most honourable in this country, but on which the success or failure of any scheme will inevitably depend, must be amply and properly safeguarded. The Government recognize that the profession itself is approaching this major reorganization in the progressive spirit which is expected of it. Perhaps most important of all, it is necessary to maintain to the greatest possible extent the principles of free choice of doctor and of the family doctor relationship as the background of general medical practice, and conversely to create the least possible disturbance of existing association between doctor and patient. This need not, in the view of the Government, be inconsistent with the principles of group public practice at well-equipped clinical centres which underlie most of the current thought on the future of family practice. The Government have no intention whatever of forcing the new services on those who continue to prefer to make private arrangements for medical attendance or hospital treatment. Equally, the position of the great voluntary hospitals must be safeguarded."

In pursuance of this promise of consultation the Minister of Health invited the Association to set up, in collaboration with the Royal Colleges, a committee representative of the profession as a whole, to discuss with him the problems and difficulties involved in the establishment of a comprehensive medical service. The Council accordingly formed such a committee under the title of the Representative Committee, and the Medical Planning Commission appointed this same committee as its standing committee to enter into the proposed discussions and to report to it from time to time. The invitation from the Ministry of Health and the constitution of the Representative Committee, which were submitted to the Special Representative Meeting, were published in the *Journal* of March 20 (p. 359).

for medical examination for life insurance. The Council suggested to the Life Offices Association that these fees should be increased by 20%. The Life Offices Association, after having received a deputation from the General Practice Committee, replied that it was unable to agree that at the present time there was any justification for an alteration in the agreement. The Council does not feel that the matter can usefully be pursued further at this juncture.

As a result of action taken by the Council the Ministry of Supply has increased the fees for medical examination of employees under that Department. Following upon pressure by the Council the Ministry of Agriculture agreed to accept responsibility for the payment of a fee of 5s. for the medical examination of recruits to the Women's Land Army.

Certification

The Council is fully aware of the heavy burden placed on doctors by the many certificates now demanded, and the whole matter has been pursued with the various Government Departments. The Council is not responsible for the considerable delay in reaching decisions. A form of certificate has now been prepared by the Ministry of Labour and National Service in consultation with the Association for use in the case of persons who seek evidence to present to their employers of their incapacity for work. Copies of the certificate will shortly be issued to general practitioners.

Appointment of Medical Referees

The Council concluded an agreement with the Ministry of Labour and the Ministry of Home Security which involved the appointment of medical referees whose services may be utilized in connexion with certificates for those claiming to be unfit for the employment to which they are directed by the National Service Officer, or to support an application for permission to leave scheduled employment, or to support a claim for exemption from fire prevention duties. The full details of the arrangements were issued to Local Medical War Committees and published in the *Supplement* (Sept. 12, 1942).

N.F.S. and Civil Defence Personnel

The Council approved a fee of 5s. for the examination of N.F.S. and Civil Defence personnel on the assumption that it applied to routine examination only, and that where a more detailed examination was required a fee of 10s. 6d. would be paid. The Council pressed the Department to define the class of case in which the 5s. and 10s. 6d. fee respectively would be paid, and as a result a statement on the position was published in the *Supplement* of May 29 (p. 65). The Council will review the matter in the light of experience. The Annual Representative Meeting in September last expressed dissatisfaction with the capitation fee (12s.) which had been accepted by the Council for the treatment of certain members of the National Fire Service who were outside the National Health Insurance Acts and were entitled to medical treatment. This question has been raised with the Fire Service Department of the Home Office and is still under discussion.

Fees for Part-time Work for Public Bodies

The Council has considered the following Minute 188 of the A.R.M., 1942:

Proposed by West Norfolk that a new scale of minimum fees be laid down for all part-time work for public authorities, Government Departments, and societies, and that they should be negotiated by the B.M.A. on a national basis.

Resolved: That this matter be referred to the Council.

In the Council's opinion there is no prospect during wartime of negotiating a nationally agreed scale for the services referred to in this Minute. It has been necessary to come to *ad hoc* arrangements with various Government Departments in regard to remuneration for certain services, and the Council does not feel that these arrangements should be disturbed. The matter will be reviewed after the war.

Doctors' Maids

The Council has continued to advise doctors requesting help in connexion with the calling-up or transfer of women employees. Many cases have been referred to the headquarters of the Ministry of Labour, which has promised to give special consideration to any case submitted by the Association where a doctor is experiencing exceptional difficulty owing to the threatened withdrawal of his domestic assistance or to his inability to obtain assistance. In a large proportion of the cases so referred a satisfactory arrangement has been secured.

Towels for Professional Use

When towels were included in the clothes rationing scheme the Council approached the Board of Trade with a view to securing some concession for doctors in general practice or private consulting practice to enable them to maintain a supply of towels for use in their surgeries or consulting rooms. As a result the Board of Trade agreed to issue a supplementary allowance of four coupons for the purchase of towels for professional use. The Association undertook the task of issuing the coupon-certificates to applicants.

Industrial Medical Officers

The Industrial Medical Service Subcommittee has considered, among other subjects, the employment of pregnant women in industry and the methods of recording sickness absenteeism. It has issued to all doctors known to be engaged in whole-time or part-time work in factories the "Memorandum on the Duties of and Ethical Rules for Industrial Medical Officers," which was approved by the Representative Body in 1937. The subcommittee has prepared for the guidance of the office a memorandum on the terms of service for whole-time industrial medical officers.

PUBLIC HEALTH

Fees for Domiciliary Diphtheria Immunization

The Association's present policy for the purposes of local authorities' schemes of diphtheria immunization where the services of general practitioners are utilized is set out in Minute 148 of the Annual Representative Meeting, 1930, and includes a recommendation that the fee per injection should be not less than 2s. 6d., the material being supplied by the local authority. When this scale was drawn up the Council had in mind immunizing injections given at surgeries or clinics; visits to patients' homes were not contemplated. In January, 1943, the Ministry of Health issued a circular expressing the

view that in certain circumstances immunization should be carried out at patients' home. The Council recommends:

That it be recommended to the Representative Body that Section (b) of the scale of fees for diphtheria immunization be amended to read as follows: (b) The fee per injection of immunizing material should be (1) not less than 3s. 6d. where injections are given at the home of the patient, (2) not less than 2s. 6d. where injections are given at the doctor's surgery.

Increase in Remuneration

The Council has considered the desirability of recommending a wartime increase in the remuneration of (a) whole-time public health medical officers and (b) practitioners employed on a part-time basis by local authorities in public health or associated services. In connexion with (a) the Council has expressed agreement with the view of the Society of Medical Officers of Health that no demand for the revision of salaries should be made at the present time, but that any war bonus awarded to the staffs of local authorities should be extended to all medical officers whole-time or part-time.

In regard to (b) the A.R.M. in 1936 approved a scale of remuneration for doctors employed in a part-time capacity by local authorities whether rendering consultant and specialist or general practitioner services at hospitals, clinics, or elsewhere. The Council has decided as a wartime measure to increase by 20% the fees set out in the present scale, and local authorities have been recommended by the Council to increase by 20% the remuneration of practitioners rendering part-time services. The Council's recommendation has been adopted by a number of local authorities.

Attendance under Midwives Act

Representations have been made to the Ministry of Health that as a wartime measure the period allowed a practitioner in which to submit his account for attendance under the Midwives' Act to the local supervising authority should be increased from two to three months from the date on which he is called in.

OPHTHALMIC

The question of increasing the fee for the ophthalmic medical examination of patients eligible under the National Eye Service administered by the National Ophthalmic Treatment Board has been considered. The existing fee of 10s. 6d. is generally felt to be inadequate, but the present is not considered to be an opportune time for the introduction of a higher fee. Active steps are being taken to prepare a scheme for a post-war national eye service.

HOSPITALS

Hospital Staff Committee

The Council considers that in all hospitals there should be medical committees composed of the medical staffs above a certain grade; that where there is a medical superintendent he should be a member or have the right to attend its meetings. The decision as to whether the medical superintendent should be chairman is a matter for individual committees, which should, in any case, have the right of direct access to the hospital management committee. This expression of opinion has been referred to the Medical Planning Commission.

Liaison Committee between B.H.A.
and B.M.A.

In June, 1941, it was suggested that the B.M.A. and the British Hospitals Association should each nominate representatives to form a liaison committee, to be called as and when circumstances required, to consider matters of mutual interest. The Committee has met on two occasions—in January and March this year. The membership is limited to a maximum of six from each side, together with the Secretary of the B.H.A. and the Deputy Secretary of the B.M.A. The following have been appointed as the Association's representatives: Mr. Alec Bourne, Dr. W. Russell-Brown, Dr. J. B. Cook, Dr. J. Ferguson, Dr. P. Macdonald, and Mr. R. L. Newell. Frank discussion has taken place between the two bodies on the application of Assumption B of the Beveridge proposals as it would affect the medical profession and voluntary hospitals. On fundamental principles there was agreement. The Deputy Secretary of the B.M.A. has been appointed as one of the representatives of the liaison committee on the committee set up by the B.H.A. to enter into discussions with the Ministry of Health on a national health service.

SCIENCE

Proprietary Remedies

The Council has considered the following Minute of the A.R.M., 1942:

183. That this meeting views with concern the continued marketing of so-called proprietary remedies of no proved therapeutic value and recommends that appropriate action should be taken by the Association with a view to protecting the public from such exploitation, and that the aims of such action should be: (i) the withdrawal from the market of preparations not proved to be therapeutically active; (ii) the substitution of statements upon the pharmacological action of other preparations for the names of diseases claimed to be relieved by their use; (iii) publication of the formulae of all such medicines in the *British Pharmacopoeia* for the naming of the use of the terminology of the composition, including excipient, of a single dose being clearly stated on every package; (iv) the use of the terminology of the *British Pharmacopoeia* for the naming of official and of the English language for un- official ingredients.

RESOLVED: That this matter be referred to the Council.

In 1939 the Council reported that after a careful inquiry by a conference of members of the Science Committee and representatives of the Pharmaceutical Society, it had reluctantly concluded that for financial reasons it was inadvisable at present to investigate the more reputable proprietary medicines and establish a list of approved products. The Council considers that lack of staff and difficulties of finance make it inopportune just now for any investigation of proprietary remedies by the Association with a view to the protection of the public from exploitation. It may be noted, however, that the Pharmacy and Medicines Act, 1941, though it does not solve the problem of the exaggerated claims made for certain proprietary remedies, has had a beneficial effect by making it obligatory to disclose the constituents or ingredients of products sold by retail and recommended as medicines, and by prohibiting the public advertisement of remedies for Bright's disease, catarract, diabetes, paralysis, etc., etc., locomotor ataxy, paralysis, or other ailments.

Diploma in Physical Medicine

Before the war the Council had under consideration the preparation of a syllabus for submission to the Royal Colleges of Physicians and Surgeons. This work was recently resumed and completed, as it was considered important that arrangements for the establishment of the diploma should be made for the benefit of medical practitioners who might wish to specialize in this branch after the war. The recommendations which the Council has submitted to the Royal Colleges are as follows:

A. That a diploma in physical medicine should be established.

B. That the diploma should be a basic physical medicine diploma, physical medicine being defined as the art of proceeding by physical means to the diagnosis, prophylaxis, and treatment of disease.

C. That the diploma should be open to medical practitioners who are registered in the British Medical Register or possess such qualifications as are recognized by the examining board.

D. That the diploma should be awarded by examination subject to the conditions that the candidate must (a) have held, subsequent to qualification, an appointment as house-physician or house-surgeon at an approved hospital for six months; (b) have completed a special course of study, occupying not less than one academic year and including whole-time attendance for a prescribed period at a recognized hospital or institution.

E. That the syllabus for the diploma should be in two parts—Part I consisting of subjects introductory to Part II, which would require a high standard of knowledge and practice.

F. That the syllabus for the diploma should be:

The Library

The activities of the library have been well maintained despite the loss of skilled staff. Every effort has been made to continue the provision of an efficient library service in circumstances of exceptional difficulty.

Part II

Physical training and remedial exercises, technique, and contraindications.

Medical Electricity, including (a) applications of radiant and thermal methods; (b) apparatus use.

Hydrology: (a) the use of water, internally and externally; (b) the treatment of disease; (c) the use of mineral waters and their therapeutic use.

Climatology: General principles; the factors influencing climate (temperature, barometric pressure, and humidity); their effect in health and disease.

Clinical application of physical methods in the maintenance of health, the management of disease and injury, and restoration to wage-earning capacity.

FINANCE

Enforced economies and the increase in membership have enabled the Association to consolidate its financial position during the past year. When circumstances permit the Association must undertake extensive redecoration and repairs to its House, and in anticipation of this substantial additions to the reserves created for this purpose have been made. It has

Income and Expenditure

The average subscription received in the past financial year was lower than in the preceding twelve months; this is due to the increasing number of members now serving with the Forces. At the close of 1942, however, the membership of the Association stood at a new record of 41,239, so that the subscription revenue has been more than maintained. All the accommodation in the Association's House is now occupied, and the income therefrom justifies the building programme started some years ago.

Apart from the marked decrease in the cost of production of the *Journal*, expenditure was slightly higher than in the previous year. More standing committees have been meeting, and new committees have been appointed. A substantial increase in committee expenditure may be expected during the coming year, and the resumption of local activities will lead to heavier expenditure by Divisions and Branches.

There has been a very substantial reduction in the amount taken from the subscription revenue for the cost of production and issue of the *Journal*; this is almost entirely due to the rationing of paper, which has restricted its size. The total number of pages produced during the year decreased from 4,470 to 3,012, but this was offset to some extent by the increase in the number of copies printed. Although the sales to non-members are restricted the revenue from this source has increased. During the year the price of the *Journal* was raised from 1s. 3d. to 1s. 6d. per copy.

MEDICAL ETHICS

An inquiry has been held into a complaint regarding professional conduct. Divisions for central investigation. The Association on ethical problems has been maintained.

SCOTLAND

At the meeting of the Scottish Committee held in November, 1942, Dr. J. G. McCutcheon (Glasgow) and Dr. A. F. McKillop (Edinburgh) were appointed chairman and deputy chairman of the Scottish Committee for the session 1942-3. On the death of Dr. McCutcheon, Dr. A. F. McKillop was appointed chairman and Dr. George MacFiear (Lanarkshire) deputy chairman. At a special joint meeting of the Scottish Committee and the Insurance Acts

Future Account for the Year ending

Income and Expenditure Statement		1942	
		\$	c.
Subscriptions	1941	1,669	10
"	"	5,163	18
"	"	10,226	5
"	"	4,756	17
"	"	12,455	1
Expenditure	1941	1,669	10
Journal Meetings Expenses	"	12,455	1
Capital Grants and Direct	"	2,138	7
On Local Organization	"	5,817	7
Library Expenses	"	18,808	3
Association General Expenses	"	2,763	15
Rents	"	19,270	17
Interests	"	2,443	19
Receives	"	2,443	19
1940	"	19,270	17
Sundry	"	2,763	15

EXPENDITURE

[illegible]

Ministry of Health towards	£384,401	3	2
Provision for War Risks Insurance		
Works Expenses		
Unlucky Damages		
	<u>£80,439</u>	9	2
	2,000	0	0

... (cost of Central Medical Year Committee estimated cost of £17,000 per annum) ...

Estimated cost of \$17,000 per annum ...
 ... of Central Medical War Committee ...
 ... of \$79,104 3 2 ...
 ... of \$3,000 0 0 ...
 ... of \$73,439 9 2 ...

[illegible][illegible]

... ..	787	9	7		
Laboratory	...	...	...	0	6,587
Furniture and Filings	...	...	...	0	9
Less Depreciation of Cost Charge-	...	...	...	0	0
Journal and Trans-	...	...	...	0	987
...	...	...	...	0	9
...	...	...	...	0	7
<u>300</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>9,193</u>
9,193	1	10			

3,419	2	1	3,488	0	0	10,000	0	0	14,000	0	0
<p> JOHN W. BONE, <i>Treasurer.</i> G. C. ANDERSON, <i>Secretary.</i> </p>											

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367
--	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

Reserve for Contingency	11,000	0	0
Reserve for Loss on Exchange	1,500	0	0
Return Current	1,021	18	10
Balance Sheet	7109,562	13	8
Total	7112,835	9	4

ASSOCIATION NOTICES
Election of Council of B.M.A.

Election of members of the following Branches:—
(a) North of England Branch (Group A);
(b) Isle of Man and Lancashire and
Cheshire Branches (Group C); (c) Derby-
shire, Leicester and Rutland, Lincolnshire,
and Nottingham Branches (Group D);
(d) Bedfordshire, Cambridge and Hunting-
don Fives, Hertfordshire, Norfolk, North-
amptonshire, and Suffolk Branches (Group
E); (e) Metropolitan Counties Branch
Group I; (f) Southern and Surrey
Branches (Group L); (g) Public Health
Branch members, has resulted as follows:

Election of members of the Association of Public Health Officers (Group A); (a) North of England and Lancashire and (b) Isle of Man and Derbyshire Branches (Group C); (c) Derbyshire, Leicester and Rutland, Lincolnshire, Shire, Nottingham and Nottingham Branches (Group D); (d) Bedfordshire, Cambridgeshire and Huntingdon and Essex, Hertfordshire, Norfolk, Northamptonshire, and Suffolk Branches (Group E); (f) Metropolitan Counties Branch (Group I); (g) Public Health Officers (Group L); (h) Vice members, has resulted as follows:

H.M. Forces Appointments

The following Consultants have been granted the rank of Major General:

ARMY

to be Temp. Surg. Lieut. K. J. R. Hartley, A. J. Dabney, and D. L. Evans

Prob. Temp. Surg. Lieut. W. B. Alexander, D. Henderson, R. J. R. McConnelly, J. R. Royall

ROYAL NAVY VOLUNTEER RESERVE

placed on the Retired List.

Surg. Capt. H. B. Parker, D.S.C., has been

1
L
N

BIRTHS, MARRIAGES, & DEATHS

The charge for insertion of the advertisement is \$10.00. This amount should be paid in advance, and should reach the address of the sender, and should be paid with the notice, authenticated by the Manager of the newspaper, and should be paid in full before the first post Monday morning to ensure insertion in the current issue of the Brooklyn Daily Eagle.

DIARY OF SOCIETIES AND LECTURES
2 p.m., Sterility Clinic.
Conferences.
ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE,
Place, W.—Wed., 4.30 p.m., Mect-

26, Portland, Maine.
ing and Discussion.

WEEKLY POSTGRADUATE DIARY

Road, W.—*Daily* Surgical Clinics and Operations, 10 a.m., Post-mortems, 1.30 p.m., Gynaecological Clinics and Operations, 2 p.m., Medical Conference, Thurs., 11.30 a.m., Dermatology Clinic, Fri., 12.15 p.m., Surgical Conference, 2 p.m., Neurological Ward Clinic; Conference, 2 p.m.

PRICE, WATERHOUSE & CO.,
3, Frederick's Place,
Old Jewry, E.C.2.
Chartered Accountants.

...of the Association according to the opinion, properly drawn up so as to exhibit and explanations we have required, re-

the New Buildings, the proposals for Building 17, Tavistock Square and 58, Darnley Street, of the investments of the Association on General and of the Office Staff Superannuation Fund, and examined the accounts, with the Books and without the Association receives remittances,

MEMBERS OF THE ASSOCIATION
and December 31, 1942, and Accounts with
and except as regards the Scottish Com-
missioners of the Scottish Smillie and Co.,
1942.

1941
s. d.
92,620 14 9
2,671 12 10

16,548	8	3
448	10	0
62	2	0
411,835	9	4

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 17 1943

ANNUAL REPRESENTATIVE MEETING: CHANGE OF DATE

In last week's issue of the *Supplement* it was announced that the Annual Representative Meeting, 1943, would be held on Wednesday, Thursday, and Friday, September 22, 23, and 24. It has now been found necessary to alter this arrangement. The Annual Representative Meeting will be held on Tuesday, September 21, Wednesday, September 22, and Thursday, September 23.

Correspondence

Voicing Opinion

SIR,—Following a Division meeting at Guildford to discuss the B.M.A. resolution in March, I wrote a letter which you were kind enough to publish imploring all my fellow members of the B.M.A. to attend their local meetings whenever the Beveridge plan was to be discussed. On June 27 we held our annual meeting at Guildford, when the very important election of officers was to take place, and I should like again to put forward the same plea; but for this quite different and, I hope, even better reason. I came away from the meeting last March convinced that our affairs were in the hands of impractical idealists, who were handing us over as a political peace-offering to the socialist members of the Government some compensation for the fact that the whole Beveridge plan had not been adopted. I am not going back on anything I said at that time, but another meeting in May and this last meeting in June have made me realize that possibly their ideals may have carried our representatives a little beyond their real feelings, so that others of us may have become a little more realistic than we really are. After all, few of us entered the medical profession merely as a means to a living. As students we all had very much the same ideals, and the interest of our work was our whole interest, for the financial side of medicine had not as yet entered into it. Stern necessity brings that in later, but with 99% of doctors, whatever they may say, it is always second. I have lost many an hour's sleep over a case that has gone wrong, but not one minute's sleep over a patient who has not paid an account.

Two members at this annual meeting said very much the same thing in slightly different ways, which really sums up the whole matter: that at one extreme we have the idealists who are apparently impractical, and at the other materialists who apparently have no ideals; and neither of these can achieve anything. The arguments put forward in March may have appeared to swing the pendulum too far towards idealism, and in May and June the arguments of the materialists may have tried to swing it to the other extreme. We can hope that at the next meeting we may find the pendulum swing-

ing quietly and evenly in between, as a well-balanced pendulum should. The last meeting lasted 3½ hours, but I do not consider that one moment was wasted if the doctors can only get together.

It is my opinion that the question of a State Medical Service should wait for Mr. Churchill's Four-year Plan, but if it must come now, then we must have a united front, so that we can get a square deal for the public and a square deal for ourselves. To my mind a square deal for the public means that all medical facilities should be available to all members of the public, irrespective of their means to pay; but that any man who has saved money has as much right to spend it on medical advice of his own choice as he has to spend it on motor-cars, racing, and luxurious living. A square deal for the doctors is that they should have adequate remuneration in any medical service, and that they should also have the right to private work if they so desire. I think it is of the utmost importance that a doctor should not draw his income from one source only, and that he should not treat one class of patient only, for in these two things we find independence and variety which are the remedy for servility and staleness.

This is the reason that I again appeal to all members of the B.M.A. to attend their Division meetings on this vital crisis, because if members will only voice their opinions in public to the chair, and not mutter them to their next-door neighbour or stay at home and mutter them to themselves, it may be found that most of us are really thinking along very much the same lines. We have always put our patients first, and whatever happens we always shall; but we do not want to be made a pawn in any game of politics. Only two things are necessary:

(1) That every member should attend his Division meetings, unless his professional duties prevent him, and voice his opinions.

(2) That every member of the B.M.A. should point out to his friends who are not members of the B.M.A. the entire selfishness of their outlook in leaving it to others to give their time and supply the funds to fight their battles for them.

—I am, etc.,
Camberley.

LESLIE HARTLEY.

Labour and State Medicine

SIR,—Closely following on the heels of Sir William Beveridge with his plans for control of the medical profession we have a further contribution to the same subject, this time from that hotbed of genius the British Labour Party. After the pompous promulgation of a few truisms about the doctor's place in society, the authors proceed to the main business of the pamphlet—a blunt criticism of general practitioners, their qualifications, and their methods of practice. The attack is fierce and calls for a strenuous defence. It would have been better if the Labour Party before issuing this document had

polished its doctrines into a form somewhat less shocking to good sense and good taste.

What is this strange infatuation which leads politicians to abandon those departments in which they might excel, and start lecturing the medical profession about a subject concerning which they, the politicians, have the very A B C yet to learn? They judge of their theories by the effect which they produce upon their imagination. What they term their opinions are merely their tastes.

Now State medicine is no new thing. It has been in vogue for more than 30 years so far as the industrial millions of the population are concerned. We are surely entitled to ask what the State has done with its powers during the thirty years of control. By its passion for mummeries, its idolatrous adoration of the printed form, and its merciless intolerance, the State has reduced clinical medicine to a shadow of what it should be. If the fruit is now ripening and the thistle bears no figs the fault is not to be laid at our door. The blame is entirely with the Ministry for any shortcomings which the doctors exhibit. Formerly, when a patient came for consultation one inquired about his symptoms; now when a patient comes it is safest to inquire what kind of a certificate he wants and what date he would like upon it. In fact the main reason for the patient coming at all is to get one of these wretched forms.

Instead of being able to practise our art in a calm atmosphere in which we can comfortably permit our faculties to work for the patient's benefit, we have to rush through surgeries of enormous size, and watch all the time to see that no one takes advantage of us. There is a constant atmosphere of suspicion. We sit uneasily balanced between the transcendental on the one hand and the police on the other. This is State medicine in practice. In the laboratory we keep the balance in a glass case so that it shall function properly when we need to use it. In the same way, since truth is only partly attainable, and that with difficulty, a little more regard might be paid to the medical man and the manner of his usage. The main effect of panel practice or State medicine has been the virtual destruction of clinical medicine. Try as we may, the "coarse thumb and finger" of the State intrudes at every turn, insisting upon the letter and denying the spirit.

The family doctor, so the pamphlet says, is "a sickness man rather than a health man," and out of touch with preventive medicine. Here the Labour Party is on very thin ice and should have skated a bit faster. As I see it, preventive medicine includes such things as freedom from accident in pits, freedom from accident on the roads, and above all freedom from accident by weapons of war. All these come under preventive medicine, because by all, health, happiness, and life itself are threatened if not

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 24 1943

MEDICAL EDUCATION AND THE HOSPITAL SYSTEM

In his recent presidential address to the Manchester Medical Society Prof. T. H. OLIVER spoke on the future of medical education, but also brought in some wider issues—namely, hospital regionalization and the comprehensive medical service. He condemned the dual hospital system as illogical and wasteful from various points of view, including that of teaching, for if teaching was always to be associated with voluntary hospitals, and they alone were to be connected with the intellectual centre—that is, the university—a difference in status could be implied (and did in fact now obtain), which in the long run was to the advantage of neither form of hospital. Each class of hospital would tend inevitably to deal with a particular kind of case, and if medical education continued to be confined to the one class it might come academic and unpractical.

Regionalization of Hospitals

Prof. Oliver favoured the regionalization scheme proposed by the Nuffield Trust as the most satisfactory solution to the hospital problem considered as a national one, provided, first, that it was compulsory, and, secondly, that each region was centred around a medical school or university. If a medical school did not exist in any region, one should be created, and he saw no reason why one or more of the schools which, in the national emergency, had been removed from their former quarters into a provincial area should not remain there permanently. Modern transport no longer impelled the segregation of hospitals in large towns as in the past, and hospitals in small urban areas would offer many advantages. The key hospital of the region should contain the medical school and should be allowed a considerable voice in the staffing of the hospitals affiliated to it. It would be responsible for the specialized work of the district, carried on either within its own walls or under its supervision, and at the key hospital also most of the research work would be done. He thought also that each key hospital might well be expected to develop some department which would be distinctive of it, and in that respect serve a larger area than its own region. For it was useless to expect every key hospital to provide very highly specialized departments in every hospital.

The General Practitioner and the Hospitals

The general practitioner, who was intimately concerned with the efficiency of the hospital system, should be represented on the committee, where both municipalities and voluntary hospitals would co-operate in management. While it was not possible for all general practitioners to have contact with hospitals, certain wards should be set apart in the large affiliated hospitals for the treatment of

general practitioners' cases, where hospital supervision could be given along with a certain number of the services available in modern medicine. He also thought that both in these hospitals and in health centres attached to them selected practitioners might be expected to take some part in the teaching of students. In this way the man in general practice would be able to contribute to the education of the practitioner of the future, and, by himself becoming a part of the school, would feel that there was some academic reward for good service.

The Medical Student

The medical student (Prof. Oliver went on) should not go to the university too young, for then his general education would be neglected. He must have a basic training in scientific thought and method. His first two years at the university should be devoted to pre-clinical subjects, and then he should have two years at the key hospital, learning the principles of medicine, surgery, and obstetrics, seeing as much as possible of morbid anatomy in the post-mortem room, and learning something of therapeutics. He should then pass an examination which would license him to practise under supervision. By this time he should be old enough to know his own inclinations, and his teachers should be able to assess his potentialities. If he was destined for general practice he should serve as resident for a further two years in affiliated hospitals, spending his time not only in the medical, surgical, and obstetrical wards but in other departments, particularly the paediatric and fever departments, and also in the health centres. At the end of those two years he should pass a medical examination which would allow him to practise independently. Prof. Oliver suggested that the first examination should be called the M.B. and the second the M.D., so that there would be a practical difference between the two degrees which everyone could understand, instead of a mere academic distinction as at present.

The student destined for a specialism would, after passing the general examination, continue in the chosen speciality in the appropriate key hospital, and return also to the university laboratories for a severe course of training, eventually passing his M.D. or M.S. examination in such a way as to show the speciality in which he had qualified—for example, M.D. Neurology, or M.S. Genito-urinary.

The Economic Framework

Finally Prof. Oliver made some observations on medical service in general. He was opposed to a State Medical Service, but he suggested a compromise whereby health insurance was made compulsory for all, the contributions being graded according to income and responsibilities, as was already done with income tax. The population might be divided, from the insurance point of view, into two classes, the income limit between

them being determined by agreement. The first would correspond to the present insured, the second to those with higher incomes, the latter receiving grants-in-aid, with access to private blocks in hospital, if their illness required such provision, with both general practitioner and specialist services. In this way he believed that both free choice of doctor and some private practice could be preserved, so that, while there must be many more whole-time salaried posts in the hospital service, a medical practitioner would be able to feel that there was alternative employment if, in later years, he wished to be more independent.

A "No Claims" Bonus

Prof. Oliver even suggested the equivalent of a "no claims" bonus on contributions, which would restrain trivial or unnecessary resort to the services. For each of the two grades of insured persons he thought there might be separate contributions—one for actual treatment and the other for investigation—and a bonus return might be made on each. If negligence or misbehaviour could be proved the bonus should be automatically wiped out.

On the wider question of hospital organization and finance, he said that all such reforms would mean some sacrifice of vested interests and to a certain extent the giving up of the independence of individual hospitals; but he believed that in the end hospitals would wish to enter into the orbit of the medical school, which would lead to an upgrading of their efficiency. Even if the hospitals themselves were unwilling, the public would demand it on becoming better educated in medical affairs. Some of the financial difficulties were more apparent than real, and the present cost of salaries and equipment meant that, before long, every voluntary hospital would be compelled to seek aid, either from the Government or from the municipality, if it was to continue to exist at all.

"Many adjustments would have to be made, and the change would require to be gradual, but I believe that a service could be created in which we could preserve our independence, and that eventually the dreamers, both realist and idealist, would find that there was nothing between them—not even a nightmare!"

Some 600 persons were present recently at a very happy ceremony at Earls Colne, Essex, when Dr. T. E. Pallett was presented with his portrait. It was accompanied by an album containing the names of 900 subscribers, and, for Mrs. Pallett, a gold cigarette case. After the presentation there was a reception and dance, to which Dr. and Mrs. Pallett had also invited members of the British and American Forces in the area. Although Dr. Pallett is over 70 he works a full day; he is honorary medical officer of Halstead Cottage Hospital, medical officer to the troops in the district, and a captain in the Home Guard.

of one large county borough which had to decide whether or not their only tuberculosis medical officer should join the Forces. The discussion created a great storm in the council chamber, and the matter was in the end decided on purely party political lines, as was also the rejection of one successor proposed, and the appointment of the one finally selected.—I am, etc.,

Hetton-le-Hole.

R. MACLEOD.

Control by the Profession

SIR,—At yesterday's meeting of the executive committee of the Kesteven Division of the B.M.A. concern was expressed at the inconsequential tone of some of the letters published from your contributors and the apparent lack of realism shown by these in advocating a State Medical Service, and in spite of the decision of the recent Representative Meeting against it. It is strongly felt, in this Division at any rate, that the medical services of the nation must be controlled by the medical profession and not by a bureaucracy, which might be at the mercy of political whims, both centrally and at the periphery. Unity in the profession in the present discussions is imperative, and finagling proposals are extremely dangerous; this important point appears to be overlooked by some practitioners.—I am, etc.,

F. JOSELIN JAUCH,
Hon. Secretary, Kesteven Division.

Doctors and the Future

SIR,—Members of the medical profession, in common with all other reputable sections of the community, have readily accepted the regimentation that they know is a necessary wartime measure. To continue this regimentation after the war period does not seem in accordance with the democratic principles for which the Allies are fighting (see Atlantic Charter, point 3). To thrust these changes upon us at a time when (1) the younger men serving abroad have no proper opportunity of forming or voicing their opinions; and (2) the active doctors left at home are too occupied with professional work to allow them to give their minds fully to other matters, must inevitably arouse bitter resentment at so high-handed a procedure. Are we, or are we not, fighting dictatorships?—I am, etc.,

Bournemouth.

A. BASIL ROOKE.

We have received a copy of the report for 1942 of the Cape Western Branch of the Medical Association of South Africa, which includes reports of the Capetown, South-Eastern, and Drakenstein Divisions, a list of office-bearers, and reports of the Branch's ethical, parliamentary, library, workmen's compensation, and hospital committees. It also includes scales of minimum fees for general practitioners and for specialists. For the session 1943 Dr. R. L. Impey is president, Dr. F. R. Luke vice-president, Dr. B. M. Porter secretary, and Dr. W. L. Hoole treasurer. The planning committee appointed by the Cape Western Branch held some five meetings during the year, and sent memoranda to the Central Planning Committee, which have been extensively used in the drawing up of the scheme for a national health service. Thirteen meetings were held during the year, four of which were clinical evenings. There were two special meetings dealing with National Health Insurance as the policy of the Association, and the attitude of the Cape Western Branch to the proposals for the reorganization of health services. One meeting considered the relations of the Medical Association of South Africa (B.M.A.) to the parent Association.

EXTRA FOODS FOR THE EXPECTANT MOTHER

Doctors are asked to note that a new statement of the Ministry of Food's arrangements for supplying extra rations or priority allowances of foods is now available and is being distributed through local food offices; they should apply for a copy at their local office if they do not shortly receive one. Briefly, the arrangements are as follows:

From July 25, the beginning of the new rationing year, only one medical certificate of pregnancy (R.G. 50) will be required (hitherto doctors have also had to complete certificates for the Board of Trade), on which the approximate date of pregnancy should be entered. On presentation of this certificate at the local food office the expectant mother will receive a child's ration book in addition to her own, which will entitle her to get rather more milk (7 pints priority as well as the normal allowance), extra dried eggs, an additional half meat ration, and the same share of oranges, when available, as holders of R.B.2, and vitamin products as at present. The extra clothing coupons given to expectant mothers will also be available against this medical certificate, and at the local food office, not the public health department as hitherto.

In future, unless the medical certificate states specifically that unsweetened condensed milk is required the sweetened variety will be supplied. Authority to obtain extra supplies of condensed milk will be issued from local food offices immediately on receipt of a medical certificate, and will be for a period of one month, during which time the baby will not be entitled to fresh or national dried milk. If sweetened condensed milk is ordered the child's sugar ration will be cancelled. If in the doctor's opinion condensed milk is required for more than four weeks a medical certificate must be supplied giving details of the infant's condition, age, weight at birth and at time of application, and whether milk or any milk preparation other than condensed milk has been tried and found unsuitable. The local food office will forward it to the medical advisers to the Ministry of Food.

These arrangements for the supply of condensed milk are made to meet the needs of some practitioners. The Food Rationing (Special Diets) Advisory Committee of the M.R.C. considers that condensed milk is an unsuitable food for normal infants and an unnecessary and often inappropriate food in many illnesses of infancy. Its use for infants is permissible only in certain abnormal conditions.

MEDICAL ATTENDANCE ON HOME GUARD

Officers and other ranks of the Home Guard who are suffering from an injury received on duty or from a disability which is regarded as attributable to Home Guard service are, unless they are eligible to receive medical attendance under the National Health Insurance Acts, eligible to receive medical attendance at public expense on the same terms as a soldier of the Regular Army.

Home Guard Regulations provide that, where treatment is not available from military or E.M.S. sources, a member may consult a private practitioner, but on so doing should inform the practitioner at his first consultation that he is a Home Guard member and, in the case of a disability other than an injury, that he claimed that it is attributable to his Home Guard service. He will subsequently notify the Home Guard authorities of his action. In such cases arrangements have been made for Army Form W.4025 to be forwarded by the Territorial Army Association concerned to the civilian medical practitioner giving treatment, and this form will state whether or not the member concerned is eligible for treatment at public expense. Where treatment at public expense is admissible the practitioner, in order to claim his expenses,

will complete Army Form O.1667 and forward this form, together with Army Form W.4025, to the A.D.M.S. of the area or district concerned for settlement as in the case of a soldier of the Regular Army.

In the case of a disability other than an injury in which the Home Guard member fails to observe the instructions referred to above, he will be treated as the private patient of the doctor and will be responsible for the settlement of the doctor's account.

B.M.A.: Meetings of Branches and Divisions

EAST YORKSHIRE BRANCH

The annual meeting of the Branch, which was preceded by a supper, was held at Hull on May 12, thirty-three members being present—a record attendance for this function. Dr. N. GEBBIE, in his presidential address on the doctor and the people, briefly reviewed the important events of the past year, including the publication of the Interim Report of the Medical Planning Commission and the Beveridge report. Dealing with the growing importance of social medicine and the increasing scope of local government, he sketched the trend of health legislation from environmental to personal hygiene, and, recently, to positive health. The inadequate representation of the profession in Parliament and on the committees of local authorities, he said, ought to be remedied before all doctors became State or municipal officials and, as such, ineligible for election.

After Dr. E. M. DEARN was installed as President other officers were elected as follows: President-elect, Dr. C. Simpson; hon. secretary and treasurer, Dr. G. B. Drummond; representative in the Representative Body, Dr. M. B. Coleman. There followed a discussion on matters of local interest and, at the close of the proceedings, a brief meeting of the Branch Council was held.

KENYA BRANCH

The annual meeting of the Kenya Branch was held at Nairobi on Jan. 8, with Mr. C. V. Braimbridge, president, in the chair. The secretary's report for 1942, which was adopted, stated that ten general meetings were held during the year, all well attended, of which three were concerned with problems of sociology in relation to medicine under war and post-war conditions. Dr. Paterson addressed a special meeting on the occurrence of the first case of yellow fever in Kenya. Appreciation was expressed in the report of the invitations issued to members of the Branch to attend the fortnightly clinical meetings at No. 1 and No. 2 General Hospitals; those who had been able to attend had greatly enjoyed their visits. The council had met 12 times and had dealt with an unusually large number of problems, sub-committees being appointed to consider A.R.P., shortage of nurses, maternity services, etc.

Dr. A. J. Jex-Blake is President of the Branch for 1943, and the following officers have also been elected: Vice-president and hon. treasurer, Dr. J. A. Carman; hon. secretary, Dr. F. J. Wright. The president's address at the meeting was on vitamin C. He described the quantitative estimation of vitamin C as practised in the Scott Laboratories, discussed the daily human requirements in health and disease and the importance of vitamins to plants. Quoting from his own analysis, he said that the many Kenya-grown fruits and vegetables examined gave vitamin C figures generally above the averages given in the available tables of reference for other parts of the world.

LINCOLN DIVISION

At the annual meeting of the Lincoln Division held on May 23, Dr. S. Wray presiding, the following officers were elected for the coming year: Chairman, Dr. Wray; hon. secretary, Dr. G. A. B. Walters; representative in Representative Body, Dr. Wray. There was some discussion on the fees charged by the Lindsey County Council to patients who had engaged a private doctor

A.R.M., LONDON, 1943

The Annual Representative Meeting of the B.M.A. will be held at B.M.A. House, Tavistock Square, London, W.C.1, on Tuesday, Wednesday, and Thursday, Sept. 21, 22, and 23, 1943.

APPLICATION FOR TYRE PERMITS

It will help the Regional Petroleum Officers to deal promptly with applications from doctors for tyre permits if doctors will mark the application forms with the word "Doctor" and quote their reference numbers.

H.M. Forces Appointments

ROYAL ARMY MEDICAL CORPS

Lieut.-Col. (Temp. Col.) H. Alcock, having attained the age limit for retirement, is retained on the Active List supernumerarily to establishment. The initials of Major G. H. Barry are as now described and not as stated in a Supplement to the *London Gazette* dated June 15.

REGULAR ARMY RESERVE OF OFFICERS

The following Officers, late R.A.M.C., having attained the age limit of liability to recall, have ceased to belong to the Reserve of Officers:

Lieut.-Gen. Sir H. Fawcett, C.B., C.M.G.
Lient.-Gen. Major-Genrs. R. B. Alsmuth, C.B.
D.S.O. O.B.E. P. H. Henderson, C.B. D.S.O.
J. F. Martin, C.B. C.M.G. C.B.E. H. P. W. Barrow
Lt. St. A. Maughan, D.S.O. C. M. Drew, D.S.O.
Col. L. V. Thurston, D.S.O. A. C. Hammond Scadding,
M.C. J. F. Meekering, D.S.O. N. Dunkerton,
A. G. Wells, D.S.O. and H. Gall, Clesic, O.B.E.

ROYAL ARMY MEDICAL CORPS

Major D. H. H. Newen-Spence, R.A.M.C., having attained the age limit of liability to recall, has ceased to belong to the Reserve of Officers.

Major J. A. G. Burton, M.C., R.A.M.C., having attained the age limit of liability to recall, has ceased to belong to the Reserve of Officers.

TERITORIAL ARMY, R.A.M.C.

1. TERRITORIAL ARMY, R.A.M.C.

Unpublished his commission on account of ill-health
 War Subs. Major A. G. W. Whithell has re-
 Col. (Substituted for the honorary rank of Lieut.-
 ment to the London Gazette dated Feb. 26.)
 Lieut. W. E. Adams, from supernumerary in a Supply-
 Corps (Medical Unit), to be Lieut.
 service with Leeds Unit, (Senior Division) Training
 Lieut. J. F. Mawc, from 5th Bn. Queen's Royal
 2nd Lieut. (War Subs. Lieut.) A. A. Clark, from
 supernumerary for service with Glasgow Unit. Com-
 Lieut. Senior Training Corps (Signal Unit), to be

LAND FORCES: EMERGENCY COMMISSIONS

Major (Vet Sub). Lieut.-Col. (Temp. Col.)
W. M. Cameron, O.B.E., to Lieut.-Col.
Wart Sub. Capt. C. T. Gaskin has relinquished
his commission on account of ill-health and has
been granted the honorary rank of Major.
The surname of Lieut. M. H. Gleeson-White is
as now described and not as stated in a *Supply*
ment to the *London Gazette* dated May 25.
Lieut. R. J. Kenyon has forfeited all service
for the purpose of promotion.
to be Lieut. C. J. A. O'Kelly, D. E. W.

OM

The following M.O.s have been granted commissions in the rank of Lieut: Majestic A. Billingshurst, Kathleen Downing, Helen S. Fraser, Jean Major, Betty M. Marjess, Elizabeth H. Renwick, Ruth M. Stevenson, Lily M. Williams

MAITABELAND BRANCH

Later a general meeting was held, to which all doctors in the area had been invited. The report on the year's work of the Local Medical War Committee was read by Dr. Ratlow, who paid a warm tribute to Dr. Lyons for his hard work as secretary of the committee. The constitution of the L.M.W.C. in its present form was approved, and Drs. A. Maider and T. O'Brien were unanimously re-elected as members of the committee to represent all the professions in the area. The chairman then read the first report of the Representative Committee, and his satisfaction was expressed that the committee had taken a firm stand on the question of the control of the profession by local authorities.

MAURITIUS BRANCH

The Manhattan Branch held seven meetings during 1942, two being medico-political gatherings. Matters discussed were an emergency medical service for air-raid casualties, regulation of the distribution of opium, quinine, etc. On July 9 Dr. H. Adler, vice-president of the Branch, gave an address on vitamins, paying particular attention to vitamin B, and beriberi, and vitamin B₂ and niacin.

SOUTHERN RAILROAD DIVISION

The annual meeting of the Division was held at Goldsboro on April 25. Dr. Freew presided. Dr. J. H. Hume, Roxburgh, was elected vice-chairman. Dr. D. A. R. Haddon the representative in the Representative Body, and Dr. A. Simpson hon. secretary. A cordial vote of thanks was given to Dr. McWhan for all the work he had done in the past in representing the Division so satisfactorily. After hearing a report from Dr. McWhan, the meeting approved the method of choosing representatives to discuss the proposals put forward by the Ministry. It was suggested that the secretary should write to health officers requesting that adequate attention should be given to the representation of rural practitioners. On the question of medical attendance on the sick poor, it was decided after discussion that the secretary should write to Berkshire County Council requesting that members were willing to contribute £2 per annum for the town or borough and £2 per annum for the parish or village boundary; the scheme to be on this for one year.

SUPPLEMENT TO THE
 BRITISH MEDICAL JOURNAL

ROYAL AIR FORCE

Wing Cmdr. (Temp.) (since promoted) G. A. H. Knight has been granted the rank of War Subj. Wing Cmdr. Squad. Ltr. (Temp.) C. E. C. Wickham has been granted the rank of War Subs. Squad. Ltr.

BIRTHS

D'AWAY.—On July 11, 1941, at the residence of Nursing Home, Dorking, to Miss Alice D'Away, wife of Capt. Peter D'Away, R.A.M.C., a daughter.

McGANN.—On July 16, 1943, to Ellen, wife of Dr. Maurice B. McGinn, Much Birch, Hereford, a second son.

Whites.—On July 11, 1943, at Queen Mary Nursing Home, Derby, to Miss Jessie Whites, R.A.M.C., a daughter.

DEATH

overseas, as the result of an accident, Squadron Leader Thomas Dixon R.A.F.A., B.A.(Oxon), L.M.S.S.A., only and dearly beloved son of Thomas and Mrs. Audrey of Westover House, Bilton, and daughter of Ann (née Edna Truett), The Grange, Bilton, Bilton, aged 36 years.

BIRTHS, MARRIAGES, & DEATHS

[illegible]

DIARY OF SOCIETIES AND LECTURES

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION, 11,
Chandos Street, Cavendish Square, W.—*Thurs.*,
10.30 a.m. 102nd annual meeting.

WEEKLY POSTGRADUATE DIARY

BRITISH POSTGRADUATE MEDICAL SCHOOL, DUCANE
Road, W.—Daily, 10 a.m. to 4 p.m., Medical
Clinics, Surgical Clinics and Operations, Obstet-

COLONIAL MEDICAL SERVICE

dated June 11, p. 2684, col. 2, is cancelled.

The notification concerning G. E. S. Robinson published in a Supplement to the London Gazette

Maxwell-Smith, W. S.
Wallace, E. O. Barnes, W. M. Connell, W. S.
T. C. Gibson, M. E. Lemerie, J. C. Smith, P. K.
Travers, and S. Young.

To be Flying Officers (Emergency): F. C. Clavin, B. I. Corbin, W. G. Manderson, E. G.

Robinson, M. F. M., Ryan, J. W., Smith, R. W.,
Stevenson, C. H. D., Bartley, M., Donnelly, R. S.,
Henderson, P. R., Henson, R. C., Howard, W. E.,
Lishman, W. C., Moonic, G. B. S., Plimblett, F. S.,
Rickards, F., Stansfield, W. H. N., Angus, E. R.,
Devlin, W. D., Dick, R., Lees, J. A. F., McLean,
and J. V. Mitchell to be War Subs., Fl. Liaison.

D. Jaboor, A. Jamieson, A. S. Johnston, G. E. McNeil, G. F. Maguire, F. H. Moorhead, H. S.

ROYAL AIR FORCE VOLUNTEER RESERVE

Squad, Lieut. A. M. Stewart-Wallace has relinquished his commission on account of ill-health and is in the reserve rank.

Lieut. S. J. Lucas, Captain and C. S. Grossmark have relinquished their commissions on account of ill-health and are in the reserve rank.

Flying Officers W. E. Chapman, C. F. Sanders, R. Asquith, G. S. Turner, A. G. Wailes, B. Johnsons, S. Childs, R. Dickinson, C. B. Gibbs, W. M. Macdonald, G. F. Stamp, N. D. Donald, E. N. Bolton, P. Newman, D. B. Roberts, G. W. Forrest, N. Newman, and J. C. Somerville, G. J. Ansell, M. W. Atkinson, E. W. Cress, R. C. Dickson, A. E. Jones, V. A. Paine, N. N. Saunders, A. Shapiro, G. H. Ellidge, P. A. Pearce, H. G. Woisick, C. L. Alderson, S. Y. Macdonald, D. V. Martin, J. Perrin, R. A. V. A. Southern, J. I. Timothy, R. V. A.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 31 1943

Correspondence

1912: Can it Happen Again?

SIR.—I had been one year in practice when the controversy about the part that the medical profession was to play in the working of the National Health Insurance Act blew up. Superficially the attitude of the profession in Leeds, official and individual, was: "We will never surrender." For some time I myself had been aware that doctors had already hinted to their patients that they were going on the panel and were canvassing for prospective panel patients either themselves or through the medium of agents.

At a general meeting of the profession about a week before Mr. Lloyd George's ultimatum expired and the last day for "signing on," I made a short speech. I said that, though I did not feel competent to form a judgment on the wisdom of acceptance or further resistance to the Insurance Act, I was satisfied that the medical profession was beaten not by external forces but by those of internal disintegration. I said that I would not join the panel until the last possible moment and only then if I judged that further resistance was futile. I was not popular for making this prognosis, which was abundantly proved to be correct. A rising consultant who spoke in the same strain for a time ceased to rise at all.

I signed on ten minutes before the list was closed. The clerk to the Insurance Committee said: "You were nearly too late; you might just as well have come sooner"; and he showed me the names of doctors who, though they had in public been bitter and unrelenting opponents of the Bill, had signed on as much as six weeks before.—I am, etc.,

Leeds.

E. WRIGLEY BRAITHWAITE.

Certificates and Compulsory National Service

SIR.—Dr. Avery (*Supplement*, June 26, p. 76) mentions one point about the certificates required by the Ministry of National Service, and the possibility of their being over-riden by the Ministry's officer on the advice of a referee. I think it time that the whole question of these referees, their appointment, and the job they are expected to do should be brought into the light. The posts were not advertised, but the Local Medical War Committees were asked in some cases to nominate suitable practitioners; in other cases practitioners were invited by the Ministry's local officer to take on the job, and the appointment was then brought before the L.M.W.C. for approval.

I have no axe to grind, but it does not seem that this latter method will always secure the best possible referees, while the former method is also rather secretive. Should not these posts be advertised as are those for examining surgeons under the Factories Act, and the appointment made by the local

representatives of the Ministry on the merits of the doctors who apply? If the Ministry does not feel capable of selecting, it could hand over the duty to the L.M.W.C. after the post has been advertised and the advertisement answered.

Secondly, there are grave objections to the policy of the Ministry in sending people to the referee nearest to where the person lives. This usually means that the person is examined by a professional neighbour of the original certifying doctor—a state of affairs which is condemned by the B.M.A. in connexion with the N.H.I. Regional Medical Service. But a still further point against the present state of affairs is that the examination is made in the referee's own surgery. I would suggest that these examinations should be made at a central point selected by the Ministry—e.g., at the Ministry's local office—and that a referee should travel to this office from a reasonable distance so that it would be extremely unlikely that he would have to examine patients of his professional neighbours. In order to help the referee in coming to a decision the applicant should be given a form to be filled up by his own doctor, asking specific questions such as "Can the applicant carry a bucket of water 25 yards?" About ten questions would probably bring all the necessary facts to light and enable the referee to come to a just decision.—I am, etc.,

Bristol.

N. S. B. VINTER.

Travel Facilities for Merchant Navy Officers

SIR.—Some time ago I drew your attention to the fact that no officers in the Merchant Navy with the exceptions of the master and chief engineer were allowed first-class travel when proceeding on leave. I considered this ruling an insult to both surgeons and pursers. A circular has now been issued by the Shipping Federation stating that in future the concession of first-class travel would include chief officers and second engineers but not "other officers." All officers of all H.M. Forces have the privilege of first-class railway travel. Why the invidious discrimination in the case of officers in the Merchant Navy?—I am, etc.,

T. W. ATKINS,
Surgeon, M.N.

* The Secretary of the B.M.A. writes: The Association has already raised the matter with the Admiralty, which referred it to the Ministry of War Transport. The latter informed the Association in a letter dated May 20, 1943, that the present scale for ranks and ratings travelling as passengers confers entitlement to first-class passage only on masters, chief officers, chief engineers, and second engineers, all other Merchant Navy officers being given second-class passages. It is proposed to reconsider this scale in the very near future, and that when this is done consideration will be given to the claims of ship surgeons to be provided with first-class passages.

Safeguarding the Finance

SIR.—Our profession agreed to accept Assumption B of the Beveridge report if the Government decided to enact it, and thus to provide a complete medical service for every citizen. Doubts and dismay have since arisen among doctors from fear lest officialdom infiltrate the profession and engender a servile whole-time service. They were mainly general practitioners at that meeting on March 31, and not only knew they were bowing to the inevitable but were acting as men of good will, aware that the families of insured persons need the care of doctors even more than the insured themselves.

When the National Health Insurance measure was still a Bill, a scheme for including the women and children at a little increased cost to the State was advanced by the doctors centred in Manchester. A thousand signed it. Mr. Lloyd George would have none of it, hardly considered it. The case of the women and children was among the things to come, he said. The scheme provided that by a pool and deposit system the stamps on the cards went to the pool, as now, but that the family was to be the unit, and all its members would enjoy medical benefit with this one check and proviso—that the insured person was to pay for the initial treatment, his own, and that of his dependants, to a limit of liability equal in any year to two weeks' wages. Every insured person was to have a Post Office Savings Bank account into which the insurance system would pay small deductions from his wages. If his deposit exceeded two weeks' wages, he could, if he wished, withdraw the excess; but that amount must be kept in to meet the contingent liability.

Thus there was an incentive not to "go sick"; there is none under the Beveridge scheme. Subconscious malingering will be at a premium, and a substantial minority will fall into the way of doing it. Sir William Beveridge suggests in his report that the doctors must act for the State in watching this. Now, if they act for the State in the matter of preventing malingering will they be family doctors? Under such a system medical practice as the years have built it up will finish. If a primary function of medical men is to safeguard the finance of the scheme, then they must be State servants, whole-time salaried officials, owing their primary duty to the State.

The lately published brochure, which suggests that free choice of doctor and specialist with a salaried service in operation is at all possible therein, is misleading. The advocates of a State service, which is a salaried service, must face the implication of their views, that they spell the end of the family doctor's relation to his patients, which depends on their choice and continued trust, and on freedom to make fresh choice should that trust fail; and upon his acceptance of duty and full responsibility in regard to them. But if this old and tried rela-

A LOCAL VIEW OF STATE MEDICAL SERVICE

tion is of value and is to continue under the Beveridge plan, then the pool and deposit system affords no small financial safeguards to the funds. That system, and indeed applied to 100% of the population, would check the reckless use of the benefit for trivialities and reduce the present enormous cost of short illnesses automatically.—I am, etc.,

LIONEL JAS. PICTON,
Holmes Chapel, Cheshire.

At a recent meeting of the Norwood Medical Society, held to discuss the proposed State Medical Service, and attended by two-thirds of the doctors remaining in practice in the district—of the eleven who did not attend eight are over 60 years of age—the following resolutions were passed:

(1) All questions regarding treatment of medical men under control of this service largely in the hands of National Medical Science, it must leave the State, if the State wishes for a part, we feel that the medical profession are not to be interfered with in their professional activities, and that the State should not attempt to control them in their professional activities.

(7) All administrative medical officers concerned with general practice must themselves have had not less than ten years' experience as general practitioners.

(5) All practitioners on the *Medical Register* on the appointed day shall have a right of entry into the service and also all practitioners subsequently admitted to the *Register*.

(6) For purposes of pension, seniority, etc., in the service, the date of registration shall be counted as the day of entry into the service.

(7) We are hereby opposed to the continuation of the present system.

by logical authorities that are not predominantly medical."

history while in the Forces, application should be made to the "Commissioner of Medical Services, Ministry of Pensions," at the nearest Regional Office of the Ministry (addresses given below). The man or woman's name, unit, and number, with date of discharge (if known) should be given in all cases. It should be clearly understood that any

information furnished by the Ministry is for no other purpose than the doctor's treatment needs of the patient.

Palace, Exeter; Leeds: 36, York Place, Leeds; 1, Manchester; Sunlight House, Quay Street, Manchester; 3, Newcastle; 51, St. Mary's Place, Newcastle-upon-Tyne; Worthing: 35, Camington Street, Nottingham; Reading: Whiteknights Road, Wokingham.

H.M. Forces Appointments

B.M.A. LIBRARY: ORDER CARDS
The Postmaster-General informs us that the business reply cards and envelope service licence is revoked from July 31, 1943. Members are requested to affix a 1d. stamp to all library order cards posted on and after Aug. 1.

H. M. Forces Appointments

Major Gen. Col. R. W. Vint, late R.A.M.C., on comple-
ment of the Active List supernumerary to establishment.
Lieut. Col. G. A. Bridge, M.C., from R.A.M.C.,
to be Col.
Capt. N. F. Field, half-pay list, late R.A.M.C.,
has retired on account of ill-health.

C.B.E., to be Aft Cdr.
Wing Cmdr, Temp, Group Capt. E. C. K. H.
Forceman and G. H. H. Maxwell to be Group
Capt.
Wing Cmdts, C. A. Lindsay, R. W. White,
P. O'Connell, and A. Dickson to be Temp.
Group Capt.
Squad Ldrs, (Temp, Wing Cmdrs), F. W. P.
Dunhill to be Wing Cmdr.
Bjair, A. W. Smith, J. W. Parick, J. S. Wilson,
Ltrs, G. H. Mortley, and C. A.

[illegible]

RESERVE OF AIR FORCE OFFICERS
C. Squad, Lt. R. E. W. Fisher, C. F. R. Bridges,
C. M. Jones, E. A. Rice, and A. R. French to
be Wing Cmdrs. (Temp.).
Fl. Ltens. E. T. Moore, O.B.E., and R. A. W.
Kerr to be Squad. LtDs. (Temp.).
ACQUITTARY AIR FORCE
Squad, Lt. D. A. Smith, M.B.E., to be Wing
Cmdr. (Temp.).
Fl. Ltens. J. Glover, K. A. Daw, E. Law, E.
F. Francis, T. G. Davies, C. R. C. I.
Foot, J. E. F. Francis, T. G. Davies, C. R. C. I.

Barham, L. S. Calvert, J. M. Kemp, B. G. B.
El. Licens, R. L. Shier, W. Corbett, T. M.
Ellis, and W. M. Robinson to be Wing Commanders. (Temp.)
Squad, Ldr. L. J. Davies, K. Robinson, M. P.
Royal Air Force Volunteer Reserve
and C. O. Hudson to be Squad, Ldr. (Temp.)
J. Cann, E. C. Davies, H. J. Harcourt, J. Probert.

**SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL**

INDIAN MEDICAL SERVICE

[illegible]

J. M. Drury-White, J. F. Cameron, J. M. Mc
G. McCracken, R. M. Craig, R. Gardiner, /

Lieut.-Col. K. Lee to be Col.
Lieut.-Col. A. Chand, E. R. Daboo, M.C.,
Jamauludin have retired.
Major R. A. Weston and M. S. Gupta 1
Lieut.-Col.
EMERGENCY COMMISSIONERS
Capt. C. Conway has relinquished his commission account of ill-health, and has been granted honorary rank of Capt.
To be Capt.: L. M. McKenzie, A. C. M. Porter, A. R. Addy, E. J. Ruben
Maj. McGowan, H. Lipman, K. J. S.

To be Lieuts.: J. F. Cameron, A. W. May, B. R. V. Leigh, B. M. Craig, A. G. Dougherty.

Lieut.-Col. K. Lee to be Col.
Lieut.-Col. A. Chand, E. R.
Jamaid-Din have retired.
Major N. A. Weston and M. S. Gupta
Capt.-Col.

Emergency Commissioners

on account of ill-health, and has been re-
nounced rank of Capt.
To be rank of Major.
Mackenzie, V. C., 86
R. J. Roberts, H. Lupton, K. A. 50
MacG. P. Wier, A. B. Addison,
J. M. Dwyer-White, F. Cameron, J. M. Mc
Glick, A. G. Dougherty, and D. K. Carney
to be Capt.
Lieut. J. T. Bendville, M. A. C. Mac
Lennan, I. E. Bookish

Gibson, and N. K. Wolf to be Capt. (on p-

F.R.C.P., Deputy Director of Medical Services,
Uganda.

COLONIAL MEDICAL SERVICE
The following appointments are announced
G. D. Greene, M.R.C.P., and J. Soddy, M.R.C.S., M.R.C.P., Colonial Medical Officers, Coast; Miss E. Jackson, M.B., Ch.B., M.D., M.R.C.P., M.R.C.S., M.R.C.P., Colonial Medical Officers, Coast; Murray, and M. W. Gurnsield, Gardiner, A. G. Hick, and McCracken, I.

12.15 p.m., Surgical Conference; 2 p.m., G

WEEKLY POSTGRADUATE DIAL
British Postgraduate Medical School, Dr
Road, W.—Daily, 10 a.m. to 4 p.m., 10
Clinics, (Surgical) Clinics and Operations, 10
ics and Gynaecological Clinics and Opera
Daily, 1.30 p.m., Post-mortems, Tues., 10
baccinate Clinic: 11 a.m., Gynaecolo

head is 103. 69. This dimension is indicated with the notice, authenticated with the name

Edinburgh Postgraduate Lectures.—At Edinburgh: Ward Clinic; 2 p.m., Sterility Clinic. Royal Infirmary, *Thurs.*, 4.30 p.m. Mr. D. Morrison: Uteritis; A Clinical Survey.

SHAW—ANDERSON.—On Jan. 10, 1897, George Shaw to Leonard, Clara field, Cheshire, George Shaw to Leonard, Clara Anderson of New York.

BIRTH—On July 23, 1933, at Maternity H. Scunthorpe, Lincs., to Olive (née Lewis), wife of Dr. L. K. Crow (formerly of New Zealand son (Richard James).

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 7 1943

British Medical Association

SUPPLEMENTARY ANNUAL REPORT OF COUNCIL, 1942-3

Every member is requested to preserve this SUPPLEMENT, which contains matters referred to Divisions, until the subjects have been discussed by his Division

PRESIDENT OF THE ASSOCIATION, 1943-4

Sir Beckwith Whitehouse was elected by the Annual Representative Meeting at Aberdeen as President of the Association, but owing to the war situation he did not assume office until the Annual Meeting in 1942. The Council now proposes that Sir Beckwith Whitehouse should be re-elected as President and recommends:

Recommendation: That Sir Beckwith Whitehouse be elected President of the Association for 1943-4.

[The Council deeply regrets that shortly after the meeting of the Council at which this Recommendation was made Sir Beckwith Whitehouse collapsed and died.]

FUTURE OF MEDICAL SERVICES

The Council outlined in its Annual Report the events leading up to the appointment of a Representative Committee, to explore, in discussion with the Minister of Health or his officials, the medical problems raised by Assumption B of the Beveridge report, and to put forward to them the views which were believed to be those of the majority of the profession. It had no power to commit the profession to any policy or undertaking in any way whatever. The discussions have now concluded; and the Representative Committee has presented a confidential report to its constituent bodies, including the British Medical Association. The report has been considered by the Council. In its discussions with the Ministry the Representative Committee was guided in general by the B.M.A.'s *General Medical Service for the Nation*, the Draft Interim Report of the Medical Planning Commission reviewed in the light of the criticisms and observations made by the constituent bodies of the Commission, and the general principles which will be mentioned below.

The Minister intends shortly to issue a White Paper surveying the position. It will in no way commit the medical profession. The Representative Committee urged upon the Minister that the White Paper should be confined to a statement of the problems and not commit the Government to any one solution of those problems. In this way there would be facilitated a free and frank discussion of problems by the public, by the profession, and by other affected groups.

The Representative Committee reported that, on the Ministry's ruling, the discussions were confined to the consideration of a comprehensive health service available to the whole community. They ranged over a wide field of subjects, such as central and local administration, health centres, free choice of doctor,

private practice, and methods of utilizing the services of medical practitioners, including methods of remuneration. Though the Committee did not in any way commit the medical profession, it reached the conclusion that there should be an early statement by the profession of the fundamental principles that should form the basis of any future reorganization of health services, whatever the contents of the White Paper.

The Council is in agreement with this view, and, after consideration of the general principles enunciated by the Representative Committee, it submits the following recommendations for the consideration of the Divisions.

Principles

Recommendation A: That the Representative Body reaffirms the following basic principles laid down in the Association's *General Medical Service for the Nation* approved in 1938:

(i) That the system of medical service should be directed to the achievement of positive health and the prevention of disease no less than to the relief of sickness.

(ii) That there should be provided for every individual the services of a general practitioner or a family doctor of his own choice.

(iii) That consultants and specialists, laboratory services, and all necessary auxiliary services, together with institutional provision when required, should be available for the individual patient, normally through the agency of the family doctor.

(iv) That the several parts of the complete medical service should be closely co-ordinated and developed by the application of a planned national health policy.

Recommendation B: That the health of the people depends primarily upon the social and environmental conditions under which they live and work, upon security against fear and want, upon nutritional standards, upon educational facilities, and upon the facilities for exercise and leisure.

Recommendation C: That the efficiency of a country's medical services, both preventive and curative, depends upon the available medical and scientific knowledge, upon the character and extent of medical education, and upon the absence of any economic barriers that impede the utilization of such services. Thus, in order to improve the country's medical services, the facilities and resources for medical research should be greatly increased and methods devised for their adequate application; medical education, both undergraduate and postgraduate, should be maintained on a high standard and be adapted to modern needs; the facilities for postgraduate medical education should be greatly increased; and wherever economic barriers

prevent an individual taking advantage of medical services such barriers should be removed.

Recommendation D: That, subject to these general and overriding considerations, the functions of the State should be to co-ordinate existing provision, both official and non-official, to augment it where necessary, and to secure that it is available without economic barrier to all who need it. The State should confine itself within these wide limits, invading the personal freedom of both citizen and doctor only to the extent which the satisfaction of these functions demands.

Recommendation E: That the State, while assuming responsibility for the organization and provision of medical services, should not assume control of doctors rendering individual or personal health service. It is not in the public interest that the State should convert the medical profession into a salaried branch of central or local government service.

Recommendation F: That free choice of doctor should be preserved as a basic principle of future health services, and no administrative structure should be approved which does not both permit and encourage such free choice.

Recommendation G: That it is not in the public interest that the State should invade the doctor-patient relationship. The loyalty and obligation of a doctor rendering personal health service to an individual patient should be to that patient and to none other.

Recommendation H: That free choice of doctor should be reinforced by a method of remuneration which relates remuneration to the amount of work done or the number of persons for whom responsibility is accepted.

Recommendation I: That every member of the community should be free to consult the doctor of his choice either officially, as when he consults the doctor he has selected under an official service, or privately, as when he consults some other doctor, whether that doctor is a member of an official service or not. Nothing should be done to encourage the splitting of the medical profession into two groups—the official doctors and the non-official doctors.

Recommendation J: That consultants and specialists should normally be based on the hospital. For those persons who wish to be treated in private accommodation, whether part of a hospital or not, private consulting practice should continue as at present.

Recommendation K: That the central administrative structure set up by the State for the central administration of the medical service in the future should be a body concerned only with civilian

SUPPLEMENTARY REPORT OF COUNCIL

20 AUGUST 7, 1943

health services, but it should be responsible for all administrative by central government. The Minister to whom this central administrative body is responsible should be advised on medical matters, including personnel, by a medical advisory committee, representative of the medical profession. Locally, new administrative bodies, responsible to the central authority, should cover wide areas and indirectly, directly or indirectly, in approval of the community served and, in approval of the local medical profession. They should be represented on medical matters, including personnel, by local medical advisory committees representative of the local medical profession. These administrative changes should be registered as foundation changes to be completed before other changes are initiated.

Recommendation 1: That all branches of medical practice should be regarded as a single service, and it is undesirable that a detailed scheme for general practitioners should be framed and put into operation without corresponding arrangements of practice.

Immediate Proposals

1. The Association has for many years encouraged developments of the kind indicated in the above, with a view to

advocated by the Commission. The Commission's emphasis on the removal of the great majority of the Commission's

special emphasis for the provision of economic barriers for the population, by extensions and of the National Health Insurance number of

of the people of National. It has also taken a number of improvements of National. It has also taken a number of improvements of National.

practical steps to turn the private

the price of the product for the dependants of medical services and persons of similar persons and persons of similar Council believes

economic status. The Council denies insured persons and persons who are not full utilization and extension of present available

that by the full utilization of the resources at present available in the Beveridge report and the consideration of the Group Commission of the Council of the

Assumption B of the foundation could be satisfied pending the completion of the foundation mentioned in the report.

...and compensation changes mentioned above.

Recommendation M: That patients receive physical treatment during the physical examination, while the physician considers and completion of the recommendation.

the consideration of administrative changes recommended by an

and in accordance with the provisions of the National Health Insurance Act, 1911, and the regulations made thereunder, the supply of the smaller

[illegible]

and others of the laboratory and hospital facilities as the technician

PROCEEDINGS

REPORT OF THE
COMMITTEE

A special meeting of the Council considered a report from the Representative Council which has been discussed at its constituent bodies.

consideration of the various difficulties involved in a Minister of Health in a certain general formative Committee to its constituent principles which, in the contents of the

ing with comprehensive medical service, was held with Mr. H. S. SOLTNER in his view, whatever the Commission on certain White Paper, should join the future reorganization of that the

on July 28, with Mr. McDonald, and the chair.

It was first proposed by Dr. Peter Macdonald, and seconded by Dr. Peter Macdonald, and I am glad to say that Sir

agreed unanimously, that the Annual Meeting take place at the University of Toronto, which was requested by the Executive Committee.

continue in office for another year, a warm expression of Backwith Whitehouse's nature of the Ministry's com- taken place from which could be drawn as to the Council was had and comprehensive that the R.

could be given in advance of the Council's consideration of the document before the Council. The document would be returned home to the Council for its consideration. The Council would then be reminded—and

The document contains a statement by the profession, consideration by members, heart attack, when about to return from the meeting, has been from the President's Secretary.

been heard with deep regret by Birmingham from [Cummings] and the Association.]

of the Council and

of the Council and

of the Council and

of the Council and

of the Council and

of the Council and

the public also—that the Association been hard at work on these problems since 1928, and that certain principles were succinctly set out in the proposals for a General Medical Service for the nation, last published in 1938, and (except for one paragraph irrelevant in the present connexion) unanimously adopted by the Representative Body in that year. He was sometimes alarmed when he found people writing in the *Journal* that though nothing need be done to improve the medical services of the country, this was not the policy of the Association which had endeavoured to devise an improved medical system, and had merely been driven into it because William Beveridge and the Minister Health had taken action.

It was agreed that a reaffirmation of the four basic principles laid down by the Association in 1938 should stand at the head of the document.

The CHAIRMAN pointed out that not only had a number of the ideas of the Medical Planning Commission been adopted by official planners but even its language had in part been taken.

Discussion arose on the inclusion of the word "rehabilitation" ("a comprehensive health and rehabilitation service"). It was felt that the word in this connexion might be misconstrued and the narrow meaning of refitting for industry, and the Council decided that the phrase "a comprehensive health service" was sufficient.

Control in the New Service

Dr. P. ISWALD raised a question on paragraph (v), which stated that, while the State assumed responsibility for the organization and provision of medical services, it should not assume control of doctors rendering individual or personal health service. Was the Government to be asked to provide the money and to "orgo control"? The CHAIRMAN said that he intended meaning was that the State should not interfere with the doctor in the pursuit of his professional avocations. There should be no dictation to the doctor, and the PRESIDENT pointed out that in the case of universities the Government did provide money but delegated the control. Mr. ZACHARY COPE said that the control referred to in the paragraph was complete control, not incomplete control as instanced in the function of an advisory body.

It was proposed that in order to make it clear the word "professional" should be inserted before "control" should not assume professional control. Dr. H. G. DAIN argued against this amendment. They were trying, he said, to arrange a service for the whole of the individuals of this country, and in doing so to retain freedom of choice for doctor and patient. The qualification of the word "control" would suggest that a giving service to an individual they must necessarily be under some control. Other members considered the word "professional" to be ambiguous, and the proposal to introduce it was negatived. In the next paragraph, which urged the free choice, Dr. DAIN said:

On the next paragraph, which urged the encouragement of free choice, Dr. W. W. Fox asked what was meant by such encouragement. Dr. F. W. GRANT considered that it was well to use the word because the great discourager of free choice up to now had been the Government. The CHAIRMAN said that it was a very old principle of the Association which was

paragraph was adopted without amendment. FARNALD also took objection to the high emphasized the

Dr. INWALD also took objection to the next paragraph, which emphasized the loyalty of the doctor to the individual patient and to none other. He thought this was a narrow view. Circumstances might arise in which their loyalty to the patient militated against the community. The CHAIRMAN said that loyalty to the patient as taking precedence of any other loyalty had always been accepted by the profession.

The Doctor of the Patient's Choice

A good deal of discussion took place on paragraph (ix). Dr. NOEL WATERFIELD wished it to be made clear that a member of the community had the choice not merely of doctor but of the terms on which he was to be treated—that is to say, whether as a private patient or a patient in an official health service. Dr. DAIN thought that to alter the paragraph might make difficulties. It was obvious that the principle that a doctor should be paid twice over for the same patient could not be maintained. Dr. WATERFIELD thought that the precedent was set by the "own arrangements" method in National Health Insurance. Eventually a clearer form of words than that originally employed was arrived at and adopted on the motion of Dr. O. C. CARTER, seconded by Dr. DAIN:

member of the community, to be doctor of his choice.

"Every member of the community to be free to consult the doctor of his choice, either officially, as when he consults the doctor he has selected under an official service, or privately, as when he consults some other doctor, whether that doctor is a member of the official service or not. Nothing should be done to encourage the splitting of the medical profession into two groups—the official doctors and the non-official doctors."

Immediate Proposals

Dr. INSWALD, in referring to section 6 of the report, which laid it down that Assumption B of the Beveridge report would be satisfied, so far as was at present practicable, by an extension of National Health Insurance, asked how this resolution could be squared with the statement of the last Annual Representative Meeting that the new service should not be an extension of National Health Insurance.

SECRETARY (Dr. Anderson) said forward by the

The SECRETARY (Dr. Anderson) said that the questions put forward by the Medical Planning Commission were in the form of three suggestions. One of these was the simple extension of National Health Insurance to dependants and others and the widening of the scope of its service, and this was turned down by the Representative Body, but only in favour of another of the suggestions, which again was the two-way extension of National Health Insurance but plus certain other administrative changes.

It was pointed out that the Representative Body did vote in favour of the two-way extension method as an immediate and interim measure. Dr. DANI suggested that whatever was done at the Annual Representative Meeting on the last occasion there was no objection to putting forward new proposals.

The paragraph without amendment in this respect. Dr. J. G. THWAITES thought that a reference should be made at this point in the document, not only to what the B.M.A. had proposed but to what it had actually done, as, for example, in the institution of Put

It was agreed that a reference of this kind should be incorporated. Prof. PICKEN said that personally he did not like the suggestion in the Beveridge report that the function of the medical profession was to protect an insurance fund by a sort of deterrent certification. The interest of the profession was in the well-being of its patients, not in bolstering up a fund. The Council generally agreed with this view, but it was thought that the present document was not an appropriate place in which to express it. The report as amended was then unanimously agreed to.

The Negotiating Body
Dr. WAND suggested that there should be remitted to some committee the consideration of the setting up of the negotiating body now that the stage of discussion had been concluded. The method whereby the Representative Committee for discussion with the Ministry had been set up had given rise to objection in some quarters, and it would forestall objection with regard to the negotiating committee if early consideration were given to this point in time to give the necessary information at the Annual Representative Meeting. The proposal was agreed to, and the Executive Committee was asked to undertake the matter.

The CHAIRMAN said that the Annual Representative Meeting in September would not be able to consider the White Paper. That would necessitate the calling of a Special Representative Meeting later on, and it would presumably be at that meeting that steps would be taken to form the committee.

THE FUTURE OF PSYCHIATRY
The Council had before it a report on the future of psychiatry, recently adopted by the Psychological Medicine Group. The report was prepared primarily for the information of the Representative Committee, but there was also a suggestion that it might be published as an Association "grey book," as it was a supplement to a previous report of the Mental Health Committee, which was now to some extent out of date. Three members of the Group Committee attended the Council to present the report—namely, Dr. Noel H. M. Burke, Dr. Millais Culpin, and Lieut.-Col. A. A. W. Petrie. PETRIE said that the report was

Col. PETRIE said that the report was the considered judgment of a large number of psychiatrists, who had held two conferences on the subject, each of which had an attendance of about sixty. The report embodied a number of compromises, but it did represent a general view.

Dr. H. G. DAIN asked whether this report had been submitted to bodies of medical men other than psychiatrists. Had the views of practising physicians and surgeons been taken into consideration in drafting the document? It seemed to him, to a large extent, to take psychiatry out of medicine, and to suggest that physicians and surgeons and general practitioners did no psychiatric work at all.

PETER MACDONALD thought that the report should be given to the Association.

Dr. PETER MACDONALD thought that more consideration should be given to the document before it became an Association "grey book." He criticized certain paragraphs, notably the statement that alcoholic addiction did not call for any unusual methods of treatment. One treatment for alcoholism was subtoxic doses of atropine and strychnine; another was hypnotic suggestion. Were

AN APPEAL FOR BACK NUMBERS

H.M. Forces Appointments

Members who do not preserve their copies of the Journal are invited to send their copies (preferably in bulk) to B.M.A. House, addressed to the Secretary of the Journal. The cost of carriage will be repaid. There is a constant demand for back numbers and each issue goes quickly out of print; hence any spare copies published during the war will be welcome. The steady growth in membership to a figure well above 43,000 has increased the circulation of the Journal by 12% in the past four years, because every new member must have his own copy. Every means of economizing space has been adopted in order to make the paper ration go as far as possible, and nothing more can be done except to reduce the number of pages still further. A member who returns his copies at any time after reading them will in that way put them back into circulation through the Head Office. If the response to this appeal is widespread the help thus given will be very material at a time of great and increasing difficulty.

On the motion of the Chairman of the Scottish Committee the Council authorized work in connexion with the preparation of a report upon the local administration of health services. It was also agreed to vote £250 to the Northern Ireland Branch for secretarial and less generous than in Great Britain. Mr. Zachary Core presented recommendations upon the Science Committee, following upon resolutions in the Physical Medicine Group Committee, the Council expressed the opinion that during the clinical years of the curriculum physical medicine should be an integral part of the instruction in the therapeutic. This opinion is to be conveyed to the deans of medical schools, the General Medical Council, and the Committee of the Royal College of Physicians on the future of Medical Education.

A matter which was referred to the Council by the last Annual Representative Meeting concerned the advisability of further investigation and research as to possible danger from respiratory obstruction under anaesthesia. The opinion of the Anaesthesia Committee of the Medical Research Council was that research was of extreme rarity, and that research into the condition would be very difficult and probably fruitless. All that seemed necessary was, by means of a note in medical publications (such as a note in *the British Medical Journal*) to give further publicity to the already appeared in the *British Medical Journal*. It was agreed that no further action be taken at present.

OTHER BUSINESS

On the motion of the Chairman of the Scottish Committee the Council authorized work in connexion with the preparation of a report upon the local administration of health services. It was also agreed to vote £250 to the Northern Ireland Branch for secretarial and less generous than in Great Britain.

Dr. F. M. B. Allen, the representative of the Branch on the Council, said that the Government of Northern Ireland had been obtained from the Government of that country. Dr. F. M. B. Allen, the representative of the Branch on the Council, said that the Government of Northern Ireland had been obtained from the Government of that country.

Dr. F. M. B. Allen, the representative of the Branch on the Council, said that the Government of Northern Ireland had been obtained from the Government of that country.

Dr. F. M. B. Allen, the representative of the Branch on the Council, said that the Government of Northern Ireland had been obtained from the Government of that country.

Dr. F. M. B. Allen, the representative of the Branch on the Council, said that the Government of Northern Ireland had been obtained from the Government of that country.

Dr. F. M. B. Allen, the representative of the Branch on the Council, said that the Government of Northern Ireland had been obtained from the Government of that country.

Dr. F. M. B. Allen, the representative of the Branch on the Council, said that the Government of Northern Ireland had been obtained from the Government of that country.

Dr. F. M. B. Allen, the representative of the Branch on the Council, said that the Government of Northern Ireland had been obtained from the Government of that country.

Dr. F. M. B. Allen, the representative of the Branch on the Council, said that the Government of Northern Ireland had been obtained from the Government of that country.

Dr. F. M. B. Allen, the representative of the Branch on the Council, said that the Government of Northern Ireland had been obtained from the Government of that country.

Dr. F. M. B. Allen, the representative of the Branch on the Council, said that the Government of Northern Ireland had been obtained from the Government of that country.

Dr. F. M. B. Allen, the representative of the Branch on the Council, said that the Government of Northern Ireland had been obtained from the Government of that country.

Dr. F. M. B. Allen, the representative of the Branch on the Council, said that the Government of Northern Ireland had been obtained from the Government of that country.

B.M.A. LIBRARY: ORDER CARDS

The Postmaster-General informs us that the business reply cards and envelope service is no longer authorized to have in his possession or to supply any drug or preparation to which the Dangerous Drugs Regulations apply.

BIRTHS, MARRIAGES, & DEATHS

The change for inserting announcements under this heading is 10s. 6d. This amount should be forwarded with the notice, and should reach the address of the printer, not later than first post Monday morning to ensure insertion in the current issue.

ROYAL NAVY

Surgeon, Capt. A. E. Malone to be Surg. Rear-Admiral.

NAVY RESERVE

Prob. Temp. Surg. Lieut. W. P. Trenchard, R.N.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

NAVY

Col. E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., on completion of four years in the tank to establish.

ARMY

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 14 1943

Correspondence

Special Representative Meeting

SIR.—The *Supplement* of July 24 contained a letter, with 17 signatures attached, which is, in the main, an attack on me for my conduct in the chair at the Representative Meeting of March 31. The accusation made is a serious one. It is, in fact, that I abused my position as chairman of the Representative Body to frustrate the activities of some at least of the Divisions of the Association and of their Representatives. Conscious as I am of my demerits for the post of Chairman, I felt assured that Representatives generally would recognize that this was not conduct of a kind of which I am capable, and my first reaction to the letter was to leave the answer as that in the footnote you attached to it, in which the Secretary of the Association explained the course of the Representative Meeting; but on consideration I decided that I must make my own reply.

The following are the facts:

1. The Meeting of the Representative Body was a special one. By-law 46 of the Association provides that: "No business shall be dealt with by a Special Representative Meeting other than that for which it is specifically convened."

2. Some of the resolutions sent up by Divisions did not comply with this, and at the beginning of the meeting I pointed this out, and that such resolutions were out of order.

3. On a few other resolutions I was not quite clear whether they complied with the by-law or not, and I proposed to deal with these as they arose.

4. At the joint meeting of the Representative Body and the Panel Conference held in the morning of March 31, a resolution evolved which was passed as a recommendation to the Representative Meeting, and it constituted an amendment to the resolution of Council, which was the subject-matter for consideration by the Representative Meeting in the afternoon.

5. I spent the luncheon interval in considering this amendment and its effect on the various amendments sent up by Divisions. I decided that it was a valid amendment, and, accordingly, I took it as the first amendment, and I did so with the assent of the Representative Body.

6. I thought it likely that some of the Representatives might not grasp the significance of passing this amendment, and that this was so borne out by the failure of the 17 signatories to do so.

7. I therefore went out of my way to point out to the Representative Meeting that acceptance of this amendment would make it the substantive resolution for the meeting.

8. I pointed out that if it thus became a substantive resolution the great majority of the amendments sent in by Divisions

would become irrelevant and would fall to the ground.

9. It was not part of my duty so to guide the Representative Body: I went out of my way to do so, and I did this before the amendment was considered.

10. The amendment was passed. It became the substantive resolution, and most of the other amendments on the agenda paper fell to the ground, and they fell to the ground as the result of the deliberate action of the Representative Body.

As I have indicated above, I am conscious of my many demerits for high office in the Association, but I am confident that when the facts about this meeting are known, even the signatories will agree that my conduct in the chair was neither "autocratic" nor "unconstitutional." I am, further, ready to maintain that the conduct of Council in the present crisis is not "autocratic" or "unconstitutional" any more than my own in the chair of this Special Representative Meeting.—I am, etc.,

York.

PETER MACDONALD.

Second Thoughts?

SIR.—The following is an extract from the speech of Mr. Ernest Brown, Minister of Health, at the recent conference of the National Liberal Party:

"There ought to be no personal troubles. The friendly personal relations between those who have differed should make discussions easy. We attach the utmost importance to a concerted and effective attempt to give free enterprise and initiative full play in the broad sweep of all our national plans. We believe that complete State control of industry means the end of spiritual and civil liberty. On Liberals will fall a large share of the post-war struggle for the restoration of the people's liberties. If any major control was to be continued it must be justified to the last decimal point."

Does he believe that State control of medicine would be any less calamitous or is this just another example of the divergence between party propaganda and Ministerial intentions?—I am, etc.,

London, N.15.

IVY M. TUCK.

State Salaried Medical Service: A Problem of Man-hours

SIR.—A matter which is of vital importance for the consideration of every doctor, and one, moreover, that so far has received but slight consideration in all the correspondence on State salaried service, is the problem of man-hours. Some doctors, like the Minister of Health in his recent proposals, advocate the adoption of a salaried service immediately after the war. Can it be done?

A complete change of system can only be justified if considerable benefits are to be achieved. The advocates of a salaried service claim it will benefit both public and doctors alike. This raises the question: How can the public have more service and the doctors more leisure with-

out first a large increase in the number of doctors? The work already being done by doctors will remain to be done, for no new system will suddenly banish sickness from the land. Such minor time-saving economies as may result when health centres are established (and they won't be built in a day) will be countered by time taken making official returns, dictating notes to recording clerks, and so on. At the same time, many additional duties will be imposed on doctors in order to supply the increased services promised to the public. Statistics are difficult to obtain, but great care has been taken in collecting the following figures (many of which are taken from pamphlets issued by associations advocating a salaried service). Their implications are illuminating and vital.

1. The pre-war distribution of doctors was as follows:

(a) General practitioners: panel	19,000
(b) General practitioners: non-panel	4,000
(c) Consultants and specialists	4,500
(d) Hospital doctors (full-time)	4,500
(e) Local authority (non-hospital service)	2,000
(f) Government service	600
(g) Ire and	3,700
(h) Abroad	11,000
(i) Services (active and retired)	3,200
(j) Retired or not practising	6,000
(k) Unclassified (probably not practising)	2,300
	61,000

It should be noted that doctors for a salaried service in Great Britain could only be drawn from the 34,800 in sections (a) to (f).

2. The average conditions pre-war for a general practitioner with a full practice, panel and private, were:

Average working week throughout the year (excluding night work) 54 hours. Days off yearly for holidays and sick-leave 18 days.

Man-hours performed yearly = $(365 - 18) \times \frac{54}{7} = 2,677$ man-hours.

3. It is assumed that in a salaried service conditions will be comparable to those of civil servants of like status. Pensioning is estimated to reduce professional life by no more than 1/52nd—that is, the equivalent of seven days a year (some doctors already retire early; others do not live to pensionable age). The suggested arrangement for night work is that at a health centre housing ten doctors each man would do one night in ten on duty and would have half the next day off duty. This reduces the availability of each doctor by four hours every ten working days—in other words, by eighteen days a year.

Average working week throughout the year	48 hours
Annual holidays (civil servants have more)	25 days
Average study leave yearly	7 days
Average sick-leave	7 days
Pensioning (as above)	7 days
Night rota (as above)	18 days

Man-hours performed yearly = $(365 - 67) \times \frac{48}{7} = 2,029$ man-hours.

LONDON SATURDAY AUGUST 21 1943

Correspondence

Freedom or Control?

SIR,—The real issue confronting the general practitioner is whether he wishes to retain his freedom or become a civil servant under some form of local or central government authority—i.e., freedom or control? The index of opinion in S.W. Surrey (*Supplement*, June 26, p. 75) shows that 96% desire to retain their freedom. This is the only issue which affects the G.P. and constitutes the fundamental principle upon which we must make our stand. The problem of private practice should be divorced entirely from other issues which do not concern the G.P. (consultants have their own specialist groups in the B.M.A.). The important spheres of medical work may be grouped as follows: (1) Hospitals and "facilities"; (2) public health; and (3) private practice. It is essential that we should examine the relationship of the general practitioner to these groups.

(1) *Hospitals and "Facilities"*.—The problem here is one of co-ordination and co-operation of public and voluntary hospitals and their facilities. This is purely a matter for negotiation between the public authorities and the management committees of the voluntary hospitals. It is an old problem which started with the passing of the Local Government Act, 1929, and the Minister of Health is at present negotiating with the representatives of these bodies. This has not anything to do with our problem—the threat to regiment the profession under State control.

(2) *Public Health*.—If the planners honestly desire to improve the health of the nation they should attend to the really important factors in the attainment of this objective—housing and sanitation, factory conditions, hours of work, minimum wage standard, etc. These are matters of environmental health—the field of the P.H. officials—and not primarily the sphere of the general practitioner.

(3) *Private Practice*.—This is the only section which concerns us. The overwhelming majority are opposed to a State Medical Service and to any further encroachment upon their freedom. The Socialistic planners want to control this free profession, secure its services at a low rate of remuneration, and, above all, to control certification. (Dr. Hill: "Why the hurry? It was necessary to control the medical profession so that certification could be controlled.") That we must be prepared to fight for our freedom is evident from the following extracts from the Beveridge report: "The possible scope of private practice will be so restricted that it may not appear worth while to preserve it" (p. 160). "The report proposes a compulsory social insurance scheme without income limits" (p. 159).

And the first step is to define the fundamental principle for which we are

fighting—freedom. We should not allow this to be clouded by muddling issues—e.g., group practice, access to consultants, etc.—all of which presuppose some sort of "scheme." Clear definition of the fundamental principle of the majority opinion is the essential preliminary to the attainment of unity.—I am, etc.,
Guldford. J. O. M. REES.

State Provision without Control?

SIR,—To the vast majority of the medical profession, consisting as it does of exponents of individualism, the word State is anathema, conjuring up a picture of a characterless machine in which the individual loses his identity. Dr. Charles Hill, in the reported address "Medical Practice: In the Melting Pot?" appears to make use of this reaction in order to urge the conservation of private practice. He says that "the function of the State might be taken as the organization and provision of medical services. But this did not involve the assumption of control over doctors rendering individual or personal health service." This is a refreshing ray of light in the gloom of envisaged civil "servicedom"; but, if true, surely Dr. Hill's next sentence, "Provision where necessary should be the keynote of the State's activity," is a glaring *non sequitur*. Had he said "Control only where necessary . . ." then none would demur, for all are agreed in disliking bureaucratic control, but there are many members of the profession who do not want private practice retained, with its retail selling of their services across the counter of the bedside or consulting-room table.

It is to be hoped that the Representative Committee will not make too much of the desire to retain private practice for the profession, but will concentrate its efforts on the major point of discouraging unnecessary interference by the State in the medical aspects of the doctor-patient relationship. Let us beware lest in straining at the gnat of private practice as to 10% of the population we swallow the camel of bureaucratic control as to 90%.—I am, etc.,
Ipswich. W. P. GRIEVE.

Rotherham's Views on State Medical Service

SIR,—With your permission I would comment upon the letter of Dr. A. C. E. Breach (*Supplement*, July 24, p. 14). If he is convinced that a State Medical Service is not in the interest of the public and the profession then his opening remarks are a counsel of defeatism, and his problem is not, Can he rely upon 95% of the profession refusing service? but, Can he rely upon himself to do so? The answer is, presumably, No!

If he is in favour of such a service, it is a pity to prejudice his concluding proposals by the false assumption that all those who have followed the recent discussions have so little faith in themselves and their colleagues that they must now give up opposition to State service.

It may interest your readers to know the result of a questionnaire recently sent to all medical men in the Rotherham area. Sixty men were contacted, including public health doctors, hospital staffs, and G.P.s. Forty-eight completed replies were received. It is worthy of note that of the 12 not replying the majority were the younger men of the district. Of the 48 replying, 42 were against a State Medical Service as proposed by the Government, and 40 declared themselves ready to refuse service if conditions unacceptable to the profession were forced upon us. Of the 17 doctors now engaged in salaried service—public health, hospital, or assistants in general practice—only 3 voted in favour of a State service. A majority favoured an extension of the N.H.I. Acts to cover dependants of insured persons.—I am, etc.,

Rotherham.

ALAN TAYLOR.

Medical Certification Boards

SIR,—Dutiful attendance at Study Group, B.M.A. Division, Panel Committee, and many other meetings, together with assiduous reading of letters and editorials in the *Journals* and other pabulum, have left in a naturally rather woolly mind very few clear notions of what is desired by the medical profession or the Ministry as to the shape of things to come. It even seems doubtful whether the profession is a sufficiently coherent organism to agree on any policy, unless it is that pursued at the inception of National Health Insurance—namely, to wait and see what the Government will hand out to us, and then to dig in our heels with loud cries of protest, as a preliminary to yielding rather ungracefully all along the line.

It does, however, seem fairly clear that the powers that be are likely to impose a considerable measure of regimentation on the general practitioner at any rate, and that this is opposed by a considerable proportion of them, although undoubtedly welcomed by some. The impression is also widespread that one of the most cogent motives for putting us under the yoke lies in certification in its financial relation to an extended National Health Insurance. Laxity in certification has been an accusation persistently hurled at the panel doctor ever since National Health Insurance began, and it is one which is the harder to rebut because of the small but hard core of truth inherent in it. The doctor's financial interest in satisfying his patients and his inevitable sentimental tendency to give them the benefit of any doubt cannot fail to land him, however careful, in a certain degree of unfairness at times.

If the general practitioner were relieved of the duty of certification he would be freed from one of his most baffling difficulties, and at the same time the most obvious Governmental reason for "Nazifying" him would be removed. It seems that this might be done by transferring this function to medical boards of two doctors, which would take over the duty

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 28 1943

Correspondence

The Council's Recommendations

SIR,—I hope that the profession will amine carefully the somewhat reactionary proposals in the Supplementary Annual Report of the Council of the M.A., published in the *Supplement* of Aug. 7. The Council seem to regard chiefly those democratic principles for which most of us, when asked, would say at we were fighting. Parliament, the elected representatives of the people ever mind how long ago), and the cabinet have indicated their adoption of assumption B of the Beveridge report—i.e., a comprehensive medical service for the nation. The proposals of the Council indicate a preference for a continuation of the old system with certain grudging additions, but retaining the social distinctions between panel and private patient with all its implications and drawbacks. Surely my memory is not at fault in believing that last year's Annual Representative Meeting passed by a majority, however small, a resolution that the service should be available to the whole population? The Council have acknowledged the validity of the A.R.M. resolution against a salaried service. Is it not unprincipled to ignore the other resolution, which cuts into the question of buying and selling practices, among other things? The report (Recommendation I) implies the right of every citizen to buy the services of any doctor privately, although that doctor is under contract to the national service. Is not this a most unprincipled principle? The ability to pay privately for an essential which should be readily available to all is the way that all "black markets" start.

The Council make great play with the "State" bogey. Quite unwarrantably Recommendations D to H imply that the state, by controlling a service, would damage the doctor-patient relationship. They flavour these courses with the old familiar garlic of free choice being in danger.) After playing with the notion that no economic barrier shall prevent anyone from getting the best treatment (Recommendations C and D), they proceed rather shakily through a gradual lessening of enthusiasm for this principle until they permit us to gaze (Recommendation M) with lack-lustre eyes upon the promised land—"Assumption B should be satisfied by an extension of National Health Insurance." Away we go, back into the good old days of the 1930's, with the familiar traffic block in Harley Street transferred to the vicinities of the hospital. (I am sorry, Sir, but would the R.S.O. start the first case? Mr. Midas is seeing Lady Newt.) Incidentally, can anyone tell what special advantage from the patient's point of view there is in paying a special fee for medical service and treatment if this advice and treatment are not better than could be obtained through the general service?

There is one last chance to show the Council how disquieted many of us are at this indigestible report. The Divisions will have the chance to discuss the proposals, and I hope that we shall send back to Tavistock Square a most emphatic "No" to the report. We have a good chance of aiding and guiding a progressive measure on to the statute book. We can insist that the administrative structure of the medical service shall be such that, while the community retain control of the service that goes with responsibility, the doctor has free control of the treatment of his individual patient, and equally with the patient retains the right to change when he finds himself out of sympathy. No one from the Government so far has suggested that these principles are incompatible with a national medical service.

I suggest, Sir, the Council having adopted the somewhat unusual course of replying to the White Paper before the publication of that document, that we await the Government's proposals in a spirit of willingness to play rather than preconceived obstruction. Personally, I shall feel rather uncomfortable if we have to appear on the same platform as the "grunting bears" and the "snorting bulls" of big business and vested interests in the breath of whose nostrils is detectable almost that same quality of halitosis which is called Fascism.—I am, etc.,

R. P. W. SHACKLETON.
Park Prewett Hospital.

Proceedings of Council

SIR,—The report of the Council's proceedings (*Supplement*, Aug. 7, p. 20) referring to the recommendations to Divisions states: "The report as amended was then unanimously agreed to." We desire to point out that this is incorrect, as the signatories of this letter abstained from voting. We did not vote against the report as a whole because, though we had opposed some of the recommendations, there were others with which we agreed.—We are, etc.,

P. INWALD.
WILLIAM W. FOX.
London, N.19.

An R.M.O. on State Medicine

SIR,—I am delighted to see that a more practical view is being taken of a State Medical Service, and that more sympathy is being shown to the doctors absent in the Services. These absent doctors can give from practical experience advice which could be obtained by no other means. Of all the G.P.s in the R.A.M.C. whom I have met only one wishes to remain in the Army, in spite of having tested the delights of office hours, no night work, regular leave, and a fixed salary.

For myself I chose my university and medical school, I chose the hospital I went to after qualifying, I chose the part of the country I wanted to practise in, and I chose my partner. As soon as the war started I chose to go into the Army. My choosing days are now over until I

return to civil life, with one exception. I can continue to remain an R.M.O. if I continue to refuse promotion—a choice which cost me a considerable amount of pay. To tell me that archbishops, research workers, and doctors in municipal hospitals work for a salary is of no interest to me; after all, they chose that type of work.

The Army provides a magnificent service of preventive medicine, a state of affairs which must be copied after the war. Personally, I favour health centres with either an extension of the panel system or some form of capitation fee. The patient is the person to decide who is the good doctor, and such preferences should bring an increase in pay. I can see no reason why such increases should be dependent on the good will of some routine-bound official.

One only seems to appreciate freedom when one has lost it; let us not learn this lesson by bitter experience when there is such a large body of people who are actually in a position to see both sides of the question. Could not a special questionnaire be sent to all doctors serving with the Forces, as I feel it would greatly help any discussions now being held in Britain?—I am, etc.,

B.N.A.F. "R. M. O."

Diploma in Physical Medicine

SIR,—The *Supplement* of July 10 (p. 8) contains a list of the subjects forming the syllabus of the Diploma in Physical Medicine. The two parts are admirable in themselves, but I am greatly concerned to discover that no question appears to arise of requiring knowledge on how a diagnosis may be arrived at in cases needing physical treatment. Surely it is essential that there should be three parts: Part I: as stated; Part II: diagnosis with a view to physiotherapy; Part III: physical treatment.

I know that it is late in the day to make this suggestion, but it appears to me vital to the whole concept of treatment that a diagnosis is reached first.—I am, etc.,

London, W.1. J. H. CYRIAX.

A revised memorandum on the conditions under which women students may begin and complete courses of study states that any woman who has, on or before her 19th birthday, been accepted for admission as a student of medicine, dentistry, veterinary surgery, or pharmacy may take a full course, provided satisfactory reports of progress are made by the school at which she is studying. As regards other students, a woman who is 18 on or after Oct. 1 next may be admitted to a three-years course and a woman who is 19 on or after that date may be admitted to a two-years course if they can complete the work necessary for a degree or diploma, etc., within that period. These students may then take an approved course of professional training not exceeding one year in the following subjects among others: chiropody, massage, nursery nursing, occupational therapy, orthoptics, public health, radiography, dietetics, hospital almonry, and mental health.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 4 1943

EVOLUTION, NOT REVOLUTION*

BY

G. C. ANDERSON, C.B.E., M.D., LL.D., F.R.C.P.

Secretary of the British Medical Association

It is the intention of the Minister of Health and the Secretary of State for Scotland to issue very soon a White Paper containing the Government's ideas of a comprehensive medical service advocated by Sir William Beveridge as a necessary assumption in a social security scheme. What will be in that White Paper I don't know any more than you, but it is to be hoped that it will not attempt to do more than pose the issues involved, and that it will be left to Parliament, the public, and the profession to give them exhaustive consideration before the Government makes up its mind as to how to form legislation will take.

A committee representative of the profession has been engaged in non-committal consultation with the Minister of Health and his officials, and has placed before them what it believes to be the views of the majority of the profession. No negotiation has taken place, but views have been exchanged; and we must now await the White Paper to see how far the Ministry has been influenced. The Minister, however, has promised that the White Paper will indicate the Government's view only, and will in no way commit the Representative Committee or any other body which has been engaged in consultations with his Department.

Should the White Paper appear before the Annual Representative Meeting on September 21 we shall not discuss it at that meeting. Divisions will not have had time to instruct their Representatives on it, and it will be much too important to be dealt with hastily. After the A.R.M., at which a number of general principles relating to the future of the medical services will have been discussed and formulated, the considered views of the various sections of the profession will be ascertained. The White Paper will be examined by Divisions and Study Groups, and by the Standing and Group Committees of the Association; and the Medical Planning Commission will study it. The views of doctors on Service will be collected, especially of those over-seas. Finally, the Council, after considering all these views, will formulate proposals and submit them to the Divisions of the Association, to whose meetings non-members will be invited. Then a Special Representative Meeting will be held in the early

part of next year. In this way the considered policy of the Association will be made available to any committee representative of the profession formed to carry on negotiations with the Ministry of Health.

In the meantime Parliament will have been discussing the White Paper, and, after consideration also of public and professional discussion, the Government will doubtless introduce legislation to make the necessary provision for a comprehensive medical service. I expect the Bill will be in very general terms to confer the necessary powers, and when it is passed regulations will be prepared to give effect to the Act. When these regulations are being formulated the profession will need all its resources in negotiating with the Government on the terms and conditions of service for practitioners taking part in the scheme.

As I see it, therefore, our work falls into four distinct phases: first, the preliminary discussions, which we have just finished; second, the study of the White Paper; third, discussion and negotiation before legislation; and, lastly, negotiation on terms of service, upon which, of course, will depend the final attitude to be adopted by the profession as an organized whole.

The Attitude of the Profession

Now that we have reached the end of the first phase, let us take stock of the position and attempt to determine our attitude as a profession towards the proposal to implement Assumption B of the Beveridge report. Are we going to say that we are content with the medical services as they are at present, and that we are not prepared to consider any change? Or are we going to the other extreme and demand a complete uprooting of professional traditions in favour of, say, a full-time State salaried service for all practitioners? Or are we going to give the Government's ideas, whatever they may be, a considered hearing and see how far we are prepared to agree with them?

In my position I can usually gauge the feeling of the profession on any question that stirs it deeply, and, after talking to men and women in different branches of practice, and hearing and reading speeches, and seeing the correspondence in my own post-bag and in the medical press, I see a danger that the profession

may allow itself to be swayed by a wave of emotionalism that may prevent it from giving the very serious problems that confront us a reasoned and unimpassioned consideration.

When the Draft Interim Report of the Medical Planning Commission was issued last summer there seemed to be general agreement that development on some such lines as the Commission indicated was desirable and, indeed, necessary, and the Commission was requested by the Annual Representative Meeting to give detailed consideration to its suggestions for health centres, central administration by a corporate body, regional authorities, central and local advisory committees, and so on. Before the Commission had got very far there came the Beveridge report, with its proposal for a comprehensive medical service available to the whole population.

Though at first there was a certain amount of enthusiasm for such a service as part of a nation-wide social security scheme, and though the profession expressed its willingness to enter into consultation, through the Representative Committee, with the Government on the problems involved, I have seen a tendency during the past few weeks for opinion in the profession to swing right back from the progressive outlook of the Medical Planning Commission to an ultra-conservative outlook varying between a "no-change" attitude and an advocacy of an extension of the scope of the National Health Insurance system to include dependants of the present insured persons and to provide consultant and specialist and laboratory services. I think this reaction is due, at least in part, to the premature disclosure, before the interchange of views between the Representative Committee and the Minister and his officials had been completed, of the Minister's suggestions on the method of employment and remuneration of doctors, and the part local authorities might play in the administration of the scheme. This is a pity.

The Representative Committee has throughout the discussions impressed upon the Minister the expressed opposition of the majority of the profession to a whole-time salaried service, and the views of the profession on local medical administration as gathered from the observations made on the Draft Interim Report of the Medical Planning Com-

* Text of an address given to meetings of the profession in Manchester, Edinburgh, and Glasgow.

[illegible]

le to benefit will be in the highest-income group, say the upper 10%, and a large proportion of this income group will not wish to obtain treatment under a scheme. I can foresee that such persons will not announce their decision till one of the family is ill, and then a doctor, if he is working in the official scheme, will be embarrassed by the patient's insistence on paying for treatment. It would seem desirable that the official scheme should include as compulsory contributors those who may reasonably be expected to need assistance, say about 90% of the population, and that the small upper income group could have an option to come in as voluntary contributors. This would be more practicable and more convenient to medical practitioners than that the upper income group should opt out of an official scheme. This, of course, implies an income limit to which there will be subtle opposition. Nevertheless, it is our duty to put forward our view to the Government, and Parliament will decide between the two.

What is to be our attitude if Parliament decides that the official scheme must include everybody? Are we going to oppose it, or are we going to accept the decision as an expression of the will of the people and direct our efforts to securing good terms of service for medical practitioners so that they may be in position to make the service as efficient as possible? We must be clear about this, for it may be one of the first problems to be faced in the next phase; our attitude towards it will set the pace for the procedure.

Although we may prefer a 90% scheme, if Parliament decides upon a 10% scheme we should accept it. Parliament is the mouthpiece of the people, and each section of the community should usually accept its decision. If we try to fight it we are likely to lose the sympathy and good will of the public, and our subsequent moves will be regarded with suspicion and branded as self-interested. We shall in the end gain more by reserving our strength for negotiating the terms and conditions of service. It will be then that we can demand machinery to enable patients to obtain private treatment if they so desire, to determine in what circumstances a doctor may charge a fee, and to prevent abuse by both doctors and patients. This will be the time to act, to not prejudice the ultimate success of our efforts by premature judgment or precipitate action.

Control or Direction?

There is a word that is now being made use of in some quarters to inspire the profession fear of any kind of reorganization. It is the word "control." Control does not mean, or should not mean, official control of clinical treatment. We should resist to the utmost, as we resisted in 1911, any attempt to introduce a third party between the doctor and his patient. We should resist any detailed control of a doctor's pro-

fessional work or of his relations with his colleagues. Nor should we agree to any scheme in which the doctor is made responsible in any professional sense to a lay authority.

But in any efficient service so complex as a comprehensive medical service there must be "control" in the sense of "direction." In any properly co-ordinated comprehensive medical service the individual general practitioner will have numerous relationships. Not only will he see his patients at their homes or at his surgery or health centre, but he will take part in public health work; he will be associated with a hospital, perhaps by treating his own general practitioner cases there, or by acting as a clinical assistant in a department; he will have better opportunities for consultation with consultants and specialists and will have readier access to auxiliary services; he will co-operate with industrial medical officers; and he will, it is hoped, attend post-graduate courses regularly.

Collectively, both centrally and locally, the profession must maintain close contact with many aspects of social life, such as industry, education, youth organizations, hospital administration, the auxiliary services, and public administration. Continuous working co-operation on such a large scale can be maintained only if there is general direction and co-ordination of the various parts; and the individual practitioner, as an essential unit in the scheme, must accept this general direction. If we accept the idea of a comprehensive medical service we must accept a measure of co-ordinating direction by suitably constituted authorities.

The fact that public money will be required for the development of the health services is another reason why we must acquiesce in a certain amount of control in the sense of direction. Voluntary effort cannot do all that is required. The voluntary hospitals will not be able to maintain themselves after the war without financial assistance from the Government. Adequate specialist services cannot be made available for everyone without assistance from public funds. Payment of hospital medical staffs, which is now advocated on all sides, will make possible a more equal distribution of competent consultants and specialists throughout the country. An adequate and efficient service can be provided only by a well-directed scheme with enough funds to attract a sufficient number of specialists in all the different branches, and only with the assistance of public funds can such a service be assured.

Again and again one hears in every branch of practice that doctors could give a better service to their individual patients and devote more attention to the preventive aspect of their work if only they had more time. More time means more money, and more money means more help from public funds. Further, much of the equipment required for specialist treatment tends to become more elaborate and expensive and cannot be provided in sufficient quantity by private

or voluntary enterprise. It seems to me useless to say that we want a better and more extended medical service and in the same breath to declare that we will have nothing whatever to do with public direction. We must of necessity, if we are true to our ideals, accept financial assistance from the Government; and if we accept it we must make ourselves responsible to the Government for its proper expenditure.

I do not want you to think from all this that I am advocating a whole-time State Medical Service. Far from it. I think that what is usually proposed under the title of a whole-time State Medical Service is a wrong conception of medical practice. It is too rigid and regimented, and would frustrate individual initiative and enterprise. But, though we may refuse to become the whole-time servants of a Government Department, that is no reason why we should go to the other extreme and reject all idea of co-operation with the State—that is, the community in its corporate aspect.

Principles of an Efficient Service

A properly co-ordinated comprehensive medical service must be based on sound principles or it will only create more difficulties than it solves. It is with this object in view that the Council of the Association has submitted to the Divisions, for approval by the Representative Body, proposals in the form of recommendations, which in its judgment should govern any future medical service. I will deal with only a few important issues which arise out of them.

The degree of the efficiency of any national medical service, as regards preventive and curative medicine, must depend upon the available medical and scientific knowledge and the use made of that knowledge, upon the character and extent of medical education, and upon the quality of the individual members of the medical profession. I think everyone will agree that our medical services do not yet reach the highest attainable degree of efficiency. We must set before us certain general aims. For instance; we must aim at securing the best possible type of entrant to the medical schools. Medical education, both undergraduate and postgraduate, must be maintained on a high standard and be constantly adapted to meet modern needs; facilities for postgraduate medical education must be much greater than they are at present; facilities and resources for medical research must be greatly increased and methods devised for their adequate application. We must also give some consideration to the human material from which future doctors are made, and give the opportunity to enter the profession to any boy or girl from whatever section of the community who shows a natural inclination for medicine and who has the requisite character, health, and intelligence. We must also aim at the removal of any economic barriers that may prevent an individual taking advantage of the medical services provided.

We should have a clear conception of the kind of administrative structure we want. Unless the foundations are sound the success of the whole of the medical service will be jeopardized. We must secure that the comprehensive medical service shall not be prejudiced by over-hasty or ill-conceived administrative reforms, and consequently we must insist that, until the administrative foundation is securely laid, no other changes will be initiated.

If a comprehensive medical service is to be provided by the Government there must obviously be a central administrative authority. The central authority, whether it be a Government Department or a corporate body, should be responsible for all the civilian health services and only for those services. So long as different Government Departments retain their civil health functions we shall never achieve that unification which is essential to a properly co-ordinated comprehensive medical service. And it is equally evident that the central authority responsible for such a service should not be saddled with other functions.

Next we must insist upon the principle of vocational advice being observed. The failure of the Government to consult the profession on matters of medical policy has been responsible for many of the difficulties with which we are faced to-day. No endeavour has been made to work out a national health policy in consultation with the profession; we have had to put up with piecemeal reforms to get over particular or temporary difficulties. The efforts of the profession to improve the health services have in this way been frustrated. We should insist that in both the central and local administration of the comprehensive medical service there must be statutory advisory medical committees, which must be consulted on all matters of major health policy.

The profession has expressed a preference for a new central body to take the place of the present Ministry of Health, the new body being corporate in character, autonomous on matters of detail, and responsible on major policy to Parliament through a Minister. I should like to see the central administration in the hands of a corporate body, although I recognize that there is a question of public policy involved in the proposal, and that Parliament alone can decide the issue. If we prefer the corporate body we should try to persuade Parliament to our view. But so long as we are assured of adequate advisory machinery perhaps it may not matter a great deal whether the authority is a corporate body or a Government Department.

Now we come to the more difficult problem of local administration. One thing we are all agreed on is that we shall not accept a medical service which is administered by local authorities in their present form. They are unsuitable in size, composition, procedure, and experience. New administrative health

Free Choice and Remuneration

As there is a relationship between free choice and the method of remuneration of the doctor's service I shall deal with both together. Free choice of doctor should be preserved as a basic principle, and no restriction of our medical services should prevent or discourage this. The health and welfare of his patient are the doctor's first interest, and nothing must be done to upset the intimacy of the doctor-patient relationship. Is there any danger of this if the doctor—and here I refer to the general practitioner or family doctor—is employed on a whole-time basis and paid by salary? I think there is. Those who advocate this method usually seem to envisage the general practitioner working as a whole-time medical officer of an authority in a clinic or health centre at which he would attend at regular times, and they usually add that free choice of doctor would be allowed from among the doctors working at the centre.

There appear to be certain difficulties about accepting this view. How can free choice of doctor exist in any real sense in a system where doctors are employed as whole-time officers with regular hours, although this is one of the main privileges put forward by many advocates in favour of a whole-time salaried service? A doctor who receives a patient on his list must accept full responsibility for him and be available to him for service at all reasonable times. A patient will not time his illness to coincide with the doctor's hours of duty. How can special merit be rewarded or special study encouraged through a salary scale in which increments are given on the basis of age and length of service? I can think of no satisfactory solution.

Again, who is to decide whether a doctor is giving full service for the salary he receives or is worthy of receiving an

increment within the scale? The more number of attendances and visits during a period or the time spent in professional duties are no criteria of the thoroughness of a doctor's work, and an external medical officer of the administrative authority is not competent to judge by inspection. The patient is the only person who can directly assess, however imperfectly, the service his doctor is rendering to him, and to the number of persons or families who elect to go on his list. That, of course, means a capitation fee. If the White Paper should make any proposal for whole-time salaries I hope that you will consider it from this practical point of view, and not sweep it aside with the passing comment that no man who receives a salary does good work, or that the mere acceptance of a whole-time salary would make a doctor a civil servant. Having had no experience of salaries in general practice, except for assistants, we ought not to be afraid to experiment in that method in experimental health centres, but at the moment payment on a capitation basis would appear to be the only satisfactory system for general application.

Private Practice

And now as to the vexed question of private practice within an official scheme. I have already discussed this matter as it arises in the 100% v. 90% issue, but it appears also in another guise. Is a patient compulsorily insured to be allowed to obtain private treatment if he so desires, and is a doctor who joins the official service to be allowed to give private service? In other words, is a patient to be allowed not only free choice of doctor but also free choice of the type of service? He should have such freedom, but he should not, of course, be allowed to pay fees to the doctor on whose list his name appears, although he should be able to obtain medical advice and treatment, whether regularly or on particular occasions, from another doctor and to pay private fees for the service.

If this be conceded, the next question is whether a doctor in the service should be allowed to give such private treatment. I think the answer is "Yes." Refusal of such permission would be likely to split the profession into two groups—the official and the non-official doctors. We have therefore proposed as a basic principle that private practice within the official service must be available, but no ground must be given for any assertion that private attention is better than that rendered under the official service. There must, of course, be regulations to prevent abuse, and although I realize the difficulties, the framing of suitable regulations should not be impossible, given good will on all sides.

At present consultants and specialists are badly distributed. Many areas are practically or entirely without facilities for consultant and specialist services, and the receiver of service for the salary a doctor is giving full service for the salary he receives or is worthy of receiving an

patients cannot always travel long distances to the nearest centre. This is in the main an economic difficulty, for consultants must depend to-day on private practice, and sparsely populated or poor areas just cannot provide a living for consultants and specialists in the different branches. The Draft Interim Report of the Medical Planning Commission dealt at some length with the means of overcoming the problem, and I would ask you to reread the section, for, though the report envisaged a scheme covering only 90% of the population, it seems to offer a practical plan to ensure that every member of the community shall be able to obtain the service he needs.

Consultants and specialists in the comprehensive medical service would be based on hospitals—that is, they would hold hospital appointments or be associated with particular hospitals. The consultant's services would be given either at the hospital or at the patient's home. Every area would be assured of access to consultant or specialist services, and groups of small hospitals might share the services of consultants in the different branches of medicine. The subject is still being explored by the Representative Committee, but I think we have gone far enough to lay down a principle that consultants and specialists should be based on the hospital. The question of criteria for determining consultant status has to be considered. I have no doubt that the Representative Committee will discuss it, and it is already being considered by the Royal Colleges.

The Medical Planning Commission was generally in favour of paying consultants and specialists by salary—but we were then envisaging a service for 90% of the population. Should the service embrace 100%, further consideration will have to be given to this subject. Payment by salary is undoubtedly the most appropriate for hospital work, but for work outside the hospital, in the homes of the people or in health centres, when constituted, other methods may be preferable. In the further thought which must be given to this problem we may be assisted by the forthcoming report of the Goodenough Committee, although it will deal primarily with hospitals attached to medical schools.

There appears to be a tendency to concentrate on the reorganization of general practice and to leave the reorganization of consultant practice for later consideration. This seems to me quite wrong. All branches of medical practice must be conceived as a single service. A general practitioner cannot do his work properly if an adequate and efficient consultant and specialist service and adequate hospital accommodation and ancillary services are not readily available to him. The efficiency of the whole service is dependent on the efficiency of each of its parts and the efficiency of the co-ordination between them. It would be detrimental to the complete service and to the individual practitioner to put one part of the service into operation before the others were ready.

In his report Sir William Beveridge suggested that, though hospital services would be included in the insurance scheme, the patient might be asked to pay what he called "hotel" expenses, and it is possible the Government might favour this plan. If this were so, a patient well able to afford extra "hotel" charges for the extra comforts and amenities of a private bed would be prepared to pay for these, while at the same time he would expect to receive medical and surgical treatment through the official service. If the patient wants something more in the way of accommodation than the general wards provide then he should be regarded as taking himself outside the official service altogether, and he should be expected to pay not only for his extra comforts but also for his medical and surgical treatment. It should, therefore, be expressly laid down that for those persons who wish to be treated in private accommodation, whether part of a hospital or not, private consulting practice should continue.

Immediate Proposals

The country, I believe, expects that some steps will be taken soon to implement Assumption B of the Beveridge report. There are two directions in which action can be taken without undue delay, and by action I mean the preparation of a plan, as obviously the plan cannot be put into operation till the war is over. The proposals contemplated can be taken within the framework of the present administrative structure; they will go a long way towards implementing Assumption B, and they will provide valuable experience on which to base our views of the final form of a comprehensive health service.

The first step that can be taken is the two-way extension of the National Health Insurance system, which has been advocated by the B.M.A. for many years. If the National Health Insurance system could be extended to include dependants of insured persons and others of similar economic status and to cover consultant and specialist services and laboratory and hospital facilities as well as general practitioner service, it would go a very long way towards giving the great majority of the population as complete a medical service as possible in present circumstances. For the service to be completely satisfactory we should need more doctors, with an equable distribution throughout the country, both general practitioners and consultants, more equipment, more institutional accommodation, and more co-ordination. But if the country wants Assumption B immediately the extension of National Health Insurance is a useful step to that end.

Experiments in Group Practice

The second step is to experiment in group practice. There has been much talk about health centres, and schemes have been put forward, basing the whole of the domiciliary medical service on them. But we are not yet all agreed what a health centre is or how it would

work. The Medical Planning Commission suggested a possible model scheme, but it has not yet received the full approval of the profession. In view of this, it would be contrary to the public interest and unfair to the profession to uproot the traditions of medical practice unless we were quite sure that we had something better to put in their place. I am not opposed to the health centre idea: far from it. For it seems to me that practice conducted upon some such lines offers the best prospect for the doctor to associate himself more intimately with the preventive aspect of medicine. For example, the medical personnel of a health centre could, as a whole, assume responsibility for ante-natal, natal, and post-natal work, infant welfare, and school medical work, at present rendered by the medical staff of the local authority—work which rightfully belongs to the sphere of general practice. But the only way to satisfy ourselves that health centres or group practice are better than individual practice is to try them out experimentally.

Meantime, local government structure could be re-examined, thus affording time and opportunity for experimenting with the health centres. The experiments must be conducted in suitable areas and on a controlled scientific basis, and we should expect the Divisions of the B.M.A. to give valuable assistance. We must try to find out from the experiments what a health centre should be. Should, it be a communal surgery, where several doctors have their surgeries and share the expenses and staff and equipment? I believe many doctors would find such group practice a blessing, especially after the staff difficulties they have experienced during the war. Or, on the other hand, should the health centre be a diagnostic centre, where the general practitioner can obtain diagnostic facilities on the spot? Such a centre would probably be found most useful in a semi-rural area where there was no hospital within easy distance. Or, again, should there be beds in a health centre? We should make some of our experimental health centres in the form of cottage or home hospitals, where general practitioners could treat their own general practice cases—a proposal which has much to commend it. And, finally, what form or type of health centre would be suitable for a rural area?

These experiments, especially those in group practice, will also give us an opportunity of testing the different methods of remuneration. It might perhaps be arranged to pay to a health centre a single sum to cover the whole of the expenses, including the remuneration of the medical staff. The sum might be the aggregate amount of the capitation fees due to the co-operating practitioners, but the amount available for distribution among the medical staff might, by agreement among themselves, be paid by capitation fee or by salaries, or by a combination of both. When we have spent a reasonable period on this experimental work, perhaps two or three years and not before, we should be in a position to

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 11 1943

THE DERBYSHIRE PANEL BENEVOLENT AND EDUCATIONAL TRUST

BY

H. W. POOLER, M.B., B.Ch.

Hon. Treasurer to Panel Committee and
Chairman of the Trust

When, in 1932, the Derbyshire Panel Committee completed the payment of its quota (£3,368) to the National Insurance Defence Trust, the question arose of the disposal of the anticipated surplus income. At that time, as now, about 50% of the voluntary levy of 1d. per insured person was absorbed by administration expenses and taxation. The other half had been disposed of by the payment of the annual quota to the National Insurance Defence Trust, an annual subscription for many years of £100 to the B.M.A. Charities Trust Fund, and a donation at Christmas in response to Sir Thomas Barlow's special appeal for the Royal Medical Benevolent Fund. Suggestions had come from the Insurance Acts Committee that panel committees which had completed their quota might continue to subscribe to the National Insurance Defence Fund. As many areas had not completed their quota and some districts had subscribed little or nothing, that suggestion did not appeal to Derbyshire. Another suggestion was that the voluntary levy should be reduced to a halfpenny, but this would have created difficulties if ever it was desired for any reason to increase the levy again.

At this point it was suggested that the surplus income should be devoted to a benevolent and educational trust for the benefit of members of the Derbyshire Panel and their dependants. This at once appealed to the then members of the panel committee, and was subsequently approved at a special general meeting of panel practitioners. Accordingly, with the valuable legal assistance of Dr. O'Rourke, a deed was drawn up and a trust formally created. Stripped of its legal paraphrase this deed states that the objects of the trust are: (1) the payment of grants to any member of the Derbyshire Panel or his (or her) dependants who are in need of relief or assistance (up to £25 may be advanced by the chairman of the trust without previous reference to the committee of management in cases of great need); (2) subscriptions or donations to suitable charities; and (3) the establishment and maintenance of scholarships in medical schools, universities, and technical colleges, and also at approved schools for younger children. The trustees of the fund are the chairman, hon. secretary, and treasurer of the Panel Committee, and the committee of management includes the trustees and five other members of the Panel Committee elected by that committee.

Such is the trust, subsequently copied by Nottinghamshire, and probably other panel committees, and the following is a brief summary of the cases that it has helped:

1. A widow with several children: Two grants of £50 each to a daughter for technical training, and £50 to a son towards university education.

2. The son of a medical man in poor circumstances: Five sums of £50 and one of £35 to pay fees at a medical school; this boy qualified in due course.

3. The daughter of a deceased member: £60 towards technical training.

4. The son of a member: A loan of £300 (since repaid) free of interest to pay his premium at an engineering works.

5. The widow of a member who died at an early age received £50 for technical training.

6. A widow and six children of a member killed in a motor accident: The son, £50 for Glasgow University Medical School; two daughters, £50 and £20 for training in domestic science.

7. Son of a medical man in poor circumstances: £15 15s. towards fees at Edinburgh University.

8. Widow and child of a deceased member: A grant of £50, with a review of the position when necessary; an application to the Royal Medical Benevolent Fund secured 30s. a week for the widow for three months.

9. Widow and children of a deceased member: Educational grants of £150, £120, and £35, and a successful application for a Foundation Scholarship at Ensom College for the boy.

10. Widow and two children left penniless by a deceased member: £20 at once to meet urgent necessities; maintenance for the daughter for about three months while completing her secondary education; £25 to the widow for removal and other expenses, and £75 at the rate of £2 weekly, with review of the position at the end of six months; a recommendation to the Royal Medical Benevolent Fund resulted in a grant of £2 a week.

In addition the Panel Committee has continued its annual subscription of £100 to the B.M.A. Charities Trust Fund and its grant of £10 10s. to the Royal Medical Benevolent Special Christmas Fund; it has also given £450 to the Medical War Relief Fund in the last two years, besides paying income tax and administrative expenses. The trust has also accumulated and has invested over £2,579. Out of the interest from such investments and balance in the bank it is able to make grants and meet its very small administrative expenses. It may fairly be claimed that the trust has well justified its formation and continued existence.

CERTIFICATION FOR EXEMPTION FROM FIRE GUARD DUTIES

The following statement has been issued by the Ministry of Labour:

Under the Fire Guard Regulations, 1943, on and after September 20, 1943, an applicant for exemption from fire guard duties on medical grounds is required to furnish with his application a medical certificate relating to his medical condition. Normally fire guard duties fall into two categories:

(1) *Duties as a member of a stirrup pump team.* The physical requirements for a member of a stirrup pump team are regarded as fair sight (with glasses if worn) and hearing, ability to work a stirrup pump, to carry a bucket of water for 25 yards on level ground, and to climb two flights of stairs at a reasonable pace without distress.

(2) *The lighter duties:* (a) keeping watch for incendiary bombs and outbreaks of fire; (b) summoning assistance (otherwise than by acting as a messenger); (c) maintaining fire guard equipment and supplies of water in serviceable condition.

It will be very helpful to the Government Departments concerned if a practitioner

when issuing a certificate corroborating a person's claim of unfitness for fire guard duties will state his opinion about the person's fitness, not only for duties as a member of a stirrup pump team but also for the lighter duties mentioned above.

At the end of the new prescribed form of application for exemption (which is obtainable from local offices of the Ministry of Labour), a medical certificate is printed specially set out to enable a practitioner to express his opinion on a person's fitness for each of the two categories of duties, and it is hoped that doctors, when consulted by an applicant for exemption, will use this form. Occasionally an applicant for exemption may have been directed to undertake some special duties which do not fall into either of these two categories—e.g., operating a power-driven pump. Where this is the case the applicant is required to give sufficient particulars in his claim to show the amount of exertion required for the special duties which he or she has been directed to undertake. In the medical certificate form printed on the form of application there is a space in which the practitioner can express his opinion on a person's fitness for such special duties.

Correspondence

Then and Now

SIR,—These are a few extracts culled from the columns of your *Journal* and the *Lancet* of 1911, and are very reminiscent of many letters, inspired and otherwise, which are to-day appearing in the medical and lay press:

"The result must be inevitably absolute ruin to a great number, probably the majority, of general practitioners throughout the country."

"The scheme may perhaps end in reducing doctors to so many machines for attending democracy at so much a head."

"We stand at the parting of the ways— independence and self-respect on the one hand, and servitude on the other."

"It is a long step on the downward path towards Socialism. It will tend to destroy individual effort and increase the spirit of dependency which is ever found in degenerate races."

They reflect the feelings of anxiety and apprehension with which the majority of doctors in those days regarded the introduction of the National Health Insurance Act. How ill founded these fears proved to be is now testified by the Council of the B.M.A., which is to-day prepared to extend the National Health Insurance Act to embrace practically the whole population.

Although mindful of the great benefit to the community which the National Health Insurance Act has brought about, those who are acquainted with the present incoordinated state of our health services realize that such an extension is but tampering with the problem, and cannot provide an adequate basis for the organization of a comprehensive health

British Medical Association

ANNUAL REPRESENTATIVE MEETING, 1943

RESOLUTIONS BY DIVISIONS AND BRANCHES

The B.M.A. will be held at B.M.A. House, Tavistock Square, London, W.C.1, on Tuesday, Wednesday, and Thursday, Sept. 21, 22, and 23, 1943.

Motion by OXFORD and WEST SUSSEX: That Recommendations A and B be transposed, Recommendation B being placed first in order under the heading "Principles" and Recommendation A second.

Recommendation C:

That the efficiency of a country's medical services, both preventive and curative, depends upon the availability of medical and scientific knowledge, upon the character and extent of medical education, and upon the absence of any economic barriers that impede the utilization of such resources for medical research should be greatly increased and methods devised to their adequate application; medical education, both undergraduate and postgraduate, should be maintained on a high standard and be adapted to modern needs; the facilities for postgraduate medical education should be greatly increased; and wherever economic barriers prevent an individual taking advantage of medical services such barriers should be removed.

Amendment by WINCHESTER: That after the words "of medical education" in the first sentence, there be inserted the word "quality of the personnel," and the word "and wherever economic barriers, etc.," at the end of the sentence be deleted.

Amendment by HARKOW: (1) that after the phrase "upon the character and extent of medical education" there be added the phrase "upon the existence of an adequate number of doctors"; and (2) that after the phrase "the facilities and resources for medical research" there be added the word "and medical education."

Amendment by PRESTON: That the word "barriers" and "should be removed" be inserted between the word "barriers" and "should be removed" in the last sentence.

Recommendation D: That, subject to these general and overriding considerations the functions of the State should be to co-ordinate existing provision, both official and non-official, to augment it where necessary and to secure that it is available without economic barrier to all who need it. The State should confine itself within these wide limits, involving the personal freedom of both citizen and doctor only to the extent which the satisfaction of these functions demands.

Amendment by GATESHEAD: That the words "strictly to these functions" be substituted for "within these wide limits" in the last sentence.

Amendment by BRIGHTON: That the words "involving the personal freedom of the State" be deleted.

Recommendation E: That the State, while assuming responsibility for the organization and provision of medical services, should not assume control of doctors rendering individual or personal health service. It should convert the medical profession into a salaried branch of central or local government service.

Amendment by ALDERSHOT and BASING STOKES: That the first sentence be deleted.

Recommendation A: That the Representative Body reaffirms the following basic principles laid down in the Association's *General Medical Service for the Nation* approved in 1938:

(1) That the system of medical service should be directed to the achievement of positive health and the prevention of disease no less than to the relief of sickness.

(2) That there should be provided for every individual the services of a general practitioner or a family doctor of his own choice.

(3) That consultants and specialists, laboratory services, and all necessary auxiliary services, together with institutional provision when required, should be available for the individual patient, normally through the agency of the local Service, as many do, that it need interfere with a free choice of doctor or with the doctor's freedom of professional judgment and treatment.

(4) That the several parts of the complete medical service should be closely co-ordinated and developed by the application of a planned national health policy.

Amendment by GATESHEAD: That the word "positive" be omitted from para. (1).

Amendment by WEST SUSSEX: That para. (ii) read:

"That the services of a general practitioner or family doctor of his own choosing should be available for every individual."

Amendment by BIRMINGHAM CENTRAL and WINCHESTER: That the word "available" be substituted for "provided" in para. (iii), so conforming with the wording of para. (iii).

Amendment by REIGATE: That all words after "developed" be deleted from para. (iv).

Amendment by WINCHESTER: That the word "existing" be substituted for "com- plete" in para. (iv), and that all words after "developed" be deleted.

Amendment by NEWCASTLE-UPON-TYNE: That the words "acceptable to the profession as a whole" be added at the end of para. (iv).

Motion by EXETER: That the Representative Body views with grave apprehension the institution of a comprehensive health service available to the whole community, believing that the time is not yet ripe for such a service, which would be in the interests of neither the public nor of the medical profession.

Motion by WINCHESTER: That the Representative Body opposes any fundamental change in the medical profession during the absence of so many members in the Services.

Motion by WORCESTER: That the Representative Body is not in favour of a whole-salaried State Medical Service.

Recommendation B: That the health of the people depends primarily upon the social and environmental conditions under which they live and work, upon nutritional standards, upon educational facilities, and upon the facilities for exercise and leisure.

Amendment by OXFORD: That the recommendation be amended to read as follows:

service for the nation. It would but perpetuate all the evils of a competitive system, with its traffic in practices whereby the highest bidder, with perhaps no experience and a minimum qualification, can undertake the medical care of literally thousands of the population. We should guard against repeating the errors of the past. If the present Government has been persuaded to implement one assumption of the Beveridge report, let us give it every encouragement and support, resolved that, having conceded part of a greatly conceived piece of social reconstruction, it must be prevailed upon to yield the whole.

Let us not beg the issue with dark suspicions of a satumne plot to trick us into a servile compliance with certifica-

tion weighted against our patients, and to make us watch-dogs of the public purse. It is a grave reflection on the integrity and courage of the large majority of our profession who have changed that simply because they have changed the State they will suddenly depart from their high tradition and cease to consider the best interests of their patients. It is also a misrepresentation of a State Medical Service to suggest, as many do, that it need interfere with a free choice of doctor or with the doctor's freedom of professional judgment and treatment.

The doctor's freedom of thought and action is best and most fully used when applied for the greatest good of the community, and of that the community must be the best judge. As you, Sir, in the columns of your *Journal* have so aptly said, "The last word in the man-

agement of the service for the people and financed by them should rest with their chosen representatives."

The individual doctor is looked upon by his patients with affection and esteem. The medical profession as an organized body does not in equal measure share that affection and esteem. Public opinion as represented by leading articles in the national press is handed against the attitude at present taken up by our leaders to the proposed reorganization of health services. Let us not twice in a generation be found obstructing the way to social progress. The people have a long memory.—I am, etc.,

S. LIPETZ, Edinburgh.

Achieving Unity

Sir,—At the last Annual Representative Meeting of the B.M.A. it was decided by a large majority that the members of the Association were opposed to a whole-time State salaried service. Kensington Division feels that persistent agitation against the decision of the majority must inevitably impair the authority of our representatives when they meet the Minister of Health and is therefore undesirable.

At a general meeting of the Division the following resolutions were passed:

"(a) That, concerning the urgent problem now confronting the profession, the utmost unity must prevail.

"(b) That in order to promote unity we emphasize our confidence in the present Representative Committee in co-ordinating with the Minister of Health."

It was recommended that other Divisions support these resolutions.—I am,

A. H. PREDTOR, Chairman, Kensington Division, B.M.A.

and that the word "whole" be inserted before "medical profession" in the second sentence. The recommendation would then read: "It is not in the public interest that be State should convert the whole medical profession into a salaried branch of central or local government service."

Amendment by WINCHESTER: That the first sentence be deleted, as this would apply only in a State Medical Service.

Amendment by CLEVELAND: That the words "while assuming responsibility for the organization and provision of medical services" in the first sentence be deleted.

Amendment by NORTH BEDFORDSHIRE: That the words "within limits" be inserted before "for the organization and provision" in the first sentence.

Amendment by PLYMOUTH: That the word "direct" be inserted before "control" in the first sentence.

Amendment by OXFORD: That the recommendation be amended to read as follows:

"That the State, while assuming responsibility for the organization and provision of medical services, should limit its control of doctors rendering individual or personal health services to ensuring the maintenance of a reasonable professional standard and a maximum of personal and professional responsibility. It is not in the public interest that the State should convert the medical profession into a salaried branch of central or local government service."

Amendment by HARROW: That the recommendation be split into two to read:

"(1) That the State, while assuming responsibility for the organization and provision of medical services, should not assume control of doctors rendering individual or personal health service.

"(2) That it is not in the interests of patient or doctor that the State should convert the whole of the medical profession into a whole-time salaried medical service."

Amendment by DARLINGTON, SHROPSHIRE AND MID-WILLES, and WINCHESTER: That the Representative Body, having considered the Report of Council, is opposed to the setting up of any central authority, medical or lay, to control the profession. On the contrary, it recommends that the health of the nation can best be served by acknowledging the necessity for improvement of social and environmental conditions.

Amendment by BARNSTABLE: That the Representative Body is not in favour of increasing the control of medical services either by the State or any other body.

Amendment by REIGATE: That the Representative Body opposes the setting up of any central body either medical or lay to control the medical profession.

Amendment by READING: That the Representative Body opposes any kind of control of the profession whatever.

Amendment by MID-CHESHIRE: That should the State assume responsibility for the organization and provision of medical service (as Recommendation D), it should not assume control of doctors rendering individual or personal health service.

Recommendation F: That free choice of doctor should be preserved as a basic principle of future health services, and no administrative structure should be approved which does not both permit and encourage such free choice.

Amendment by KENSINGTON: That the recommendation be amended to read as follows:

"That no administrative structure should be approved which does not both permit and encourage free choice of doctor and allow the right of the doctor to refuse acceptance of a patient."

Amendment by WINCHESTER: That the recommendation be amended to read as follows:

"That free choice of doctors should be preserved as a basic principle of health services."

Amendment by GATESHEAD: That the words "as between doctor and patient" be substituted for the words "of doctor."

Amendment by TORQUAY: That the words "by patient and of patient by doctor (wherever possible)" be inserted after "of doctor."

Amendment by CHESTERFIELD: That the words "and of patient" be inserted after "of doctor."

Recommendation G: That it is not in the public interest that the State should invade the doctor-patient relationship. The loyalty and obligation of a doctor rendering personal health service to an individual patient should be to that patient and to none other.

Amendment by TORQUAY: That the recommendation be referred back to the Council for further consideration.

Amendment by GATESHEAD: That the word "further" be inserted before "invade" in the first sentence.

Amendment by DORSET: That the words "and to none other" be deleted.

Amendment by OXFORD: That the recommendation be amended to read as follows:

"That it is not in the public interest that the State should invade the doctor-patient relationship. The loyalty and obligation of a doctor rendering personal health service to an individual patient should be to that patient and to none other. This presupposes that, in so far as the doctor is employed, he should be employed by the patient, to whom his responsibility will lie."

Recommendation H: That free choice of doctor should be reinforced by a method of remuneration which relates remuneration to the amount of work done or the number of persons for whom responsibility is accepted.

Amendment by DERBY: That the recommendation be amended to read as follows:

"That the method of remuneration shall relate to the number of persons for whom responsibility is accepted. It must clearly be understood that such remuneration shall apply to all services rendered in the prevention, diagnosis, and treatment of injury and disease in the individual, but that no doctor in the service shall be debarred from accepting additional remuneration for services in relation to an individual or a group of individuals on the request of a third party."

Amendment by HENDON: That the recommendation be amended to read as follows:

"That the method of remuneration should be related to the amount of work done."

Amendment by HARROW: That the recommendation be amended to read as follows:

"That free choice of doctor should be associated with a method of remuneration based on the amount of work done or the number of persons for whom responsibility is accepted."

Amendment by NORTHAMPTONSHIRE: That the words "associated with" be substituted for the words "reinforced by."

Amendment by BIRMINGHAM CENTRAL: That the following words be added at the end of the recommendation: "subject to agreed limitation of responsibility."

Motion by TORQUAY: That remuneration for services rendered is more satisfactory than a capitation basis for payment.

OTHER MOTIONS

Certification

Motion by DARLINGTON: That the Representative Body is unanimously of the opinion that all certificates required by employers, civil defence authorities, or similar bodies, stating that an individual is or is not fit for work, should be paid for to the practitioner by the body demanding it.

Motion by SWINDON: That the demand for certificates is becoming a burden and it interferes unduly with the professional work of the practitioner. It is suggested that a certificate issued at the beginning and end of an illness of reasonable duration (say one month) should suffice for factories and friendly societies.

Motion by CLEVELAND: That in view of the present shortage of medical manpower, which is likely to get worse with the liberation of occupied territory, the Council is requested to take all possible steps to reduce the amount of non-medical work at present required of practitioners, in order that they can have the opportunity of doing medical work, as such, in a proper manner.

Motion by DARLINGTON: That the completion of Form M.P.A.O. 38 (Ministry of Pensions) should not be required from the medical attendant of the person claiming pension, but that the Ministry of Pensions should adopt an alternative scheme which does not involve the medical attendant.

Fees for Domiciliary Diphtheria Immunization

Recommendation of Council:

That Section (b) of the scale of fees for diphtheria immunization be amended to read as follows: "(b) the fees per injection of immunizing material should be (1) not less than 3s. 6d. where injections are given at the home of the patient, (2) not less than 2s. 6d. where injections are given at the doctor's surgery."

Amendment by WEST SUFFOLK: That "7s. 6d." be substituted for "3s. 6d." in the recommendation.

Amendment by KESTEVEN: That "6s." be substituted for "3s. 6d." in the recommendation.

Tuberculosis

Motion by DORSET: That the Council be requested to consider the effect of Memo. 266T (relating to the early diagnosis of and financial allowances to cases of pulmonary tuberculosis) recently issued by the Ministry of Health.

School Medical Service

Motion by MID-CHESHIRE: That the B.M.A. should impress on the Government the great importance of developing a correct stance and poise among school children as a basis for healthy adult life.

B.M.A. LIBRARY

B.M.A. LIBRARY

The following books were added to the Library during February and March, 1943:

G. H. Cooray, J. V. F. Jayasinghe, A. S. Rajasingham, B. E. Fernando, Lieut L. A. V. Gabriel.
A fairly good response had been received to an appeal to doctors in Government service to join the Branch, as it had been found that only about 30% of practitioners registered in Ceylon were members.

The report concludes with a reference to the difficulties of producing a journal! wartime.

Amer, A. I.: X-ray Atlas of Silicosis. Second edition, 1943.
Macleod, P., and Prescott, P.: Vitamins in Medicine, 1942.
Bradford, F. K., and Spurling, R. G.: Interventional Disc, 1941.
Britton, H. T. S.: Hydrogen Ions. 2 vols. Third edition, 1942.
Burnett, F. M., and Clark, E.: Inducenza, 1941.

Views and Policy of Council Candidates

Divisions and Policy of Association.

Divisions and Policy of Association

Motion by PLATOON: That the Representative Body is of opinion that at the present stage of the planning of medicine and the special services of the State the Divisions should be more closely and directly associated with the policy of the Association, and requests that their democratically elected representatives should be called to a Meeting more frequently in Polandville.

Expenses of Representatives at A.R.M.

than at present, and not less than four times annually at quarterly intervals in order that they may be able, without undue delay, to interpret directly to the Council the feeling and opinion of the Divisions; that consideration should be given at an early stage to the reorganization and election of Council on a more direct and better geographical basis.

Hospital Staff Committees

Amendment by BIRMINGHAM CENTRAL: that in the paragraph of the Annual Report of Council relating to Hospital Staff Committee the first sentence be amended to read as follows:

Demobilization

Demobilization
Motion by Mtd.-Cheshire; That the Association by Mtd.-Cheshire appoint a committee to review the problem of demobilization and absorption into practice of demobilized or displaced doctors, and prepare plans to minimize hardship to doctors and patients alike.

Standing Orders

Motion by EASTBOURNE: That the Standing Orders of the Representative Body be amended by the insertion of the following new paragraph in S.O. 21:

(More to follow)

(More to follow)

BIRTHS, MARRIAGES, & DEATHS

WEEKLY POSTGRADUATE DIARY

Fellowship of Medicine, St. W.
Milton, Sept. 13 to Sat., Sept. 18, Bromley Ho.
Clinical : Tues. and Thurs., 4.30 p.m. N.R.C.I.
course in chest diseases. Royal Chest Hospital
West End Hospital for Nervous Diseases : The
Wed. 3.30 p.m. M.R.C.P. course in neurology
and Fri. 3 p.m. M.R.C.P. course in neurology
Radcliffe Infirmary, Oxford : Daily from 9.30 a
Revision course in anaesthetics. London Hospital
public Hospital : Wed. afternoon, clinical surgery
demonstrations. King Edward, Richmond Ho.
Clinical : Sat., F.R.C.S. clinical and path.
Educational Postgraduate Lectures.—At Edinburgh
Royal Infirmary, Thurs., 4.30 p.m. The Female S.
Hormones
Glasgow University : Department of Optics
Monday—Wed., 8 p.m. Prof. Lockwood
Hutches of the Cornea.

POSTGRADUATE NEWS

B.M.A.: Branch and Division Meetings
to be Held
PERTH BRANCH.—At Perth Royal Infirmary, Fri
Sept. 17, 8.30 p.m. Business: Instruction

to be Held

The annual general meeting of the Branch was held on June 10, following a show of two films from the Ministry of Health (blood transfusion and scabies). Dr. R. Spence presided at the meeting, when it was decided to establish a secretariat in Belfast. The report of the Branch Committee was adopted, stated that evidence in the form of the B.M.A. publication *General Medical Service for the Nation* had been submitted to the Select Committee on Health Services at Stormont; evidence from individual branches of the profession had also been considered. The following officers for 1934-5 were unanimously elected: president, Mr. C. J. Woodside; president-elect, Dr. J. W. Kilfer; vice-president, Dr. S. M. Bolton; hon. treasurer, Dr. Wm. Lyle; hon. secretary, Dr. Kane and Dr. F. Hainthly. After the meeting the president entertained members and four R.A.M.C. guests to lunch in the G. G. Lytle proposed the toast of "I Health of the President," and Dr. Spence replied.

NORTHERN IRELAND BRANCH

A fairly good response had been received to an appeal to doctors in Government service to join the Branch, as it had been found that only about 30% of practitioners registered in Ceylon were members. The report concludes with a reference to the difficulties of producing a journal during wartime.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 18 1943

Correspondence

Evolution not Revolution

SIR,—Dr. Anderson's address contains many excellent points, but he postulates a large number of fundamental changes in methods of practice which the profession "must" be ready to accept because, presumably, he thinks they represent the will of Parliament, and "Parliament is the mouthpiece of the people, and each section of the community should joyfully accept its decision." It should be pointed out that this Parliament was elected on issues which were already dead and out of date when war broke out in 1939, and that the people of this country have had no opportunity whatever of making known through Parliament their wishes on the issue which confronts the medical profession to-day.

In other words, from a democratic point of view no such revolutionary changes should be considered until a general election has been held. I do not advocate the holding of such an election now because it would obviously distract national energy and attention from the successful prosecution of the war. Furthermore, the present time with all its unnatural stress and tension does not provide the proper atmosphere in which people can calmly consider important questions of social and domestic policy. Why should there be all this rush and urgency? Assumption B presents problems which should be considered in a peacetime atmosphere and not at a time of emotional turmoil such as the present.

Very properly Dr. Anderson regrets that in the past the Ministry of Health and the Government have "shown little or no interest in our views and endeavours"—as regards adequate provision of medical services and the betterment of public health. What now makes him think that they will show any more interest in our views in the future? He has obviously sensed the widespread and increasing opposition among the rank and file to a State medical service, and puts it down to "a wave of emotionalism" and to an "ultra-conservative outlook" arising from the "premature disclosure" of the Minister's suggestions on the method of employment and remuneration of doctors. He says, "This is a pity." Is it? Might it not rather be a salutary warning of the sort of conditions we might expect if we allow this upheaval to take place during the war?

By all means let us consider and debate changes in the methods and organization of medical practice if we deem them necessary in the public interest, but let us do so when the war is over, and an atmosphere of peace and, let us hope, reason prevails! And however altruistic we may be as a profession, in considering the public interest let us not entirely lose sight of our own interests. The coming Annual Representative Meeting is likely to be a stormy one. I hope it will not be rendered more stormy by an agenda which

will leave it perfectly free to choose whether the profession shall, so to speak, (a) hang itself or (b) agree to being boiled in oil, all other motions and amendments thereafter falling to the ground.—I am, etc.,

Wolverhampton. A. VICTOR RUSSELL.

SIR,—The profession must thank Dr. Anderson for his address in the *Supplement* of Sept. 4. Although not altogether acceptable, it gives us some idea of the present inside views of the Council, who have the better of us in knowing the details of the recent discussions with the Minister; which details, I earnestly hope, will be published as soon as possible after the White Paper, when the imposition of secrecy by the Minister will no longer apply.

Dr. Anderson states that the Representative Committee gave the Minister "what it believes to be the views of the majority of the profession." Would it not have been far better for the committee to have known more precisely these views in advance? It is the omission of the B.M.A. to do so that has given rise to those independent committees that he deplors. I do hope that his opinion of the possibility of legislation on broad lines to be followed by regulations will prove wrong. One knows to-day only too well of the most unsatisfactory position of regulations passed by Government Departments with very little control by Parliament. We must insist that whatever legislation is envisaged the passing of the necessary Acts must wait until after the war, and when the country can be consulted in a constitutional manner. Discussions with patients fail to show that amount of cordiality that has been assumed. We shall most certainly need the mobilization of our resources to treat with the Government, but I submit that the need is now. It is a truism that revolution can take place exceedingly quickly but that time is necessary for the proper functioning of evolution.

Dr. Anderson's reassurances that in his opinion the Government intend to proceed with the main functions implicit in the Beveridge report are welcome, but would have been more so with an extant Government expression of their intentions in regard to conditions having a bearing on positive health. His remarks about private practice are most welcome, except the advice that we should accept the Government's decision whether the scheme should be for 90% or 100% of the population. The Representative Committee was overruled in that respect.

The explanations about the possibilities of some sort of control were far from satisfying, and the use of the word "direction" was far more frightening than "control." It is possible for the control to be delegated to the individual doctors in the scheme without any external control, central or local. What is wanted is integration.

In the tentative discussion about the possible methods of remuneration one agrees that there must be the prin-

ciple of payment for work done, but I fail to see why it must mean a capitation fee. It can as easily be an actual payment for each consultation and visit. I know it has been said that the Minister would turn that down as being the equivalent of giving the profession a blank cheque, but it would be far more fair to ourselves. Much is rightly made of the principle of free choice, but it is not emphasized that this should also apply to consultants. At the moment the success of a consultant depends on the service he renders to the patient and also to the general practitioner. Is this discriminating control to be lost?

Finally I would urge again that we ought to have not only a plan of campaign but also a plan in our minds of what we are prepared to accept and to get it brought to the notice of the Government before legislation shuts the door behind us; it may well be in a prison of our own omissions.—I am, etc.,

Wolverhampton.

L. B. PALING.

SIR,—With regard to Dr. Anderson's remarks on private practice I and others are very puzzled by his suggestions and how they are to be harmonized with the rules of medical ethics. Surely a patient who does not wish to transfer from the panel of Dr. "B" is that doctor's patient, and medical ethics prevent Dr. "C" from treating him. Also Dr. Anderson's suggestion visualizes a patient wandering for treatment haphazard between his "panel doctor" and a "private doctor." I can hardly imagine anything worse for all parties (even apart from medical ethics).—I am, etc.,

W. H. PALMER.

The Council's Recommendations

SIR,—In wartime all roads lead towards State control, hence the danger of planning in such a period. For notwithstanding plausible arguments to the contrary, and despite all the pitfalls, the abuses, and the imperfections, I hold that the safeguarding of individuality and individual enterprise is the only sure and certain path of progress, and indeed of human happiness. Holding these views, I welcome the report of the Council of the B.M.A. with as much pleasure as, let it be confessed, surprise. In particular do I applaud Recommendation B. This is one of those statements that a casual reader might pass over as a generalization requiring little reflection and no comment. Yet here are a short seven and a half lines deserving to be written in capital letters and containing a whole world of wisdom; here is the very marrow, not only of medical, but of all social reform.

So often in the working of our political system, and perhaps in the working of the British temperament, the real fundamentals of a problem become lost in a fog of side issues. In consequence the solutions are based on half-truths and faulty premises, and not infrequently bring in their train a number of other evils, yet leave the underlying mischief

unimpaired. To take an example, real education consists in the exercise of the intelligence, and should be progressive and life-long; yet money is poured out like water upon educating children whose subsequent lives will be spent, almost perforce, in following some soul-destroying and purely automatic occupation and whose intelligence exercise will be a twice-weekly sensation, largely sexual, at the cinema. In such circumstances intelligence withers and dies, leaving behind, all too often, frustration and bitterness. Again, selection of the best breeding stocks is practised by Nature and by man in every sphere of life with the sole exception of man himself. So long as this remains the case the phrase "positive health" is a farcical placebo. While not opposed to progressive change, I dare to think that the medical services as they stand at present compare very favourably with any of the other social services of the country. Yet they are being made a convenient scape-goat in the "freedom from disease campaign." Recommendation B is of infinitely greater importance than Assumption B; would that it might receive the same share of advertisement! Health depends on the exercise of the intelligence, and upon contentment, and contentment depends, *inter alia*, on freedom from care and upon contentment, and contentment depends, *inter alia*, on freedom from care. I, Some weeks ago Dr. Macdonald, writing as Chairman of the Representative Body, had a letter published in the *Manchester Guardian* wherein he stated (and N.H.T. to dependants would implement Assumption B. 2. Recommendation M of the Supplementary Report of Council takes a similar line to the above.

3. Dr. Dain (*Supplement*, Aug. 7, p. 21), referring to the 100% inclusion, suggested that whatever was done at the last A.R.M. there was no objection to putting forward new proposals. "Agreed, but surely the Council's duty is to carry out the resolutions of the last A.R.M. rather than to neglect them altogether in favour of new proposals in their declaration of B.M.A. policy.

4. A four-page circular has recently been circulated, signed by some members of Council, dissenting from the Supplementary Report of the Council.

5. Dr. Anderson, speaking in Manchester on Aug. 29 as B.M.A. Secretary, is reported thus: "My personal opinion is unhesitatingly that if Parliament decides on the 100% we should accept it." I submit that Dr. Macdonald, writing as Chairman of the Representative Body and therefore as a member of Council, ought not to advocate a scheme contrary to the resolution passed by the A.R.M. In his private capacity as Dr. Macdonald he can advocate anything he likes. So also in the case of Dr. Anderson; when speaking as B.M.A. Secretary surely what he says should be official—i.e., Council—policy, yet he offers what should be Council's policy as determined at the A.R.M. only as his private opinion.

The dissentient publication mentioned in 4 above is most confusing to the rank and file. Is its existence due to inability of a minority report? That would seem to be the only explanation.

It is obvious from all this that there is little unity at Headquarters. How, then, are the Divisions likely to achieve unity with the Council in the Representative Committee, and what faith can we place in that body, which will in all probability be the Negotiating Committee (if members have

State Medical Service

Sir,—It may be as well to point out now that when victory has been finally attained the indispensable service of thousands of civilian doctors in uniform will have made this a reality, as it is impossible to wage war without medical officers. The vast majority of these men are volunteers, but it is unlikely that they will consent to join a State medical service on terms such as those revealed in Dr. Hill's address in the *Supplement* of May 22 (p. 11) just to hand. In such a service they would be also indispensable, for on them success too would equally depend.

Bexley, Kent.
E. U. MACWILLIAM.

Sir,—The "Principles" put forward by the Council of the B.M.A. are most disapplying in that they do not properly reflect the very strong opposition that most doctors have to State medicine. I wish to express my personal misgiving. The panel service has little in its past to tempt one to perpetuate its method in the future.—I am, etc.,
A. GUTHRIE BADENOCH.

Wirksworth, Derbyshire.
E. D. BROSTER.

etc., individual enterprise and effort.—I am, the preservation of the individual and in interest in employment—in short, on depends on the exercise of the intelligence, and upon contentment, and contentment depends, *inter alia*, on freedom from care and upon contentment, and contentment depends, *inter alia*, on freedom from care. I, Some weeks ago Dr. Macdonald, writing as Chairman of the Representative Body, had a letter published in the *Manchester Guardian* wherein he stated (and N.H.T. to dependants would implement Assumption B. 2. Recommendation M of the Supplementary Report of Council takes a similar line to the above.

B.M.A. Policy

A. A. W. BEACH,
Surgeon-Lieut., R.N.V.R.
J. W. RAY,
Surgeon-Lieut., R.N.V.R.

If these terms of service and remuneration are the best that stay-at-home bureaucrats can devise we are tempted to ask, is this the democracy for which we are fighting? We view the future with considerable and increasing concern and not a little dismay.

Sir,—Some months ago there appeared in the *Journal* a leading article—B.M.A.—inspired, one assumes—urging on the profession the necessity for unity in view of the negotiations with the Ministry of Health. At the A.R.M. last year a resolution was passed which declared in favour of providing a medical service for 100% of the community. No. 32 of the Articles of Association of the B.M.A. lays down that the control and direction of policy of the Association shall be vested in the Representative Body, and No. 37 that the duty of the Council is to carry into execution resolutions passed by the Representative Body. Consider them, in view of the foregoing, the following.

1. Some weeks ago Dr. Macdonald, writing as Chairman of the Representative Body, had a letter published in the *Manchester Guardian* wherein he stated (and N.H.T. to dependants would implement Assumption B. 2. Recommendation M of the Supplementary Report of Council takes a similar line to the above.

3. Dr. Dain (*Supplement*, Aug. 7, p. 21), referring to the 100% inclusion, suggested that whatever was done at the last A.R.M. there was no objection to putting forward new proposals. "Agreed, but surely the Council's duty is to carry out the resolutions of the last A.R.M. rather than to neglect them altogether in favour of new proposals in their declaration of B.M.A. policy.

4. A four-page circular has recently been circulated, signed by some members of Council, dissenting from the Supplementary Report of the Council.

5. Dr. Anderson, speaking in Manchester on Aug. 29 as B.M.A. Secretary, is reported thus: "My personal opinion is unhesitatingly that if Parliament decides on the 100% we should accept it." I submit that Dr. Macdonald, writing as Chairman of the Representative Body and therefore as a member of Council, ought not to advocate a scheme contrary to the resolution passed by the A.R.M. In his private capacity as Dr. Macdonald he can advocate anything he likes. So also in the case of Dr. Anderson; when speaking as B.M.A. Secretary surely what he says should be official—i.e., Council—policy, yet he offers what should be Council's policy as determined at the A.R.M. only as his private opinion.

The dissentient publication mentioned in 4 above is most confusing to the rank and file. Is its existence due to inability of a minority report? That would seem to be the only explanation.

It is obvious from all this that there is little unity at Headquarters. How, then, are the Divisions likely to achieve unity with the Council in the Representative Committee, and what faith can we place in that body, which will in all probability be the Negotiating Committee (if members have

co-ordinated medical service which will give to its citizens the full benefits of modern medical progress and to medical practitioners the fullest opportunity of exercising their existing skill and of developing their own knowledge. The provision of such a service will require a radical measure of reconstruction which will give the general practitioners a much higher status and a fuller recognition as the central core of any efficient medical service."

Amendment by HOLLAND: That the following words be added: "That the State should carry out these functions in consultation with a medical advisory council consisting of representatives elected by the whole medical profession."

Recommendation E (Supplement, Sept. 11, p. 36):

Amendment by CITY: That the following be substituted for Recommendation E:

"This meeting is of the opinion that no lay authority should intervene in the doctor-patient relationship, but that a State which organizes and finances a service must have organizational control over it. Further, there is no evidence to show that the public is less well served by a salaried service, examples of which are public health, venereal diseases, and tuberculosis."

Amendment by Bournemouth and Winchester: That the first sentence be deleted, as this would apply only in a State Medical Service.

Amendment by BRISTOL: That the words "organization and" be deleted in the first sentence.

Amendment by St. Pancras: That the words "in their professional capacity" be inserted after the words "should not assume control of doctors" in the first sentence.

Amendment by Bradford: (1) That this meeting is opposed to a general practitioner and consultant medical service controlled by the State. (2) That the profession is not prepared to participate in any such service controlled by any local or regional authority through the medical officer of health or his staff, or otherwise.

Amendment by Worcester and Bromsgrove: That the profession rejects any proposal for the control of the future medical service by local authorities as at present constituted.

Recommendation G (Supplement, Sept. 11, p. 37):

Amendment by East Yorks and Leeds: That the recommendation be amended to read as follows: "That it is not in the public interest that the State should invade the doctor-patient relationship."

Amendment by St. Pancras: That the words "in the rendering of" be substituted for "rendering" in the second sentence.

Recommendation H (Supplement, Sept. 11, p. 37):

Amendment by Leeds: That the recommendation be amended to read as follows:

"That free choice of doctor should be reinforced by a method of remuneration which relates remuneration to the nature and amount of work done."

Amendment by City: That remuneration should be based on the amount and type of the work rendered, on ability and seniority.

Amendment by City of Edinburgh: That the word "and" be substituted for the word "or" before the words "the number of persons for whom responsibility is accepted."

Recommendation I:

That every member of the community should be free to consult the doctor of his choice either officially, as when he consults the doctor he has selected under an official service, or privately, as when he consults some other doctor, whether that doctor is a member of an official service or not. Nothing should be done to encourage the splitting of the medical profession into two groups—the official doctors and the non-official doctors.

Amendment by HOLLAND: That the following be substituted for Recommendation I: "Every member of the community should be free to consult any doctor privately, whether that doctor is a member of the official service or not."

Amendment by Harrow: That the recommendation be amended to read as follows:

"That every member of the community shall have the right at his own expense to request treatment as a private patient from any doctor other than the doctor on whose list his name appears under a scheme administered by the State."

Amendment by Oxford: That the recommendation be amended to read as follows:

"That every member of the community, whether entitled to avail himself of any official health service or not, should be free, if he so chooses, to utilize the services of the doctor of his choice, whether that doctor is a member of an official service or not. Nothing should be done to encourage the splitting of the medical profession into two groups—the official doctors and the non-official doctors."

Amendment by Worcester and Bromsgrove: That the recommendation be amended to read as follows:

"That every member of the community should be free to consult the doctor of his choice, either officially, as when he consults the doctor he has selected under an official service, or privately, as when he consults some doctor other than his official doctor, whether that doctor is a member of an official service or not."

Amendment by Kensington: That the first sentence, "That every member of the community . . . official service or not," be deleted.

Amendment by City: That all the words after "... consults some other doctor" be deleted and that there be substituted therefor: "Private practice can be adequately dealt with by those doctors in part-time employment in the service."

Amendment by Bristol: That the second sentence, "Nothing should . . . doctors," be deleted.

Amendment by Torquay: That the second sentence, "Nothing should be done . . . doctors," be deleted, as this appears to be a direct contradiction of the first part of the recommendation.

Amendment by Mid-Cheshire: That after "two groups" in the second sentence there be inserted the words "for personal medical services."

Recommendation J:

That consultants and specialists should normally be based on the hospital. For those persons who wish to be treated in private accommodation, whether part of a hospital or not, private consulting practice should continue as at present.

Amendment by Brighton: That the words "attached to" be substituted for "based on" in the first sentence.

Amendment by Kensington: That the second sentence be deleted, so that the recommendation reads: "That consultants and specialists should normally be based on the hospital."

Amendment by Birmingham: That after "wish" in the second sentence the words "for private consultation or" be inserted.

Amendment by Gateshead: That the words "as at present" at the end of the recommendation be deleted.

Motion by Eastbourne: That in the event of the introduction of a comprehensive State medical service, including specialist and consultant services, it should be possible for a patient to obtain nursing-home accommodation or private nursing attendance by extra payment, but that the specialist concerned should not be entitled to any extra payment.

Recommendation K:

That the central administrative structure set up by the State for the central administration of the

medical service in the future should be a body concerned only with civilian health services, but it should be responsible for all civilian health services administered by central government. The Minister to whom this central administrative body is responsible should be advised on medical matters, including personnel, by a medical advisory committee, representative of the medical profession. Locally, new administrative bodies, responsible to the central authority, should cover wide areas and should be representative, directly or indirectly, of the community served and, in appropriate numbers, of the local medical profession and voluntary hospitals. They should be advised on medical matters, including personnel, by local medical advisory committees representative of the local medical profession. These administrative changes should be regarded as foundation changes to be completed before other changes are initiated.

Amendment by Holland: That the recommendation be referred back to the Council for redrafting to make its implications beyond misinterpretation.

Amendment by Gateshead: (1) That in the first sentence the words "That the central administrative structure, which should be a corporate body, including adequate medical representation" be substituted for "That the central administrative structure set up by the State," and that the words "concerned only with the civilian health services administered centrally, and that it should be responsible for all such services but not for civilian health services not so administered" be substituted for the words "a body concerned only with civilian health services, but it should be responsible for all civilian health services administered by central government." (2) That in the second sentence the words "That the central administrative body should be advised on medical matters, including personnel, by a purely medical advisory committee elected by the medical profession" be substituted for the words "The Minister to whom . . . medical profession." (3) That in the third sentence the words "and voluntary hospitals" be deleted. (4) That in the last sentence but one the words "elected by" be substituted for the words "representative of."

Amendment by Northamptonshire: That the words "with adequate medical representation and should be" be inserted after "should be a body" in the first sentence.

Amendment by Leeds: That the first sentence be amended to read: "That the central administrative structure should be a body concerned only with civilian health services and should be responsible for all civilian health services."

Amendment by Newcastle-upon-Tyne: That the words "including personnel" be deleted from the second sentence, but retained in the fourth sentence.

Amendment by City of Aberdeen: That the words "by a medical advisory committee representative of and chosen by the medical profession, meeting at stated intervals and having the power to make its recommendations public" be substituted for "by a medical advisory committee representative of the medical profession" in the second sentence.

Amendment by St. Pancras: That (a) in the second sentence of Recommendation K, referring to local new administrative bodies, the words "appropriate numbers" be replaced by the words "appropriate proportion"; (b) in the last sentence the words "to be completed before other changes are initiated" be replaced by "and to be an essential part of any new arrangements."

Amendment by Isle of Wight: That in the third sentence the words "directly or indirectly" be deleted and that the following be substituted, "in equal numbers (1) of the community served, (2) of the local medical profession and voluntary hospitals."

Amendment by City: That the last sentence be deleted.

Amendment by Preston: That the words "whose chief executive officer should be a medical man" be inserted after "local medical advisory committees" in the last sentence but one.

Amendment by TORNAVY: That through out the recommendation the words "representative of and elected by the medical profession" be substituted for "representative of the medical profession".

Amendment by HARTLAX: That the following be inserted before the last sentence: "The medical members of the central administrative body shall be elected by the bodies."

Motion by WANDSWORTH: That it is essential in the public interest that any national medical service should be administered by a corporate body and not a Government department.

Motion by LESTER: That the following be substituted for "representative of the medical profession": "representative of the medical profession."

Department. Motion by Isle of Wight: That the medical person or local administrative bodies should have had at least ten years' experience of general or consultant practice. Motion by CLEVELAND: That all medical services at present administered by the State should be administered by the Ministry responsible for the health services and not by any other Department of the State. Recommendation L: That an

able that a detailed scheme for general practitioners should be framed and put into operation without corresponding arrangements for other branches of practice.

branches of medical practice should be amended to read: "That all amendments by the board of medical practice should be referred to the committee on the recommendation to be deleted. The remainder of the recommendation should be deleted."

words "it is essential that no detailed scheme for general practice" be substituted for "it is undesirable that a detailed scheme for general practitioners."

Motion by Harrow: That in view of the impossibility of implementing Recommendation M without a great increase of medical personnel, the term "Preliminary Proposals" be substituted for "Immediate Proposals."

Immediate Proposals

Amendment by Reigate: That Recommendation M be amended to read as follows: "That Assumption B should be satisfied persons and others of like economic status and to cover consultant and specialist services, always as general practitioners and laboratory and hospital facilities as well as general practitioners. Those persons with incomes above the existing limits could, if Parliament decided to make the service available to every member of the community, be permitted to become voluntary contributors to the extended service. A reconstruction of insurance committees would be required."

Insurance to include dependents of insured persons and others of like economic status whose income does not exceed £250 a year and/or £420 a year, provided that certain anomalies are removed, and that cover consultant and specialist services as well as general practitioner service." Amendment

Amendment by Swensen: That Recommendation M be amended to read as follows:

"(a) That in the meantime there should be an extension of the National Health Insurance benefit to include consultants, specialist services, laboratory and hospital facilities, as well as general practitioner services; (b) that these services should be available to all."

Amendment by Leaps: That any comprehensive medical service must be available to the whole community, with adequate facilities for contracting out.

Amendment by ISLE OF WIGHT: (1) That the following should be inserted after the words "general practitioner service" at the end of the first sentence:

(2) That the proposed extension would only be acceptable if the present capitation fee is raised to what the profession considers to be an adequate level."

"That if this group is included the cap-
tation fee for all insured persons shall
be proportionately raised."

Amendment by CLEVELAND: That the words "those persons with incomes above an agreed limit" be substituted for "those

persons with incomes above the existing limits" in the second sentence.

Amendment by BRADFORD: That a modified panel system with wider scope, a definite income limit, and accessory services available, be adhered to.

Amendment by ALDERSHOT AND BASINGSTOKE: That the words "provided that no changes be made in the income limit or terms of the National Health Insurance service without negotiation with the medical profession" be inserted after "extended service" in the second sentence.

Amendment by NOTTINGHAM: That the last sentence but one should read: "That if Parliament decides to make the services available to persons with incomes above the existing limits as voluntary contributors there should be a compensatory increase in the capitation fee."

Amendment by NORTHAMPTONSHIRE: That the following sentence be added to the recommendation: "While the Representative Body agrees with the foregoing recommendation, it desires to point out that a reconstruction of insurance committees will probably at a later stage lead to difficulties in the setting up of the administrative bodies referred to in Recommendation K."

Amendment by MID-CHESHIRE: That after "general practitioner service" the last paragraph be deleted and the following inserted: "That those persons with an income above the existing limits should be encouraged to make provision for medical services by joining mutual insurance schemes along existing lines."

Motion by EASTBOURNE: That there be no discussion with the Government on Recommendation M until a satisfactory remuneration be agreed upon.

Recommendation N:

That there should be initiated, by arrangement and agreement between the Government and the profession, organized experiments in group practice, including health centres of different kinds. Future developments in group practice should depend upon the results of such clinical and administrative experimentation.

Amendment by DERBY: That the recommendation be amended to read as follows:

"That medical services, in the main, should remain *in statu quo* until the introduction of a complete new service, or until, at a future date, a review of medical personnel and equipment should render some interim change both practicable and desirable."

Amendment by ISLE OF WIGHT: That the following words be inserted at the beginning of the motion: "That this meeting welcomes the principle of health centres and group practice and is prepared to collaborate."

Amendment by HOLLAND: That before the word "profession" there be inserted "local medical."

Amendment by OXFORD: That the recommendation be amended to read as follows:

"That there should be initiated, by arrangement and agreement between the Government and the profession, organized experiments in the methods of practice, such as group practice, including health centres of different kinds and general practitioner hospital units attached to general hospitals. Future developments in group practice should depend upon the results of such clinical and administrative experimentation."

Motion by NORTH STAFFORDSHIRE: That in the opinion of the Representative Body an efficient general practitioner service is not dependant on the establishment of health centres.

Motion by NORTH STAFFORDSHIRE: That it is the opinion of the Representative Body that the establishment of compulsory health centres would endanger the preservation of a free profession.

Motion by BOLTON: That the Government should be responsible for all the

expenses entailed in the organization of trial health centres, particularly in regard to premises and equipment.

Miscellaneous

Motion by NORTH BEDFORDSHIRE: That the Representative Body:

(a) is of the opinion that no steps should be taken to commit the medical profession with the Ministry of Health without first ascertaining the views of each member of the medical profession (at home and overseas);

(b) is satisfied that among the members of the B.M.A. there is, rightly or wrongly, a grave lack of confidence in the resolution and tenacity of purpose of the Representative Body and the Council to further the best interests of the public and profession, and that this grave lack of confidence is responsible for the existence of so many non-members in the profession;

(c) believes that a successful issue in the present business of the B.M.A. depends largely on the increase in (1) confidence in and (2) membership of the B.M.A., and that these ends will both be achieved by an Act of Faith by the Representative Body, Council, and permanent staff, communicated directly and individually to each medical practitioner on the Register;

(d) believes that this Act of Faith should take the form of a Declaration by the Representative Body, Council, and permanent staff that: (1) having considered a referendum and decided upon the best plan for a medical service for the public and profession they will not agree to accept any important modification without the authority of a new referendum to the whole medical profession; and (2) no one belonging to these bodies or permanent staff will accept any honour from the Government in respect of his services in connexion with the B.M.A. affairs;

(e) that the adoption of these resolutions does not necessarily imply a want of confidence in these bodies or the permanent staff;

(f) that as there appears to be great anxiety among members of H.M. Forces as to the method adopted by the B.M.A. to obtain their views, they should be circularized as to the nature of the steps proposed to be taken in this direction.

Motion by EAST YORKS: That the Representative Body, representing the great majority of qualified medical practitioners in the country, strongly deprecates the action of the Government in considering Assumption B (the comprehensive health and rehabilitation service for the nation) while not at the same time tackling the social security plan of Beveridge as a whole.

Motion by EAST YORKS: That the Representative Body, agreeing with the general principles of the Beveridge plan, strongly recommends that every effort be made to increase the number of qualified medical practitioners, and considers that to this end medical schools should be established at provincial university colleges where no facilities at present exist, but where the initial training could be given and ample clinical material is available.

Motion by OXFORD: That it is essential to increase the number of actively practising doctors, since without this increase the aims of Recommendations B (now A) and M of the Council cannot be realized.

Motion by GATESHEAD: That the following recommendation be inserted after recommendation L:

That the medical officer of health of any area should not act as the general executive officer of the administrative body in that area. His functions should be confined to matters of preventive medicine proper. He should work in close co-operation with the general practitioner service, but should not be responsible in any way for its administration.

Motion by WORCESTER AND BROMSGROVE: That inquiry be made as to whether the

number of practitioners at present available, or available on the cessation of the war with the release of Service personnel, will be sufficient for the implementation of Assumption B of the Beveridge report, and that Branches and Divisions be advised of any information available and of any views on this question.

Motion by EAST YORKS: That the Representative Body considers that the time is now opportune for discussions between Sir William Beveridge and a committee representative of the medical profession regarding Assumption B of the report.

Motion by TORQUAY: That the Representative Body is of opinion that in future negotiation with the Ministry of Health the British Medical Association should be represented personally at every meeting by Counsel experienced in Parliamentary procedure.

Motion by SHROPSHIRE AND MID-WALES: That it is imperative at the present stage in the evolution of medical practice that the British Medical Association should avail itself of the services of learned Counsel with medico-political experience.

Motion by SHEFFIELD: That the Council be instructed to retain the whole-time services of an eminent barrister who shall consider all proposed legislation affecting the profession, and shall advise the Council in all matters for negotiation with Ministers of the Crown and all Government committees.

Motion by NORTH STAFFS: That the Representative Body is of the opinion that the negotiating body to be set up should not commence operations without making it quite clear to the Minister that it reserves the right to make a full report of all proceedings to the Representative Body.

Motion by READING: That the Representative Body is not in favour of any secrecy in any discussions the Council of the B.M.A. may hold.

Motion by OXFORD: That in order to ensure the maximum personal and professional freedom and responsibility, no doctor shall be prohibited from or penalized for the expression or publication of his views on professional matters taken on the widest basis or of facts and figures learnt or discovered during his professional work, and that all medical advisory committees shall be free to publish their views and reports fully and independently of the views of the bodies they advise, with the single proviso that no material which might identify a particular individual shall be so published.

Motion by OXFORD: That greater efforts should be made to consult public opinion on the organization of the medical services through the various kinds of machinery now available.

Motion by OXFORD: That greater efforts should be made to instruct public opinion through the work of a salaried public relations officer of the British Medical Association.

Motion by HARROW: That the Representative Body is of opinion that to facilitate enunciation of the profession's views and proposals prior to the appointment of negotiators with the Government, a far larger proportion of the *Journal* should be made available for articles and letters on medical planning and public relations than has been available in the past.

Motion by BARNSTAPLE: That under any scheme of reorganization it is essential that the economical and social status of the practitioner should not be degraded.

Motion by NEWCASTLE-UPON-TYNE: That a national medical service which preserves the existing relationship of doctors and patients will demand of the doctors a high ethical standard on the matter of certification. One of the main causes of the present laxity is the intolerable increase in the number of certificates of every kind. Under a better organized service these should be much reduced and the profession should, at the same time, be prepared to accept any

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 25 1943

British Medical Association REPORT OF INSURANCE ACTS COMMITTEE, 1943

Five meetings of the Committee have been held during the past session. Dr. E. A. Gregg was reappointed chairman. In the interval between meetings the work has been conducted by an Executive Committee.

Insurance Capitation Fee

Panel Committees are aware of the persistent efforts which the Committee has made to secure a wartime increase in the insurance capitation fee, culminating in the Minister of Health's statement that his decision not to grant an increase must be regarded as final. The Minister's refusal was stated to be based upon Government policy, which was opposed to increases in remuneration for classes of persons with incomes above £550 a year. While the Committee was considering what further effective action could be taken it was announced that the Government had granted a war bonus to Civil Servants receiving salaries up to £850 (net) a year. Immediately the Minister was asked for an assurance that the Committee's claim would be reconsidered in the light of this decision. The Minister's reply is now awaited.

In the meantime a letter has been sent to Panel Committees explaining why the Insurance Acts Committee has not sought the views of insurance practitioners, through Panel Committees, on the issue of withdrawal from the service, a step which the chairman of the committee referred to at the Special Conference in March. The Committee's view is that the situation has changed materially since then. Following the discussions between the profession's representatives and the Minister of Health and his officers on the subject of a post-war national medical service, the indications are that the main issue is a State salaried service versus a two-way extension of National Health Insurance. Advocacy of an extension of National Health Insurance is advocacy of a capitation method of remuneration as opposed to the State salary method of remuneration. The Committee's view is that the larger issue of preservation of this capitation method of payment should not be prejudiced by withdrawal, or preparation for withdrawal, from a service remunerated by the capitation method.

A further reason for delaying action on this resignation issue has been mentioned already. The Government announcement that war bonuses were to be given to Civil Servants with salaries up to £850 a year has afforded an opportunity of reopening the general question of a wartime increase in the capitation fee, and the Insurance Acts Committee has taken advantage of the opportunity.

A Comprehensive National Medical Service

The views expressed by the 1942 Annual Conference on the Draft Report of the Medical Planning Commission were duly conveyed to the Commission. In December, 1942, the Beveridge report was published. In it Sir William Beveridge advocated a national social security scheme based upon certain assumptions, one of which, Assumption B, was the provision of a comprehensive health and rehabilitation service available to the whole community. Arrangements were then made for the appropriate parts of the report to be considered by the Representative Body of the B.M.A. and the Conference of Local Medical and Panel Committees. Before these two bodies had met the Beveridge report was discussed in Parliament, and Government spokesmen informed the House of Commons that the Government accepted, with certain reservations, the assumptions and principles of that report, including Assumption B. It was stated that the Health Departments would forthwith enter into informal and non-committal discussions with the sectional interests concerned, and the Minister of Health invited the B.M.A. to set up, in collaboration with the Royal Colleges, a committee representative of the profession as a whole to discuss with him the problems and difficulties involved in the establishment of a comprehensive medical service. A Special Representative Meeting of the B.M.A. and a Special Conference of L.M. and P. Committees, held immediately after a joint meeting of both bodies, approved acceptance of the Minister's invitation to enter into discussions without commitment, and the establishment of a Representative Committee to enter into such discussions on the understanding that, before negotiations were opened, the full machinery of the B.M.A.—including the Council and its Committees, Groups, Panel Committees, Divisions, and the Representative Body—would be used to consider the Government's proposal and to decide the Association's view thereon, and that every practicable step would be taken to give all members of the profession an opportunity to express their views.

The discussions with the Minister of Health and his officials were concluded in July and the Representative Committee presented a confidential report to its constituent bodies. In these discussions the Representative Committee was guided in general by the B.M.A.'s "General Medical Service for the Nation," the Draft Interim Report of the Medical Planning Commission reviewed in the light of criticisms and observations made by the constituent bodies of the Commission, and a number of general

principles. The Minister announced his intention to survey the position by the issue of a White Paper, which would in no way commit the medical profession. He was urged to confine his White Paper to a statement of the problems and not to commit the Government to any one solution of these problems. In this way there would be facilitated a free and frank discussion of problems by all concerned.

The Representative Committee reported that, on the Minister's ruling, the discussions were confined to the consideration of a comprehensive medical service available to the whole community. They ranged over a wide field of subjects, such as central and local administration, health centres, free choice of doctor, private practice, and methods of utilizing the services of medical practitioners (including methods of remuneration). Though the Representative Committee did not in any way commit the medical profession, it reached the conclusion that there should be an early statement by the profession of the fundamental principles that should form the basis of any future reorganization of health services whatever the contents of the White Paper.

Following the enunciation of basic principles by the Representative Body of the B.M.A., consideration will be given in the light of these principles to the White Paper immediately it is published. The Insurance Acts Committee will take special steps to consult Panel Committees on the subject-matter of the White Paper, culminating in a Special Conference called for the purpose. No negotiations with the Government will be started until after the Special Panel Conference and the Special Representative Meeting of the B.M.A.

Minute 18 of the Special Conference, urging that, in the event of negotiations failing to secure conditions satisfactory to the profession, the Council of the B.M.A. should be prepared with a plan for the treatment of the sick by the profession without its participation in the Government scheme, has been referred to a sub-committee for careful consideration.

The Rural Practitioners Subcommittee has had a preliminary discussion on the position of the rural practitioner under a post-war comprehensive national medical service.

Organization of Insurance Practitioners

Group Organization

In spite of the difficulties created by wartime conditions, some strengthening of the machinery for the organization of insurance practitioners is regarded as possible and necessary. To this end the Committee has recommended the forma-

tion of Group Standing Joint Committees in which they were not previously in existence and their revival where they have temporarily ceased to function. A Group Standing Joint Committee affords the Group Representative on the Insurance Acts Committee an opportunity of meeting representatives of his constituent committees and hearing their views on current affairs of interest to insurance practitioners. It is a means of so organizing an area that views can be conveyed to and obtained from every insurance practitioner in the Group within the shortest possible time. This is considered to be of vital importance, and a general outline of the procedure which might be followed was sent to Panel Committees in a circular letter dated Feb. 25, 1943.

Headquarters Organization

The Committee was asked (Minute 51 of 1942 Annual Conference) to consider a suggestion that a special N.H.I. section of the central secretariat and staff of B.M.A. House should be created. The Committee believes that such a central specialized department is likely to be less effective than a regional secretariat, which would allow a closer local contact and an adaptation to regional needs. Segregation of N.H.I. matters from other medico-political activities is not desirable. The ideal would be a system of regional organization with B.M.A. regional secretaries who would take an active interest in the problems of insurance practitioners within the region. The Council of the B.M.A. has been informed of this view.

Four methods of securing the most effectively presentation in Parliament of the views of the medical profession have been considered by the Committee. They are: (1) closer liaison with the present Parliamentary Medical Committee; (2) a closer contact with, and the bringing of, some present member who would speak and ask questions on behalf of the profession; (3) the sponsoring by the Association of the candidature of a medical man for the House of Commons (including taking all necessary steps, if he is elected, to enable him to devote his whole time to Parliamentary duties); and (4) the urging of representative doctors to Panel Committees to keep in touch with their local members of Parliament. The Council of the B.M.A. has been recommended that the third method is the one most likely to be of value and requested to take the necessary steps.

Public Relations

The Council of the B.M.A. has adopted the Committee's recommendation to review the Association's public relations activities, which were suspended at the beginning of the war. An adviser in public relations has been appointed and an information bureau has been established. The Department is now actively at work and already a good deal of useful work has been done, including the organization and briefing of local public relations committees in B.M.A. Division areas. Among the matters referred to the Committee by the 1942 Annual Conference was a proposal that an association of insurance practitioners be formed with the support of the B.M.A. The Com-

An Association of Insurance Practitioners

Committee is opposed to the establishment of such a separate body as being against the interests of the profession as a whole and of the sectional Groups within it. Investigation into Increase in Minor Illness

Arising from suggestions at the 1943 Annual Conference the Ministry of Health was asked to take all practicable steps to impress upon new entrants into the National Health Insurance the importance of joining a doctor's list without delay, and it was suggested that the name and address of the insurance committee be stamped on all copies of Form G.P.4 issued to doctors. The Committee is impressed that steps have been taken to form a "transferred workers" the importance of joining an insurance doctor's list immediately on transfer to their new quarters. Efforts have also been made to enlist the help of the new employers in ensuring that workers are aware of this facility. All new contribution cards coming into use in July, 1943, included advice on the subject of obtaining medical benefit. Form G.P.4 has been revised in accordance with suggestions by the Insurance Acts Committee and other improvements effected.

Medical Records of Discharged Service Personnel

The Committee has continued its discussions with the Ministry of Health regarding the availability of medical records of men and women discharged from H.M.I. Forces on medical grounds. The Service Departments have agreed to supply the Ministry of Health with copies of the reports by presidents of medical boards on persons so discharged except in the few cases in which consent to disclosure is withheld by the person concerned. The reports will be passed on to insurance committees and will be associated with the insured persons' medical records on reinstatement of an insured person on his former doctor's list or on his joining a new doctor's list, as the case may be. Individual insurance practitioners will shortly receive from insurance committees a communication giving full details of the arrangement.

Medical Treatment for Dependents of Service Men

Sickness Benefit during Pregnancy

Suggestions on this subject were made at the 1942 Annual Conference, with the general object of granting sickness benefit to an insured woman who, during the last weeks of pregnancy, is certified by her doctor to be unfit for work on account of pregnancy alone. The Ministry's reply is that benefit is payable for any period during which a pregnant woman is incapable of work. The Ministry does not feel that it would be

justified in relaxing the certification in so as to allow the certification of capacity at longer intervals than a week during the latter stages of pregnancy

Medical Representation on Insurance Committees

The Ministry of Health has noted Committee's request for increased representation of the medical profession in insurance committees, but states that it would not be practicable to deal with the matter at the present time. War Injuries of Insured Persons

The question of special payment for the treatment of insured persons suffering from war injuries was referred to the Committee by the 1942 Annual Conference and has been noted. In this connection Panel Committees are reminded that the Committee's request for increased representation of the medical profession in insurance committees, but states that it would not be practicable to deal with the matter at the present time.

Schedule of Appliances

Early Closing Hours of Chemists

Medical Benefit for Seamen

Pension Scheme for Insurance Doctors

The Pension and Insurance Scheme which was available for insurance practitioners until December last has been revised by agreement with the insurance companies concerned. Like its predecessor the revised scheme provides for pension, for family provision, and for disability. Full details will shortly be obtainable from the Medical Insurance Agency, B.M.A. House, Tavistock Square, London, W.C.1.

National Insurance Defence Trust

The balance sheet and statement of expenditure and income of the Trust for the year ending Dec. 31, 1942, is being sent to every Panel Committee. The trustees decided to act on the suggestion made at the last Annual Conference that the objective amount of the Fund should be increased to £1,000,000. Each area has been informed of its new quota, and so far 59 Panel Committees have agreed to make every endeavour to complete their quotas.

The trustees were asked by the last Annual Conference to consider and report on the desirability of defining more rigidly the conditions upon which grants for the assistance of aged or infirm insurance practitioners would be made from the Trust in pursuance of Minute 39 of the 1938 Annual Conference. The trustees have decided not to consider any further applications under Minute 39, and the following recommendation is submitted for adoption by the Conference:

Recommendation: That Minute 39 of the 1938 Annual Conference be rescinded on the understanding that grants already made will not be discontinued.

The Trust is sharing on equal terms with the B.M.A. the cost of the Public Relations Department.

SCOTLAND

This particular section deals with matters which are of a purely domestic Scottish nature and which have not been referred to in the preceding paragraphs or upon which action in England and Wales differs from that taken in Scotland.

Dr. J. F. Lambie (Glasgow) and Dr. A. F. Wilkie Millar (Edinburgh) were appointed chairman and deputy chairman respectively for the session 1942-3. Meetings of the Insurance Acts Subcommittee took place in December, 1942, and April, 1943. A special joint meeting of the I.A.S.C. with the Scottish Committee was held in March, 1943. A meeting of the Group Organization Subcommittee was held in July, 1943.

Group Organization

To ascertain the views of insurance practitioners in Scotland regarding the proposals of the Government for a comprehensive health service, a questionnaire was issued through the Panel Committees in January, 1943, to all practitioners in their areas. Arrangements were also made for meetings of practitioners to consider the questionnaire.

Supplementary Medical Service

The Committee was informed that the Secretary of State for Scotland had decided that what had hitherto been known as the Clyde Basin Scheme for diagnostic and hospital services had been extended to cover all other industrial workers in Scotland.

Mileage Returns

It was agreed with the Department of Health that mileage returns should not be asked for from practitioners during the current session.

Specially Expensive Drugs

A report was received that the Ministry of Health had agreed to increase by one-sixth the dispensing fees payable to insurance chemists, and that a corresponding increase had been made in the dispensing fees payable to doctors for expensive drugs supplied by them and the dispensing fees of doctors who did all dispensing for insured patients and who elected to be paid on the basis of the drug tariff. It was also reported that the Department of Health had given similar increases to chemists in Scotland, and that, accordingly, the position of dispensing doctors in Scotland had been adequately safeguarded.

Conference of Scottish Representatives

It was agreed that it be left to the Scottish Committee to ask the Council of the Association to sanction the holding of a conference on the advice of the chairman and vice-chairman of the Scottish Committee and the Insurance Acts Subcommittee and the Scottish Secretary when the time seemed most opportune.

Joint Meeting with Scottish Committee

A joint meeting with the Scottish Committee was held on March 18, 1943, which the Presidents of the three Royal Medical Corporations in Scotland attended by invitation. The business of the meeting was to consider the general situation which had arisen as a result of the proposals made in the Beveridge report. The following motion regarding the constitution of the Central Representative Committee was passed:

"That this combined meeting of the Scottish Committee and the Insurance Acts Subcommittee strongly protests against the method adopted to form a Representative Committee—i.e., the body in England set up to consult with the Minister of Health and his officers on the implications of the Beveridge report as they affect the medical profession—and considers that the proposal to submit to the Representative Meeting on March 31 and to seek its approval of the proposition that the Representative Committee adequately and properly represents the profession is not in accordance with the practice of the Association, in so far as most Divisions had not the time or opportunity to instruct their representatives in the matter."

At this meeting arrangements were also made for the election of a Scottish Medical Consultative Committee to discuss with the Secretary of State matters peculiarly affecting Scotland regarding a comprehensive medical service.

Public opinion on future medical services as voiced by a layman well versed in local public health administration deserves notice. A former convener of Glasgow Public Health Committee, Councillor John Stewart, speaking at the annual congress of the Royal Sanitary Association, said a properly organized system of health centres would mean the end of general practice as we know it to-day and of the N.H.I. system "with its vast army of approved societies, each having the right to decide its scale of benefits or to choose or reject members." The weakest argument, he said, in favour of retaining the present medical services was that about free choice of doctor. If a person had smallpox, typhoid fever, or enteric fever, which demanded special skill, he did not have free choice of doctor; his right was confined to the best skill and medicines to make him well, and that should be every citizen's right.

Correspondence

Sense with Sensibility

SIR,—Lately I have been asked to answer yes or no to yet another questionnaire. Like any reasonable being I cannot. You have published a mort of timid paranoic exhibitionism. I wonder if you would care to give space to a direct statement?

Medical men of sense and sensibility have listened to and discussed with interest the suggestion put forward from various sources that there is room for improvement in the health services of the nation. That is all that has happened. Any suggestions for improvement will be discussed without panic by the mentally stable.—I am, etc.,

Godalming

TERENCE TURNER.

Conservatism in Medical Practice?

SIR,—It is a truly deplorable state of affairs when a physician, in order to make a living, has to have so many patients that he is unable to devote sufficient time to the individual to examine the psychological aspect of his illness. The result is that many cases of industrial fatigue, psychoneuroses, maladjustment are labelled anaemia, gastritis, nervous debility, and the like. They are then given some innocuous medicine which helps to form a fixed delusion of physical illness and soon become chronic invalids. We in industry see many such cases, whose cure can be rapidly effected by a hunt for temperamental causes, an explanation of them, and possibly the adjustment of working conditions. This unfortunate state is brought about by the parsimony of the panel system, which prevents the doctor from being a real clinician and makes him a medicine pedlar.

I can see no alleviation of this tragic fate until the doctor has time to give each patient a proper investigation, to read and digest current medical journals, to attend classes at medical schools, and to have some leisure for his own recreations. He must also have an income and a pension which will allow him to practise his art honestly without anxiety of making present ends meet and at the same time endeavour to safeguard the future. This is an impossibility with medical practice as it now is. The era of the "family doctor" is coming, I hope, to an end. The public expects, and deserves, the doctor to be a man of science rather than a kindly gentleman who soothes a fractious child, has a good bedside manner, and prescribes a good bottle. One wonders how many cases of tuberculosis are fed with nice tonics for a year before any serious attempt is made to find out why the child is just not thriving.

The objections to a State Medical Service seem to be two in number: (1) that it would eliminate the free choice of doctor, and (2) that it would lead to endless pen-pushing and bureaucratic control. Surely, Sir, there is no reason why free choice should be less with a State service than it is now. In a small village where there is now only one doctor there will be no less free choice than there is at present. In the large town there will be as much free choice; the only difference will be that when the chosen doctor is having his well-earned day off a deputy will be found much more rapidly, and

most of us would feel, I think, that, apart from the relief of pain, we had comparatively little to justify our existence as medical practitioners. Surgery has its own brilliant achievements, but here, too, efficiency is becoming more and more conditioned by this ever-widening outlook.

It is self-evident that no individual can assimilate and himself apply all this new knowledge to the cure or relief of his patients. Some years ago we heard a good deal about team work; and certainly team work is now more than ever essential. But I suggest that teams have been and are, with certain notable exceptions, working in separate compartments. Public health laboratories, for example, while doing very valuable work by assisting in the diagnosis and prevention of disease, seldom come into direct contact with the patients upon whose ailments they are asked to report, and not very often with their doctors. It seems probable that in the proposed health centres the clinician and his colleague—the biochemist, bacteriologist, radiologist, or other specialist—would have an opportunity of meeting and perhaps seeing the patients and discussing difficult problems; thus the interest and keenness of both would be stimulated and they would be, more likely to arrive at correct conclusions.

It may be suggested that such health centres as I visualize would cost a good deal of money. They would. But if we can spend thirteen or fourteen millions a day on the war, there is surely little doubt that money would be forthcoming to secure the most efficient treatment possible for the masses of our fellow citizens. Their health and working capacity mean comparative comfort in their homes and reasonable security against semi-starvation. I may add that I have little sympathy with the fears of many of my friends that the evolution or revolution foreshadowed in the Beveridge report will seriously reduce their incomes. On the contrary, it is a truism in business that if you want a really good article of any sort you have to pay more for it than a shoddy one. And our rulers are very capable business men.—I am, etc.,

Manchester.

J. STAVELY DICK.

Politics or Statesmanship ?

SIR,—It would seem that the general desire for the best medical service for everyone is being exploited to promote the smaller interests of: (1) the Government, in its anxiety to keep its prestige by adopting some part of the Beveridge plan; (2) the Ministry of Health in its determination to gain complete control of the medical profession and so realize the ambition it has pursued for twenty-five years; (3) a section of the Labour Party which, in its hurry to gain political credit by demanding equal treatment for all, cares less that that treatment shall be good than that it shall be universal.

Though the health of the country is not in a precarious state and though medical planning must so obviously require time and consideration, there is every appearance of urgency on the part of the Government to bring a State Medical Service into being immediately. This haste is not stimulated, approved, or shared by the people or by the doctors, and is due to the facts that the medical profession, though always the easiest profession to attack, is only defenceless at the

present time when it is disrupted and its members scattered by service in the war, and the Government, etc., must act now if they are to attain their ends.

Again, if the Government were sincere it would be content to gain experience by building a first-class panel service, but it will have nothing to do with such a scheme, though the panel has always been a poor and mean service, in which there has been no effort at any time to make satisfaction in it a possibility. Moreover, the Government has the equipment for the lesser venture now, but will have no possible means of carrying out the larger scheme till long after the war has ceased.

One feels that to attempt to manoeuvre national interests for political ends is a fraud and breach of faith on the part of the Government, and belies every promise it has made for democracy.—I am, etc.,

London, N.W.S.

H. J. S. MORTON.

Sale of Goodwill of Practices

SIR,—At a time like this, when all aspects of medical practice are being closely scrutinized by the public, I suggest there is one internal reform which the profession could carry out to its credit with the nation generally. The profession should discountenance the sale of the goodwill of private practices. A consultant or a specialist is not normally expected to sell his goodwill, and this would not normally be tolerated by his colleagues. A general practitioner has presumably asked a just price from his patients for his services. Why, then, should he demand a capital sum to be exacted from his successor? His successor has no right to ask more than a just price from his patients, but if he does this he is entitled to the whole yield of his labours.

The sale of goodwill is a piece of "unhandsomeness" unworthy of a profession which has higher standards than those of competitive rapacity. So far as I have been able to observe over a period of twenty years, the sale of goodwill is not conducive to amity and good will among the profession, and is a cause of scandal among the public. The tendency of a man anxious to sell out is to inflate the yield of his practice by all possible means. He will seize every opportunity to increase fees to the limits of his patients' tolerance. This would not be tolerated for a long period, but it is successful just long enough for the vendor to make his "get-away" with a capital sum. For the purchaser it means buying the "badwill" of such tactics. It is not enough to repeat the maxim of the hucksters of the market-place, *Caveat emptor*; there is a *Caveat vendor* fatal to the amity of the parties concerned. Moreover, it involves that for the sake of a lump sum at his own "get-away" the vendor actively canvasses his patients on behalf of the new-comer paying him the lump sum. After all, if a man wishes to retire from practice in a neighbourhood, in which presumably he has been a known and respected figure, asking only the just price for his services and getting that price, the men most suitable for treating his patients when he retires are his colleagues who are already in the neighbourhood and whose qualities are known. What right has he to boost a new-comer because he is being paid to do so? The introduction of a new-comer is a matter which is the con-

cern of the whole profession in a neighbourhood, and equitable arrangements could be devised by them for his introduction.—I am, etc.,

London. N.15.

E. H. STRANGE.

Bristol's Views

SIR,—I enclose a copy of a questionnaire sent out by the Bristol Study Group to all Bristol doctors. Figures for or against each question are inserted. I also enclose an analysis of the answers compiled by a subcommittee of the Study Group.

- (1) Are you in favour of a salaried, whole-time, State-controlled service? .. 84% against
- (2) Are you in favour of extension of National Health Insurance to include the whole population? .. 71% against
- (2a) I so, do you consider that the approved societies should extend their present functions to include the whole population? .. 80% against
- (3) Are you in favour of a part-time Government service available to the whole population and open to all registered practitioners? This includes the continuation of private practice .. 25% against; 75% favour
- (4) Should central administration be:
- (a) A centralized Ministry of Health to include all departmental health services? .. 72% against
- or (b) A public corporation similar to the B.B.C., the Unemployment Assistance Board, or the London Passenger Transport Board? .. 78% against
- or (c) A Minister of Health with a *strong* medical advisory board? .. 50% against
- (5) Would you prefer to work under:
- (a) A local health committee (which, however organized, is still a popularly elected body)? .. 90% against
- or (b) A regional health committee, or an appointed body with adequate medical representation? 23% against; 77% in favour
- or (c) A regional officer of the Ministry of Health? .. 87% against
- (6) Are you in favour of health centres in your own locality? .. 27% against; 73% favour
- (7) Would you consider an adequate salary for a general practitioner in a whole-time State salaried service? £350-£500, 9.6%; £1,000-£1,500, 41.6%; over £1,500, 17.0%.
- If the service is part-time, are you in favour of:
- (a) Basic salary? .. 72% against
- or (b) Capitation rate? .. 61% against
- or (c) A combination of both? .. 54% against
- If the service is an extension of N.H.I. to include the whole population what do you consider an adequate capitation fee? Under 15s., 7.9%; 15s.-25s., 28.0%; over 25s., 4.0%
- (8) The *responsibility* in which you are engaged:
- (a) General practice .. 85% of 250
- Consultant practice .. 35 out of 70
- Public health .. 19 out of 40

Analysis of Answers

The results of the questionnaire show very clear-cut answers to all except two. On the question of central administration opinions were divided. This was so partly perhaps because, in an attempt to be concise, the questions were framed too concisely; partly because the profession has not made up its mind about central administration, or does not know enough about existing control to visualize possible alternatives.

The other question on which there was a wide range of opinion was that on remuneration. There were doubts as to the value of money after the war; the possible cost of living; the rate of income tax; and the degree of restriction on the number of patients to be accepted. These provided too many variables, but it is evident that the majority of the profession expect a net income of about £1,500, and consider that to do good work the capitation rate should be at least 15s. It is to be noted that the bulk of general practitioners preferred a capitation rate, either alone or combined with a basic salary.

Other observations to be made are that the profession in Bristol is against a whole-time State Medical Service or an extension of N.H.I. under present approved societies, but in favour of a part-time service and private practice.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 2 1943

British Medical Association

ANNUAL REPRESENTATIVE MEETING, LONDON, 1943

The Annual Representative Meeting was held on Sept. 21, 22, and 23 in the Great Hall of B.M.A. House, London. The chair was occupied by Dr. PETER MACDONALD, who was supported by the new President (Lord Dawson of Penn), elected to that position at the opening of the meeting, the Chairman of Council Mr. H. S. Souttar, the Treasurer Dr. J. W. Bone, and the Deputy-Chairman of the Representative Body Dr. J. B. Miller. Every home Branch of the Association had its full complement of representatives.

On the first morning ordinary Association business was taken and was completed on the third morning. The debate on "The Future of Medical Services," on which there were 227 motions and amendments on the paper, was opened in the afternoon of the first day, continued throughout the second day, and was completed on the third. There follows the first instalment of the summarized report of the proceedings.

Tuesday, September 21

The Presidency of the Association

The CHAIRMAN OF COUNCIL expressed the deep loss which the Association had sustained in the death of its President, Sir Beckwith Whitehouse. "To be called away in the fullness of his powers, in the very execution of the work of his high office, is an end we might all envy, but to us who remain the loss is poignant and very real. . . . The Association has never had a President more apt to the duties of his office or more ready to render it any service in his power." The representatives stood in silent tribute.

Mr. Souttar then brought forward the unanimous recommendation of the Council that Lord Dawson of Penn be elected President. He said that Lord Dawson, in spite of his many duties, had intimated his willingness to accept the invitation. He was President in the centenary year (1932); this was the first time that a Past-President had been recalled after an interval of years to serve a second term. The Association would be fortunate in having at its head the doyen of the profession.

The recommendation was agreed to unanimously, and at a later stage in the meeting Lord Dawson attended, was warmly greeted, and expressed his thanks.

Association Progress

In submitting the Annual Report of Council Mr. SOUTTAR drew attention to the increased membership. On December 31 last the membership stood at

41,239; the present figure was 44,288, a gain of over 3,000 members in less than nine months. The Association had taken its full share in the war effort. The loss of many members on war service was deplored; a very large number were serving with the Forces. He was not allowed to reveal that number, but if he were to do so it would warm their hearts. He also referred to his own recent mission to India; in the course of the journey he was able to see many of their members on service—in North Africa, Egypt, Iraq, and India itself—and everywhere they were a magnificent credit to the profession. The Association had carried through a great undertaking in finding doctors for the Army, and here he paid a tribute to the work done by the Central Medical War Committee and its subcommittees and by the staff of the Association.

The TREASURER (Dr. J. W. Bone) submitted the Association accounts and balance sheet. Heavy expenditure was being incurred in three directions—namely, in the reconditioning of a wing of the Association House, the demolition of dangerous parts of another wing which had been damaged by enemy action, and the considerable increase in local activities. The Divisions were now particularly active, and this entailed expenditure. Notwithstanding all these calls upon its exchequer, however, he believed that the present year would end without any debit balance, ample reserves had been made, practically all debts had been cleared off, and their position was that of an exceedingly flourishing body. "We are prepared to pay the piper for any tune which may be called."

Dr. LUCAS YOUNG (Eastbourne) moved to refer it to the Council to frame an amendment to the by-laws whereby the reasonable expenses of representatives (in addition to first-class travelling fares) would be defrayed from the general funds. The TREASURER pointed out that if this were conceded they must proceed logically to pay the expenses of members of Council and standing committees and of those who worked for the Association in the constituencies. Moreover, what were "reasonable expenses"? Might they be held to include, in addition to subsistence allowances, the payment of locumtenents?

It was agreed, without pressing for a new by-law, to refer the whole matter to Council.

National Health Insurance

Dr. E. A. GREGG, in submitting the report under "National Health Insurance," said that the question of the capitation fee was still being pursued. The granting of a bonus to civil servants receiving salaries up to £850 a year

suggested a change of policy on the part of the Ministry, and the Insurance Acts Committee had taken advantage of the occasion to open up the question again, and was now awaiting the Minister's reply. The Committee was also co-operating with the Public Relations Committee of the Association to ensure that matters particularly affecting insurance practitioners received due attention. A pensions scheme to all intents and purposes similar to the scheme formerly in existence had been worked out, with the difference that in view of present conditions higher rates were payable, but it was believed that the form of pension was the best obtainable at the present time.

Medical Fees

Dr. S. WAND submitted the report under "General Practice." The General Practice Committee had had a busy session and had dealt with a large range of subjects. He also brought forward a matter not mentioned in the report and of which the Association had received intimation only that morning. The Home Office proposed to raise the capitation fee paid for the treatment of ex-regular firemen whose conditions of service entitled them to free medical treatment to 12s. 6d. per annum as from Oct. 1. The Home Office also suggested that this would be an excellent opportunity to bring into operation a graduated scale of payment in respect of higher ranks—namely, leading fireman, section leader, and company officer 12s. 9d.; senior company officer, column officer, divisional officer, and assistant fire force commander, 16s. 3d.; and fire force commander and above, £1 2s. 3d. Dr. Wand stated these proposals would be considered by the Council. The fees of Post Office medical officers had been increased to 12s. 6d. as the basic capitation fee in respect of personnel earning less than £250 per annum, with higher fees for personnel above that rate of pay.

Dr. R. S. BROCK (Denbigh and Flint) moved for an increase in fees for life insurance examinations—namely, a minimum fee of £2 2s. for full examination and report upon life proposals and a fee of £1 1s. for reports upon medical histories in which medical examinations were not required. Dr. WAND said that the executive committee of the Industrial Life Office Association was a very difficult body from which to obtain concessions, and he felt that no useful purpose would be served at this juncture by such an approach. They were apt to say that doctors were "falling over themselves" for the £1 1s. insurance fees.

It was agreed to proceed to the next business.

A number of motions were on the paper on the question of certification.

but only one of them was carried, moved by Cleveland, declaring that in view of the present shortage of medical manpower the Council should take all non-medical work (certification) required of practitioners.

posed a motion bearing on the capitation payment for N.F.S. and Civil Defence personnel. Its principal recommendation was that a capitation fee of not less than 9s. 9d., exclusive of drugs and dressings, should be payable. He argued that the terms should not be lower than National Health Insurance rates: the acceptance of a smaller fee would weaken the hands of the Insurance Acts Committee and would have an unfortunate effect on the remuneration of Dr. Ward hopped that services.

The matter has just made its way from the Home Office to the Isle of Wight Council, to make this a reference to the Post Office workers and now there were certain respects, such as contracting illness, where service on a contract basis would be a disadvantage from the service on a full-time basis.

The matter has just made its way from the Home Office to the Isle of Wight Council, to make this a reference to the Post Office workers and now there were certain respects, such as contracting illness, where service on a contract basis would be a disadvantage from the service on a full-time basis.

[illegible]

motion was carried.

ment and National Service that women should be made for the houses when domestic help is obtained through the usual profession to what extent it was believed to be beneficial to what realized difficulties, the essential also pointed out regional of homes exo no width of Health

to employment exchanges and, with the aim of not taking the maid away from her, possibly be avoided, but provision desired was the direct to such employment when

Dr. C. J. K. (Ministry of Pensions) said that the complete solution of the problem of the unemployed will have to be an industry, in which the Government will have to be an industrialist. He said that the Government will have to be an industrialist, in which the Government will have to be an industrialist.

...standards was additional
...that the arrangement
...Labour, and made with
...which was preferential. The
...to give special
...any case referred to
...last Annual Report
...162 cases had been
...The report would not perform
...straight out to the
...resolution, but it
...had a good deal
...of an attendee. Dr
...scheme which did
...Ministry should
...person claiming
...quired from the

...green ...ion was
to Council for con

referred, and of these 138 had been successful and 17 were still pending. In 7 cases they had been unsuccessful; in these it was discovered that the doctor had either help or there were circumstances which were not favorable.

There was no doubt that local officials were now much more appreciative than Dr. D. J. Morrison (Edinburgh) urged that the profession should take up the question. Dr. A. Beauclaire (Birmingham) said that the part-time assistance which the Ministry of Labour proposed to arrange was only a small way to meet the situation. Dr. A. Gregory (Manchester) said that there was a risk of surgeons having to consent to a small number of operations.

The result of application for labour exchanges was "shied off" as soon as the woman sent who saw the house and the work known to Dr. J. C. Arthur mentioned that in 1939 at conference held in that hall consisting of 12 members of the Trades Union (instead) mentioned that in 1939 at

But the Association should con- sider something of the kind for the local office of the Labour Party. Where the Local Medical Committee had established good relationships with the local doctors, assistance should be sent to hard-pressed doctors. Where the Local Medical Committee had established good relationships with the local doctors, assistance should be sent to hard-pressed doctors. Where the Local Medical Committee had established good relationships with the local doctors, assistance should be sent to hard-pressed doctors.

Dr. Wand read to conduct mid-

If the local work was carried out properly, their co-operation would be no objection.

The Den was carried.

Dr. J. A. ... unsuitable

for the cases not point in these financial allowances persons who were culous and who ment. But such to the tuberculosis left the unplicated which would be

Dr. W. N. Leake
The motion was
made.
would be made
or a non-pulmonar
an allowance, but it
or two years, then
likely to recover w
or not. If he c
maintain an allowa

consideration. It was carried as a reference to the importance of the Government's service. He had been struck

ING

The Health Committee, chairman by making the fee per unit scale of fees for diptheria, when injections were given to the patient at the time he was made up of professional persons, but there was no part of the procedure considered as a departmental activity.

Dr. R. S. Brock (Denbigh) applied to these fees. The Association during the year of 20%, which had been raised, and he read the following paper:

Dr. F. M. Rose, a child immunizing agent, agreed that the fees at the surgery should be \$5. per injection. Prof. Rosen agreed that the fees at the surgery should be \$5. per injection. Prof. Rosen agreed that the fees at the surgery should be \$5. per injection.

any large number of local authorities to a very small extent and by persons who could be done; that would be the effect of the amendment proposed a million might not be quite applicable that his Division did not have the right to do so.

...accept fees which w
...authorities were able to c
...without their help they had n
...generation practitioners should
...paid for the work they did
...high and Flint amendment

Diagnosis of Tuberculosis

... would be
... officer, who would be
... cases would be referred
... accepted approved treat
... discovered to be tuberc
... were provided for
... regulations was the
... already. Another
... beds in sanatoria
... enough
... discovered a
... punishment

...nce should be granted
within eighteen months
if it was a chronic case
any case no allowance
carried.
(Mid-Cheshire) no

...the great
...should im-
...developing a correct
...school children.
...by the prevalence

EVENT TO THE
MEDICAL JOURNAL

of the Public
to amend the
immunization
of im-
fection of im-
than 35. 6d.
at the home
s than 25. 6d.
surgery. I
that the rate
uate for this
nd of work;
represent the
owards this
vention of

on why the
been adopted
war, should

mileage
at its
sup-
area il
for this
a mini-
PICKEN
ques-
ed to

By the
corities
private
t, no
d be
The
The
age
hic-
Dr.
1901

...

of scoliosis and lordosis among children coming into industry. He pleaded for definite training—games by themselves were not enough—based on sound reasoning and a realization that if thought and care were not taken in the matter of standing upright, gravity would exercise its pull and the position and action of organs would undergo interference. Sir KAYE LE FLEMING asked whether the speaker had read the report of the B.M.A. on physical education. Dr. LEAK replied that he had done so, but he thought a further effort should be made to impress this matter on the Government.

The motion was carried.

On the proposal of Dr. J. B. MILLER (Lanarkshire), Prof. PICKEN undertook that the Council would look into the question of amending the present superannuation scheme for medical officers of the public health services so that: (1) wives of contributors might be included in order that the benefits and pension rights due to an officer should on his death be continued to his widow; and (2) the retiring age for officers might be reduced from 65 to 60 years.

Organization of the B.M.A.

Dr. J. C. MATTHEWS moved certain alterations in the by-laws which will have the effect of altering the constitution of the Scottish Committee. Any member of that committee, even though not a member of Council, may be appointed chairman, but if not a member of Council the committee may choose a member of Council as deputy chairman. All members of Council resident in Scotland become *ipso facto* members of the Scottish Committee. The committee is also empowered to co-opt three members. Dr. MARGARET MARTIN (Edinburgh) moved for a further provision whereby the Presidents or one nominee from each of the three Royal Medical Corporations in Scotland would be members of the committee. She said that the prestige of the Association in Scotland would be assisted by close co-operation with these corporations. Dr. G. MACFAR (Lanarkshire) supported this proposal, saying that the Corporations had come into consultation with the Scottish Committee during the past year to a greater extent than ever before. Dr. MATTHEWS pointed out that the acceptance of this amendment would delay the reconstitution of the Scottish Committee for another twelve months.

The alterations in the by-laws were agreed to, and it was referred to Council to consider the point brought forward by Dr. Martin with a view to framing a further amendment.

Dr. W. V. SEMPLE (Lincoln) moved that arrangements be now made to appoint full-time regional secretaries, who could take up their duties as soon after the war as possible. Such appointments would be necessary for the protection of members' interests when the new medical service took shape, for those interests would have to be taken care of locally, not centrally. The major qualification of such a regional secretary was that he should have had at least 15 years' experience in general practice and should be not more than 50 years of age. Dr. MATTHEWS said that he was entirely in favour of this proposal. Had it not been for the war it would have matured before now, and he reminded the meeting of the appointment of the late Dr. A. Keith

Gibson to the London region. The proposal was carried.

Dr. D. G. GREENFIELD (Northamptonshire) moved that every candidate for election to the Council should publish in the *Journal* or by letter a statement of his views and policy. Not 5% of the people who had to vote knew the candidates. He agreed, on Dr. Matthews's suggestion, to refer the matter to Council.

Dr. D. O. TWINING (Plymouth) had a resolution calling for the more direct association of the Divisions with B.M.A. policy and for quarterly Representative Meetings. Dr. J. B. MILLER pointed out that the Council itself met four times a year, and to have four Representative Meetings would do away with all interest in the Annual Meeting. Dr. E. B. SMITH (Nottingham) suggested as an alternative more frequent meetings between Council representatives and their constituents, but was answered by Mr. A. S. GOUGH (West Herts) to the effect that it was impossible at the moment for any Council member to keep in full touch with his area.

The Plymouth motion was lost, but a further motion by Plymouth, calling for consideration to be given at an early moment to the election of Council on a more direct and better geographical basis, was accepted by Dr. Matthews and agreed to by the meeting.

FUTURE OF MEDICAL SERVICES

Work of the Representative Committee

At this point, by previous resolution, the meeting turned to the consideration of the many motions and amendments on the future of medical services, and in particular of the 14 "Principles" set out in the Supplementary Annual Report of Council (Supplement, August 7, p. 19).

Mr. H. S. SOUTTAR, Chairman of the Representative Committee, said that the medical profession was faced with the most important crisis in its history. The future of medicine in the new social epoch held vast possibilities, but to bring them to fruition would demand wisdom, patience, and not a little self-sacrifice. When it was realized that in their hands might lie the whole future of their great profession, none of them would grudge the effort or allow the personal interests of the moment to blind his vision.

He went on to recall the formation of the Medical Planning Commission in May, 1941. Its interim report met with a gratifying general approval, and it was the intention of the Commission to elaborate the details of its proposals, when there was suddenly launched upon them a thunderbolt in the shape of the Beveridge report. The proposals of that report were for the most part admirable, but when the Government set out to give effect to the proposals which affected the profession a different situation arose. "Our axiom that a first-class medical service should be obtainable by every individual, whatever his economic status, is expanded into the proposition that no one is to pay for our services. Our desire to work together in groups is converted into regimented service under a local authority."

He believed that it came quite as a shock to the Government to find that the medical profession had ideas of its own as to how its affairs should be managed and was by no means willing to accept the dictation of any Ministry. But once that idea was grasped the Minister of Health expressed himself most willing to hear their point of view, and an authoritative body was formed which carried on

most intimate and candid discussions with the Ministry for four months. As a result there was reason to believe that the views of the Ministry had been greatly modified, and that the proposals presently to appear in the White Paper were much more likely to meet with the approval of the profession. But for what would appear in the White Paper the Minister was wholly responsible.

Meanwhile, however, the profession could not adopt a negative attitude, and the conclusions of the Representative Committee and of the Council were crystallized into the "Principles" now before the present meeting. These were only general principles; the details would be filled in later, but he hoped that time would not be wasted on mere verbal changes. After the White Paper was published a special Representative Meeting would be called upon to form a negotiating body to prepare proposals for final consideration. The "Principles" were based upon the accepted policy of the Association. The meeting was asked to review them in the light of the new conditions which had arisen, to make such amendments as were desired, and to approve them as a basis for future negotiations. They covered a wide field and defined their position as regards the unity and completeness of the service, free choice of doctor and free relation of doctor and patient, responsibility of the State for the service and its administrative control, the position of general practitioner and consultant as members of the service, and the method of their remuneration.

Before these general principles were reached, however, a clear-cut decision on the question of a whole-time salaried service was desirable. No doubt from the administrator's point of view such a service presented many advantages, and in certain fields of practice, such as public health, it was accepted by all. But it would be opposed to the traditions of general and consultant practice, and he did not think that most of them would favour the experiment; they would prefer to develop in the future on the lines so well laid in the past.

90% or 100%

Dr. J. D. R. MURRAY (Exeter) moved the first amendment:

That the Representative Body views with grave apprehension the institution of a comprehensive health service available to the whole community, believing that the time is not yet ripe for such a service, which would be neither in the interests of the public nor of the medical profession.

It was in no spirit of criticism that this motion was put forward. He had had many opportunities of discussing with his own patients the possibilities of a future medical service with the inclusion of dependants and the provision of consultant and specialist treatment and had heard no unfavourable comment. This ideal could be achieved by the extension of the National Health Insurance system. But the "10%" did not want to come under a "glorified panel." He had yet to come across a member of that "10%" class—and they had more than their fair share of them in Devon—who wished to alter the present relationship.

Dr. P. INWALD (City of London) opposed the motion. Such a motion came too late in the day. The times in which we were living were momentous. Epoch-making changes were about to take place in industry and in the professions. He begged the medical profession to manifest a statesmanlike view, bearing

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL

at the present moment. Otherwise they laid themselves open in the eyes of the public—a public whose good will they needed as never before—on the suggestion that they wished to exclude one section of the community, the best-off section, the best-off group.

[illegible]

Every one of the points raised would have come more appropriately under later sections of the agenda. He appealed to the meeting not to throw out this resolution, but, if Exeter agreed, to allow it to be withdrawn. (Applause.) The representative of Exeter, who said that the position of the motion on the agenda was not of his choosing, was willing to withdraw it, but the proposer of the amendment was not willing; therefore the chairman accepted a motion to adjourn.

proceeded to the next business, and this was carried. The Chairman gave an assurance to Dr. Dain that the meeting would have an opportunity later of deciding on a definite resolution, whether it was in favour of "100%" or less.

of such a procedure would prevent discussion in the profession. They had been

fold of the phenomenal increase in the membership of the Association, but did not alter the fact that when the White Paper proposals were published they medical appeal to large sections of the Representative Body, including not only the most progressively minded but some who might be described as "diehards". There might be a swing of opinion right away from the recommendations in favour of what were considered the more favourable conditions offered in the White Paper. If that happened, the history of 1911 would repeat itself, with great loss.

A further point was the incompleteness of prestige to the profession and a considerable deterioration in its powers of negotiation in the future. Doctors in the Services, too, had a right to be consulted.

f their own case—an incompleteness which might be thrown into high relief when the White Paper was published. It might then appear that the Council had given rather scant attention to a number of important points. It must not be forgotten that the Minister had been in consultation with other bodies, including associations of local authorities and of voluntary hospitals.

Mr. SOUTTAR said that Stratford had not learned the strategy of war. The first need in war was to have the initiative. Here they were laying down the policy which they wished the Ministry to adopt, not waiting for the Ministry to lay down its own directions. The Minister had many other considerations to take into account, and it was for the profession surely to form its own opinions as to what should be the best medical service for the country and to get the country to agree to it. Then the Minister would follow their lead.

The Stratford motion was lost by a large majority.

Dr. E. BABST (Tyneside) moved that the recommendations be not approved until the Representative Body "is assured that the Council intends to uphold the present economic and professional standing of general practitioners." There were two points on which his Division was anxious—namely, that there should be financial security for the profession, and that its professional standing should be adequately protected. During the past few months articles had appeared in the Press, inspired or otherwise, hinting that practitioners willing to participate in the Government scheme would begin at a salary of £400 a year, rising by yearly increments to £800, which latter figure he assumed to be the maximum to be given to practitioners of experience and standing. This was entirely inadequate, and some of them felt that their financial security was threatened, and that their incomes might be reduced by one-third or one-half. What incentive would there be for their children to enter upon a medical career? As for professional standing, the profession objected to be regimented, directed, or controlled by local bodies. They should be allowed to continue to practise how and where they liked.

Mr. SOUTTAR said that he was prepared to accept the motion if the word "present" were withdrawn. He hoped that in the future the economic and professional standing of the profession would be greatly advanced. The Council certainly would do everything possible to uphold it.

The word "present" was withdrawn, and thus amended the Tyneside motion was carried.

The Members in the Services

Dr. BALFOUR BARROW (Winchester) had a motion opposing "any fundamental change in the medical profession during the absence of so many members in the Services." He said that this motion originated from the Service members themselves at a meeting in his district. Their fear was that on demobilization they would find that fundamental changes had taken place so that they would be unable to recognize the practices they had left.

Mr. SOUTTAR said that this matter had received the greatest possible consideration from the Council. But it was not sufficient to sit down and do nothing. What would be the feeling of the thousands

of doctors in the Services if they came home and found that nothing had been done for them? He hoped they would come home and be unable to recognize their former field of service because it had been improved out of recognition. It was a great mistake to imagine that they at that meeting were going to pass a series of final resolutions and construct a medical service. It was a much more complicated business. There would have to be further reference to the profession, and members in the Services would be consulted.

Asked by a member whether he could give a guarantee that members serving in the Forces would be able to answer the questions sent to them and return them without interference by a superior officer, Mr. Souttar said that he could give no absolute guarantee, but he knew many senior officers, and he would be enormously surprised if, so far from interfering, they did not do everything to assist those under their command in making such returns.

Dr. C. N. BINNEY (Reigate) said that there were two reasons why no settlement should be made with the Government until these Service members came home and had a chance of formulating their opinions. Men on active service could not be expected to give due consideration to a questionnaire sent to them. Another reason was that the men in the Services would be those who would have to bear the brunt of the changes, not the seniors who mainly composed the Representative Body. What right had these seniors to make decisions for them? How would they feel if, having agreed to protect the practices of these absent men, the men came back to find practice conditions so modified as to be unrecognizable?

Dr. RAYMOND GREENE (Buckinghamshire) considered that there was something a little sinister about the way in which those serving in the armed Forces were being used for political propaganda in favour of delaying action. Those who urged delay might find themselves responsible, if they succeeded, for conclusions forced upon the profession. As a member of the staff of a teaching hospital he had talked with a large number of these young men both before they went into the Services and afterwards, and their almost unanimous feeling was one of apprehension at the prospect of coming back after the war to no practice and the likelihood of a long delay before it was possible for them to earn a living. Over 90% of those he had questioned had said that they hoped the doctors left behind would make decent conditions to which they could return.

Dr. BARROW strongly repudiated the suggestion that this was a political stunt. The motion, as he had said, was initiated by Service members themselves. They did not ask that nothing should be done, but only that there should be no fundamental changes. If this motion were rejected they would interpret it as meaning that those left at home had little interest in the future of those in the Services, though that, of course, was not the case.

The motion was lost.

Whole-time Salaried State Service

Dr. J. B. JESSIMAN (Worcester and Bromsgrove) moved:

That the Representative Body is not in favour of a whole-time salaried State Medical Service.

He said that the Government had tried to hypnotize the public into the belief that "the new Beveridge is good for you" and that the medical service to which it had been accustomed, and at which it had no great grumble, was so hopelessly inadequate that it required complete and revolutionary reorganization. The innuendo was false, and the enlightened public wondered whether they might not be pawns in a political game. The action of the Government appeared to be governed by political expediency. In their schemes the Government had an able executive officer in the Minister of Health. He it was who had introduced the new "£420" group without consultation with the profession. On the other hand, the name of the British medical profession stood high. They knew that their service was not perfect, but repeated suggestions for improvement which they had made to the Government had been treated with disdain. They wanted the public to have a comprehensive co-ordinated medical service, but with the minimum of State control, regimentation, or direction. As insurance practitioners they had had experience of State control in medicine. The regional medical officer could and did control not only certification but treatment. Under a whole-time State Medical Service the position would be worse; if such were a salaried service it would be much worse, and if it were an inadequately salaried service it would be unthinkable. At the beginning of National Health Insurance the relative proportion of private and insured patients was probably as 70 to 30, now it was 50 to 50, and in future it was likely to be 10 to 90. The increase in State control was likely to be proportional to the increase in numbers of the insured. In short, practitioners were now considerably controlled by the State and were faced with the likelihood of a large extension of control under existing rules. State interference with the liberty of the individual—patient or doctor—should be at a minimum. Bureaucratic control was invariably accompanied by lack of flexibility and initiative, and by waste of time, personnel, and public money. It therefore failed in the object for which it was supposed to exist. By voting for this motion they would be making it plain that they refused to submit to regimented drudgery, to being made a group of unthinking certificate-signing robots. With a salaried service State control would be complete; the very last vestige of freedom would be gone. He appealed to the meeting to show the Minister of Health in no uncertain way that they were no longer the politically lethargic profession of yesterday, that they refused very definitely to be salaried State lackeys, that they owed more than this to the public and to their own self-esteem. He warned them that the Minister's proposals were in cold storage, or, to use his own term, in the discard, and were more than likely to be served up, re-hashed, of course, and well camouflaged, in the White Paper about to be published.

Dr. W. V. HOWELLS (Swansea) expressed the view that the opposition to control by local authorities was the only point on which the profession was unanimous. Dr. Anderson in his recent excellent address had said that the medical profession had a plan, though not a detailed scheme. But surely this was simply the National Health Insurance

THE MINISTER OF HEALTH ON THE FAMILY DOCTOR

when he said that he hoped his tenure of office would be short. Lord Dawson, in response to the vote of thanks, said that they would by their mutual efforts get through what were undoubtedly difficult situations for the medical profession, the more difficult because they were new and there was no precedent to guide them. Messrs. Price, Watkinson and Co. were reappointed auditors of the Association until the next annual general meeting at a remuneration of 300 guineas. The annual general meeting then concluded.

Referring to the National Health Insurance Association of Welsh Insurance Committees, the Minister of Health (Mr. Ernest Brown) said that his best friends would not pretend that it had no limitations, and it was obvious that the time had come when people were ready for another step forward. Tales were being told of what the Government had made up its mind to do; most of these, he declared, were completely misleading. When the Government's proposals were comprehensive national health service were drawn up they would be published, and the fullest opportunity would be given for discussion by the public, the medical profession, local government, and all concerned. At that stage discussion and criticism could be based for the first time on full knowledge of what the Government had in mind. One of the first things must be to cut down some of the limitations on the service which could be rendered now and see that people could get consultant and specialist advice, hospital and convalescent treatment, and so on. The scheme must aim at prevention as well as cure. In spite of some statements to the contrary, it was the avowed intention of the Government to preserve the principle of free choice of doctor. But this could only mean "free choice of the doctors available." One of the things the new service might do was to secure more doctors in some of the areas—mostly congested—where there were not enough now. In those cases the new service would provide a "freer" choice than hitherto. Bureaucracy was a well-worn word which, he supposed, meant an over-organization. No one would deny that in this complicated world some organization was necessary, but the Government was as anxious as anyone else to see that nothing was done to stifle and inhibit progress in one of the greatest professions.

The new health service must be based on the family as a unit and the general practitioner as its primary attendant. It had been alleged that the Government wanted to abolish the family doctor. In fact, the Government's aim was to provide a family doctor for millions of people for whom none was available at present. The organization of a new health service would make it possible to have a completely integrated medical service, starting from the family doctor and embracing all the hospital services. This would also allow a full complement of specialist service to be available to general practitioners, who would greatly benefit by being able more freely to call in consultants and by closer connexion with the work of hospitals. The Government also hoped to provide for postgraduate courses, but, what was even more important, the practitioner must have the opportunity for leisure to get the best possible advantage from these courses.

newspaper had stated that 90 members abstained from voting, and another that 70 had done so. In fact the number of Representatives entitled to vote was 232 and the number voting was 210. There was no reason to suppose that any Representative deliberately abstained from voting. As always happened, a few were temporarily absent from the meeting for reasons quite unconnected with the question at issue. He was also informed that the B.M.A. in its broadcast the previous evening had stated that the Representative Body had voted against a State Medical Service. That was not the case; what it had voted against was a whole-time salaried service, which was a different thing. There was already in existence a National Health Insurance service which was a State service, a service to which the medical profession had given of its best, and which very many of them desired to see extended. The remarks of the Chairman were received with general applause.

(To be continued)

ANNUAL GENERAL MEETING

The annual general meeting of the Association was held in the Great Hall of B.M.A. House, London, on Sept. 22, the Chairman of Council (Mr. H. S. Souttar) presiding. The notice convening the meeting was read, and the minutes of the last meeting, which had been printed in the Supplement of Sept. 26, 1942, were approved and signed as correct.

The Chairman indicated the new President (Mr. Hon. the Viscount Dawson of Penn) for 1943-4, and invested him with the badge of office. In doing so he said that it was unnecessary for him to speak about the great position which Lord Dawson held, alike in the world of medicine and in the realm of their affections. He was President of the Association in 1932, the centenary year, and it was a great compliment to the Association that he, the doyen of the profession, should have come back again to help them in this critical time.

Lord Dawson, who was received with acclamation, then proceeded to deliver the brief presidential address which is printed at page 49 of the Journal. At the close, Dr. Peter Macdonald, Chairman of the Representative Body, proposed a vote of thanks. He spoke of the gratification with which they had again to accept the office. That gratification was increased by the address which had just been delivered, especially by the understanding reference to the whole-time salaried service—a vote which had been the subject of a whole-time salaried State service—a vote which had been the subject of much discussion in some sections of the Press. The present occasion was unique in that never before had a former President resumed the office after an interval of years. They could not help contrasting the present occasion, with its relatively small though select audience and its absence of pageantry, with the centenary meeting at the Queen's Hall at which Lord Dawson had given his previous presidential address. It was probable that he would be asked to retain the presidency for as long as the war lasted, and he would not misunderstand him

scheme, with its two-way extension, Such an extension, though an important step forward, merely touched the fringe of the problem. All the evils of the competitive system would continue—the sale of practices, the inflation of the value of practices, the hard and constant drive on the practitioner, with insufficient time for attention to each patient, let alone for keeping himself up to date by postgraduate study. The system needed radical alteration. In conjunction with its entirety, the B.M.A. should throw its full weight into the struggle against disease and the causes of disease—bad housing, malnutrition, insecurity. The Association could only take its proper part in the changes which were coming if it had a definite policy for the evolution of a comprehensive full-time salaried service. Last year Swansons had declared for a State salaried service, but it was now realized that the word "State" aroused alarm. What was wanted was a comprehensive medical service with a measure of co-ordinated direction.

Dr. G. H. Steele (Worcester) said that he was prepared to agree that some form of State Medical Service was coming. What they should endeavour to do was to mould it to the best of their ability to their own ideals. After pointing out some disadvantages of a whole-time salaried service, he begged the meeting to support the motion brought forward by his Division.

Dr. W. D. Anderson (Glasgow) considered it would be impracticable to run a whole-time salaried service on the inadequate personnel at present available. Dr. C. M. Stevenson (Cambridge) said that the argument should be as to what was best for the public, not what was best for the doctor. A comprehensive service might be provided which was not a whole-time salaried one, and the public might be better served. He was opposed to a whole-time salaried service; it might be easier for his patient, but it would be less good for his patient.

Mr. J. A. Coker (Belfast) moved as an alternative motion (and this was accepted by the representative of Worcester and Bromsgrove):

That in the opinion of the Representative Body the granting of a whole-time salaried State Medical Service covering the whole population is not in the best interests of the community.

He said that the Belfast Division had passed this by a large majority because it was felt that such a system would be likely to result in a deterioration of the service. Dr. S. Wand suggested the omission of the words "covering the whole population," and this was accepted by the mover. The debate seemed likely to be prolonged, but Dr. R. W. Cockshut (London) said that all the Representatives had probably made up their minds on this question, and it seemed of no use to repeat familiar arguments. Therefore he moved that the question be now put.

This was accepted and the vote was taken by show of hands on the Belfast amendment as follows:

There voted, in favour 200; against 10.

Misleading Press Comment

At the opening of the meeting on the following day the Chairman drew attention to some misinterpretations in the Press regarding this division. One daily

CORRESPONDENCE

OCT. 2, 1943

Correspondence

The "Inevitable" Future
 AR.—It seems that the agreed purpose of the medical profession is to serve the public in return for fair and reasonable conditions of service. Twenty years ago we were convinced that the present arrangement is a very patchwork affair and that vast improvements can be made by the co-ordination of all the various branches of medicine. Co-ordination of a service for the whole community can only be tackled by the Government and the elected administration of the community. This is evidently the opinion of the Government, for they have already promised the House of Commons "a comprehensive medical service." Such a promise is not to be ignored with impunity in any calculations which the profession may make.

The word "comprehensive" is open to various interpretations, but I think it prudent to interpret it in its widest sense. Thus I take it to mean that all branches of medical services are to be organized to serve all persons. It seems to me to be the wildest form of dreaming to imagine that the Government can provide such a service without assuming control of the executive—i.e., the doctors. To bury one's head in the sand and to attempt to refuse to work such a service would be to court disaster and to forgo the opportunity of helping to frame the scheme and its terms of service.

Very shortly, we hope, hostilities will cease, and there will be on the professional labour market about six years of qualified men who have no financial roots in any practice or locality. The Minister of Health would fail in his duty to the public if he did not use these untrained doctors to lever his scheme into effect. Equally, he would be unfair to the doctors if he permitted them to use capital in the purchase of practice which he knows he is about to take away from them with compensation. As I see the position, a State service will be a great stride forward in the social structure of the country, and it is undoubtedly coming, whether we all like it or not. The wisest course, then, is to shew half-measures and to collaborate to the uttermost with the Ministry officials in securing the best possible service, which must largely depend on the conditions under which the doctors do their work. I should like to endorse Mr. Wilfrid Adams's plea for more time in which to examine and study each patient. As he says, the answer to this is more pay per patient and more doctors. This, in turn, means a greater output from the medical schools. This is but one point which we might well spend time in pressing on the Ministry rather than wasting time in putting up a show of resistance to the inevitable.—I am, etc.,
 W. M. CASPER.

Freedom or Control?

SIR.—Every one naturally wishes to preserve for himself as much freedom as he can, but unlimited freedom is clearly impossible and undesirable. For instance, we are denied the freedom of the road. We should be careful not to give the impression that our interest in freedom is confined to preserving our right to sell our medical knowledge to sick people for

a fee, without regard to the right of the public to arrange for doctors who are not dependent on sick people as such for their income, and who will not ask for money from people who are down on their luck through illness.

It would be a pity if Dr. J. O. M. Rees's letter (*Supplement*, Aug. 21, p. 25) were to give the impression that our attitude to a State Medical Service is conditioned only by our anxiety to preserve our own freedom in its entirety, and to see that our services are not secured "at a low rate of remuneration."—I am, etc.,
 L. M. FRANKLIN.

Sidcup, Kent.

"Bargaining" with the State

SIR.—It seems to me that in any bargain with the State there are four fundamental principles involved.

1. In whole-time service it is immaterial whether service is accepted directly under the Crown or indirectly under a corporation responsible to and controlled by the Crown. It is also immaterial whether payment for services rendered is made directly by salaries or indirectly by capitation fees. In either case the State collects the money and pays it out—i.e., controls it. "He who pays the piper calls the tune."

2. It is immaterial what conditions and "safeguards" are inserted in any contract with the State. The State can vary or abrogate them without consulting the other party, and there is no legal redress. "The King can do no wrong" (cf. the recent alteration in the income limit under the N.H.I. Acts).

3. In a democracy there are only two methods of exercising pressure on the State: voting power and the power of a largely independent trade or profession. The former is negligible in our case; there are not enough of us and we are distributed among all political parties. There remains only the latter.

4. For a trade or profession to be powerful enough to exercise pressure on the State there are two essentials: (a) The number of those engaged in whole-time State service must be negligible as compared with the whole body. (b) The income of those engaged in part-time State service must only in small part be derived from the State and in larger part from private sources.—I am, etc.,
 J. A. BALCK-FOOTE.

Andover.

The Doctor and the Public

SIR.—A panel practitioner to-day with private patients added to his list may see anything from 60 to 70 patients in his surgery a day in the summer and in the winter from 80 to 100. His visiting list will be anything from 15 to 20 a day in summer and from 30 to 40 in the winter, and if an epidemic comes may be between 50 and 60. Now suppose he takes on the average five minutes at each case (which starts when the patient leaves his seat in the waiting-room and ends when the doctor abruptly tips him out), we see that in the summer this "tip-and-run" affair takes at least 5 hours and in the winter between 7 and 8 hours. Now if the doctor takes ten minutes for each call, which includes stopping and starting, getting in and out of his car, getting into the house, throwing his hat on one side and rushing upstairs, taking a hasty look at the patient, a prescription, a certificate or two, and maybe a milk form, then finding his hat and a bolt for the door—if he is lucky he just makes it in the time—visiting in the summer

totals about 4 hours and in a normal winter about 7 hours—a grand total of 9 hours a day in summer and from 14 to 15 in the winter. Add all the late calls and the night calls, including maternity cases, and one has a "working day" spent anything but in the way medicine was intended to be pursued by those who taught us. The history-taking, the inspection, the palpation, the auscultation are atrophying from disuse; their place is taken by the clock, the certificates, and everything that makes for the game of "tip and run."

Surely we can by the use of skilful propaganda win the vast number of people of this country to our side so that we can produce a plan for medical services that will be above reproach. Why not try to get their confidence? They are not a Government, can help us to lay before the country a plan that would be for the good of all, and which surely the medical profession alone with the help and understanding of the nation could evolve. We should go out to the country demanding that we be allowed to produce the form of medical service that we know would be best, and which would make us once more doctors and not office clerks.—I am, etc.,
 JAMES G. BELL.

Nottingham.

What Price Prestige?

SIR.—In recent weeks I have been greatly exercised in trying to get medical certificates of unfitness for National Service (fire-watching) accepted by the authorities. After a great deal of correspondence a final letter from the Minister of Home Security in answer to a letter from the local M.P. settles the matter to my disadvantage.

The following are two extracts from this letter which, I think, deserve to be widely known and on which other doctors may care to comment.

1. "It is not possible to accept the position that a doctor's certificate must be accepted without question." From this it would appear that while doctors are called upon to write more and more certificates their value becomes less and less.

2. "... Such persons are, however, entitled to apply to the grounds of medical exemption on the grounds of medical unfitness or of exceptional hardship. These committees are independent tribunals, and they are entitled to subject a statement of fact or opinion in a medical certificate to the same examination and scrutiny as other evidence."

The tribunal, who allowed me to be present at their proceedings, had no medical man among them, and their questioning demanded from me not an answer as to whether the applicant for exemption was fit or unfit but an answer to "What is the matter with your patient?"

Have the B.M.A. accepted on our behalf the principle of a lay committee judging matters of medicine, and, moreover, demanding answers involving, in my view at any rate, the principles of the confidence between patient and doctor? It is true that the new regulations put applications for exemption on medical grounds in the hands of the Regional Commissioner, but this does not alter the fact that the prestige of a medical certificate has fallen to such a low level, nor does it appear to help a doctor to protect his patients, in spite of the knowledge, from such doctor alone can possess, of which being compelled to exertions of which they are physically incapable.—I am, etc.,
 HENRY YATES.

Alton, Hants.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 9 1943

ANNUAL REPRESENTATIVE MEETING (cont.)

First Day, September 21 (cont.)

FUTURE OF MEDICAL SERVICES

Meaning of a "Comprehensive" Service

Dr. E. C. DAWSON (Derby) moved:

That the "comprehensive medical service" is a service devoted to the prevention, diagnosis, and treatment of injury and disease in the individual, the service includes all services in relation to an individual or a group of individuals rendered at the request of a third party.

He thought it necessary to have a clear conception of what exactly was understood by a future medical service. In the "Principles" put forward by the Representative Committee and the Council medical services were referred to in many as half a dozen different ways. The title and a definition seemed to be required. For the title he suggested the two adjectives "comprehensive national" in front of "service." As to content, he believed it was the desire of the meeting that there should be some sort of limitation to the service. His resolution accepted services given at the request of third parties, by whom he meant the Ministry of Labour, the Ministry of Pensions, and local authorities, among others. The time limit prevented Dr. Dawson from completing his argument.)

Mr. H. S. SOUTTAR (Chairman of the Representative Committee and of the Council) could not believe that this resolution meant anything at all. Surely a great deal of the work of the medical profession must necessarily be at the request of third parties.

The motion was lost.

Dr. J. A. PRIDHAM (Dorset) at this stage desired to propose a resolution of appreciation and confidence in the Representative Committee and the Council. He felt that something ought to be said in acknowledgment of the supremely difficult task they had undertaken. He suggested that during the last few years he Council had led the Association extremely well. (Applause.) It was suggested that such a motion would come better at a later stage, and accordingly it was deferred.

Mr. J. A. CORKEY (Belfast) moved that where the word "doctor" occurred in the "Principles" it should be replaced by "registered medical practitioner." "Doctor" might connote some unqualified or auxiliary status. Dr. J. A. BROWN (Birmingham) pointed out how ridiculous his would make some of the references, as, for example, "That there should be provided for every individual the services of a registered medical practitioner instead of 'family doctor'"] of his choice."

The motion was lost.

Reaffirmation of Basic Principles

Prof. R. M. F. PICKEN, on behalf of the Council, moved the first of the fourteen basic principles set out in the Supplementary Report of Council. The first one reaffirmed the principles laid down

in the Association's "General Medical Service for the Nation," approved in 1938—namely:

That the service should be directed to the achievement of positive health and prevention of disease no less than to the relief of sickness; that there should be provided for every individual the services of a general practitioner or family doctor of his choice; that consultants and specialists, laboratory services, and all necessary auxiliary services, with institutional provision when required, should be available; and that the several parts of the complete medical service should be closely co-ordinated and developed by the application of a planned national health policy.

Prof. Picken said that the object of including this was to make it obvious to other persons and to remind themselves that this question of the evolution of medical services had been under consideration by the B.M.A. for many years, and that they were not being driven to produce a document just because Sir William Beveridge had produced a report. Having recalled these principles, laid down in 1938, the meeting would go on to consider and, he hoped, to adopt the further thirteen principles set out.

This was agreed to without dissent.

Dr. T. CRAIG (Newcastle-upon-Tyne) proposed to add at the end after "application of a planned national health policy" the words "acceptable to the profession as a whole." It was not an occasion for argument, but they were all talking of safeguards, and it was as well to add these words. Sir KAYE LE FLEMING considered this a most important principle. If he had been drawing up a set of principles to govern their action this would have been almost the first to be considered. The primary requisite of a comprehensive medical service was that it should receive the willing co-operation of the great majority of the profession.

The addition was agreed to by the meeting, and a further amendment agreed to was the substitution of the word "available" in place of "provided" ["that there should be available for every individual . . ."].

Social and Environmental Conditions

Prof. PICKEN moved the adoption of the second "Principle":

That the health of the people depends primarily upon the social and environmental conditions under which they live and work, upon security against fear and want, upon nutritional standards, upon educational facilities, and upon the facilities for exercise and leisure.

Dr. L. J. PICTON (Crewe) moved an amendment whereby "nutritional standards" came first among the factors mentioned. He said that nutrition was the fundamental protection of the body against disease. To fail to put it first was to place themselves in the wrong. Great as were the achievements of the public health services in the direction of preventive medicine, they were trivial compared with what was possible on a nutritional basis. He quoted the work of McCarrison in India and of McGonigle in Durham. The Ministry of Agriculture was far more important than the Ministry of Health.

Prof. PICKEN hoped that this amendment would not be accepted. He defied anyone to state the relative value of the various factors. Theories as to the physical or social cause of certain diseases were frequently changed.

The amendment was lost, but an amendment by Oxford was accepted whereby there were added at the end of the recommendation the words: "The improvement and extension of measures to satisfy these needs should precede or accompany any future organization of medical services."

Dr. J. A. BROWN (Birmingham) hoped that the meeting would not regard the recommendation as a pious resolution. It would be useful to have the whole weight of medical opinion behind it. It had been said that no medical service could be other than a repair shop for damaged human machines so long as the people lived in a state of economic insecurity, were inadequately fed and badly housed. As a general practitioner he felt strongly that real preventive medicine brought in all these factors. The sooner they turned to the prevention of disease on this large scale and in this positive way the better it would be for the country.

The recommendation with the addition of the words suggested by Oxford was carried.

Conditions Precedent to Efficient Service

Prof. PICKEN moved the third of the "Principles":

That the efficiency of a country's medical services, both preventive and curative, depends upon the available medical and scientific knowledge, upon the character and extent of medical education, and upon the absence of any economic barriers that impede the utilization of such services.

The recommendation went on to call for a great increase of the facilities and resources for medical research, the maintenance at a high standard of medical education, both undergraduate and post-graduate, and the removal of economic barriers which prevented advantage being taken of such services.

Dr. BALFOUR BARROW (Winchester) moved to insert the words "quality of personnel" after "medical education." The service rendered to the public demanded high qualities in the medical student. Prof. PICKEN accepted this amendment subject to some consideration of the drafting. Dr. BARROW then moved a further amendment to delete the reference to economic barriers. This amendment, however, was lost.

Dr. B. R. VICKERS (South Bedfordshire) moved for the insertion of certain words the purpose of which was to open more widely the door to medical education. He said that at present a number of young men and women were precluded from taking up medical education because of its cost, although they would make admirable doctors. The great extension of medical services in the future would call for an enlarged personnel. Some subsidy seemed to be required. Prof. PICKEN was unable to

high doctors rendering personal service and to be controlled by the State. Control was necessary by reason of the necessity for safeguarding communal health and lessening the incidence of disease. In a democratic country the State was the expression of the majority of citizens. Were they, then, in a position to refuse action if the State desired to finance and organize a service?

Dr. C. K. CULLEN (City of London) said that as a tuberculosis officer of a local authority he had never experienced any interference with the doctor-patient relationship nor with his clinical freedom. He desired to see a much greater extension of democracy in the direction of the people with whom one came in contact; these were the people who would protect and defend one, if one's work was good, from the interference of more distant body.

Dr. R. W. COCKSHUT (London) complained that the views of a small minority were too persistently put forward. They had received the most patient hearing imaginable and had been turned down by enormous majorities again and again. The time had come to stop this continuous attempt to make the meeting change its views on this question. Those concerned should now help to form a united front of doctors instead of taking action which could only weaken their case in the eyes of the public. As for the circumstances mentioned by the last speaker, the relationship of a tuberculosis officer with his patients was not at all what they meant by the doctor-patient relationship. They meant the relationship of the practitioner who went up to the patient's bedroom when he was ill, not that of the practitioner who got a man's chest x-rayed or even saw him in a sanatorium.

Dr. J. A. IRELAND (Shropshire) said that an attempt was being made to whittle away the previously expressed opinions of that meeting. His own experience made him strongly disinclined to agree to the handing over of the control of medical services to county councils or insurance committees. Dr. DAIN said that one of the supporters of the City of London amendment had spoken of this control as likely to be better than the present anarchy. He did not suppose that many would agree that there was much anarchy about the way in which medical practice was conducted to-day. Dr. INWALD replied that he and his friends might be speaking for a minority, but it was a considerable minority. In London on a clear-cut issue of a fully comprehensive State salaried service the voting was roughly 400 in favour and 900 against. It was quite a definite section of the profession which urged this point of view. The Representative Body was not representative of the general practitioner vote.

The City amendment was lost by a very large majority.

What the State should Not Do

Dr. O. C. CARTER (Bournemouth) proposed an amendment to delete the first sentence in the Council's recommendation, arguing that this would apply only in a State Medical Service. The meeting had already agreed as to the function of the State as being to co-ordinate existing provisions, both official and unofficial. That being so, it seemed unnecessary now to adopt a negative attitude and to say what the State should not do. Further, the word "control" was exceedingly

vague. It might mean financial, administrative, or professional control, and it was obvious that in any medical service in which the Government had a financial interest there must be some form of control. It was not a happy phrase.

Dr. BALFOUR BARROW (Winchester) also thought the sentence unnecessary. Surely it was the privilege of the medical profession to organize medical services to the public on lines which experience had taught them were in the public's best interests. The first sentence suggested an abrogation of rights and an undoing of the vote taken on the previous day.

Sir KAYE LE FLEMING agreed with the last two speakers. The second sentence in the recommendation was so important that it should not appear to be qualified by the first. As it stood it might be interpreted by an ill-informed member of the public as meaning that the profession was prepared to take anything from the State but was not prepared to submit to control. Dr. W. N. LEAK (Mid-Cheshire) said that the State had control of public health officials and of many others, but the point of this motion was that doctors rendering personal service should not be under State control.

Dr. DAIN hoped that the meeting would not agree to delete the first sentence of the recommendation. If it were deleted it would look as if the meeting approved of the State having control of individual and personal services.

The Bournemouth amendment was lost, but an amendment by Ayrshire was accepted whereby the words "while assuming responsibility for the organization and provision of medical services" were deleted.

Dr. BERTHA TURNER (St. Pancras) moved to insert the words "in their professional capacity" after the words "should not assume control of doctors," but Dr. DAIN was unable to accept this. He wanted the word "control" left in without any attached conditions. They should be equally opposed to control of personal freedom to practise where they liked.

The St. Pancras amendment was also lost.

Limitations of State Control

Dr. R. H. MOLE (Oxford) moved another variation of the first sentence of the recommendation:

That the State, while assuming responsibility for the organization and provision of medical services, should limit its control of doctors rendering individual or personal health services to ensuring the maintenance of a reasonable professional standard and a maximum of personal and professional responsibility.

The Oxford Division had thought it better to put this in a positive way and to say that control should be limited to ensuring the maintenance of a reasonable professional standard. This was already the responsibility of the State through the General Medical Council, which exercised control over, among other things, lax certification. In any service so complex as a comprehensive medical service there must be control in the sense of direction. He also wished to emphasize the word "responsibility," which was singularly absent from the principles put forward in the "General Medical Service for the Nation." Dr. P. PHILLIPS (Bristol) said that in Bristol they felt that the organization of any future medical service should be by the doctors themselves, and they looked to the Association to lead them in the organization of such a service.

Dr. R. FORBES (Hendon) thought the Oxford amendment dangerous in that it suggested that control should be defined and qualified in a particular way. Control over the profession in respect of educational standards and disciplinary measures was exercised by the G.M.C. There was also control by way of the common law. If the proposer of this amendment now suggested that the State itself should go forward to lay down standards which every practitioner should attain, irrespective of his responsibilities, then a serious new element was being introduced which would create great difficulties. Dr. J. G. THWAITES (Brighton) found it difficult to see how any sort of control could increase the personal and professional responsibility of the practitioner. Dr. MOLE replied that there were many things which limited the doctor's freedom of action in professional as well as personal matters, and it was to have their heads in the clouds to use the word "control" without any limitation at all.

The Oxford amendment was lost. An amendment by Darlington and other Divisions opposing the setting up of any central authority, medical or lay, to control the profession was met by a motion to proceed to the next business, which was agreed to.

The recommendation underwent some transposition in the course of the debate and as finally carried read as follows:

It is not in the public interest that the State should convert the medical profession into a salaried branch of central or local government service. The State should not assume control of doctors rendering individual or personal health services. The profession rejects any proposal for the control of the future medical service by local authorities as at present constituted.

Dr. G. H. STEELE (Worcester and Bromsgrove) proposed the addition of the last sentence of the above. He said that members of local authorities as at present constituted were elected for their political views, and it was most undesirable that such views should interfere with the control of the profession. Moreover, in the election of local councils the profession had no voice, except in so far as its members voted as individuals. Local authorities seldom had any conception of the problem set before practitioners in their treatment, and there was ample evidence of the unsympathetic attitude of such authorities in the matter of fees.

This motion was accepted, apparently without dissent.

Free Choice

The next "Principle," moved by Dr. DAIN, was:

That free choice of doctor should be preserved as a basic principle of future health services, and no administrative structure should be approved which does not both permit and encourage such free choice.

Dr. DAIN said that free choice of doctor meant the freedom of the patient to choose or change the doctor and the freedom of the doctor to accept or decline the patient. It was a two-way freedom.

Dr. J. C. ARTHUR (Gateshead) moved to substitute the words "as between doctor and patient" for the words "of doctor." The Government had stated that this was accepted as a basic principle of any medical service. But if it were in any way whittled down it ceased to be free choice.

The amendment was carried.

Dr. G. DE SWIET (Kensington) moved to amend the recommendation so that it would read: "That no administrative structure should be approved which does

putting on the one side official and on the other side unofficial doctors. If a doctor was employed in the service and accepted responsibility for a particular patient, while it was obvious that he could not accept fees from or on behalf of that person, he should be free to be consulted by any other member of the community privately, even though such member was provided for by the service. The recommendation did not refer entirely to private practice; it provided for conditions which would apply to consultants and specialists as well.

Mr. McADAM ECCLES asked whether there was not a possibility that some doctors would be in the service but could not be whole-time salaried practitioners. These might form a third class, to be consulted privately. Dr. DAIN replied that these did not make a fresh class. They were in the service, and, like others, would be able to be consulted by those who were willing to pay fees. He added that he did not regard this proposal as an endowment of private practice, but as affirming the essential freedom of doctors to be consulted and of patients to be treated by whom they saw fit.

A different form of words was moved by Harrow, but Dr. DAIN took exception to it on the ground that it left specialists and consultants out of account, and was constructed purely from the general practitioner point of view, and the amendment was lost. The same fate befell an amendment by Oxford for a variation in wording whereby it was emphasized, according to the mover, that it was the patient who was going to do the choosing; the amendment was designed to forestall any lay misinterpretation.

Dr. ELSIE WARREN (Kensington) moved to delete the first sentence of the recommendation, and this was supported by Dr. LUCAS YOUNG (Eastbourne), who held that the second sentence contradicted the first. A patient with £500 a year and a family would be very pleased to have this medical service, but what if he heard that one of his richer neighbours was availing himself of the opportunity of getting his medical attention privately, and paying for it, although entitled to it as a statutory benefit? He would imagine that this man was paying for some extra attention which he himself was not receiving under the State scheme, and thus the State scheme would be prejudiced. Another patient might say: "I do not see why I should go on paying for this privately when I am entitled to it as a statutory right," and decide to avail himself of this right at an inconvenient juncture in his illness. Some people would say: "There is no need to pay you a particularly high salary under the State scheme because you will have your private practice to fall back upon." Yet private practice might be expected to die a natural death.

Dr. H. SUTHERLAND (Kensington) also asked for the deletion of the first sentence, which properly should appear under the earlier recommendation dealing with free choice. The recommendation as it stood would give rise to misunderstanding. Dr. I. C. ARTHUR (Gateshead) opposed the deletion. The sentence constituted an important part of the charter of the profession. What other profession would be so restricted in the employment of its service? Further, was not the whole-time salaried servant of the State likely to have a

large amount of time which he could devote to private practice? If he were not allowed to do so it would be a waste of medical man-power. Dr. A. C. DE B. HELME (Guildford) said that the meeting had voted in favour of freedom for the doctor, and by rejecting this amendment it would be accepting freedom for the public, which, as an altruistic profession, was what they sought.

Dr. F. GRAY (Wandsworth) said that the freedom of the patient to obtain a second opinion when he wanted it should be a complete freedom. If he could not go to a doctor who was in the service he had two alternatives: to go to a doctor who was not a member of the service (which would be practically impossible for most of the population) or to go to an unqualified practitioner.

Dr. J. A. BROWN (Birmingham) pointed out that the right existed already for the insured person to consult another doctor on the panel. If the Kensington amendment were passed that right would be taken away from the insured person of to-day and the potentially insured also. Dr. R. W. COCKSHUR said that these amendments were the expression of a dilemma. On the one hand, freedom must be preserved; on the other, any "black market" in medicine must be avoided. But freedom up to now had not been abused. Dr. A. BEAUCHAMPEL reminded the meeting of Sir John Anderson's statement during the House of Commons debate on the Beveridge report, that the Government had no intention of forcing the new service on those who preferred to make their private arrangements.

The Kensington amendment was lost. Amendments by Bristol and Torquay to cut out the second sentence of the recommendation were also lost, and the recommendation was carried unamended.

The Question of the 10%

Dr. S. WAND (Birmingham) said that it seemed to him that at this point it was desirable to make a decision on the clear-cut issue of the 90 or 100% of the population who should have medical services provided for them. He accordingly moved:

That it is unnecessary for the State to provide a medical service for that section of the public willing and able to provide it for itself.

Dr. R. L. NEWELL (Manchester) seconded, saying that this was the opinion held by the majority of consultants. Dr. C. F. TURNER (Coventry) said his Division was strongly in favour of 100% service, but if the meeting was in favour of what was now moved it should qualify it by the insertion of the word "personal." Dr. W. P. GRIEVE (East Suffolk) said that this motion was too important to introduce as an "extra." It was not a question for that meeting to decide; it raised vast public issues, and to pronounce an opinion upon it when brought in in this way might easily lead to a wrong decision. Dr. A. S. WIGFIELD (East Hertfordshire) thought that the motion was prejudicial to a recommendation, to come forward later, calling for an extension of National Health Insurance as an interim measure. In his district the vast majority of dependants of insured persons were already able and willing to pay for the services they desired.

Dr. WAND said that after this short debate he felt that it was only fair that the Representative Body should take

more time over such a fundamental motion. He therefore asked leave, which was given, to withdraw it and bring it up under the later recommendation.

Consultants and Specialists

Mr. R. L. NEWELL moved on behalf of the Council:

That consultants and specialists should normally be based on the hospital. For those persons who wish to be treated in private accommodation, whether part of a hospital or not, private consulting practice should continue as at present.

He said that all must agree that to maintain the necessary high standard of consultant service active association with a recognized hospital was essential. The hospital must be regarded as an instrument for the purpose of the consultant's work.

Dr. RAYMOND GREENE (Buckinghamshire) moved to refer back the whole question of consultant and specialist services. The present recommendation was so vague that almost any meaning might be read into it. It meant on ordinary reading that consultant and specialist services must remain exactly as they were at present, being normally based on a hospital. In Buckinghamshire it was not desired that these services should remain *in statu quo*, but that they should form an integral part of a comprehensive medical service scheme.

Mr. NEWELL replied that the Ministry had made no proposals with regard to the consultants and specialists service, but in the meantime he felt that this recommendation should stand. He knew that some consultants had no hospital, and that was regrettable, but he felt that the normal basis of the hospital for the consultants service should be kept in mind, and that consultants should continue to do private practice in the private wing of a hospital.

The proposal to refer back was not carried.

Mr. H. J. MCCURRICH (Brighton) moved to clarify the wording by substituting the words "attached to the hospital" for "based on the hospital," and this was accepted by Mr. Newell and agreed to.

An amendment by Kensington proposed to delete the second sentence of the recommendation. Mr. R. S. BROCK (Denbigh and Flint), in supporting this amendment, said that the inference from the recommendation was that because a patient could afford a small sum, possibly out of his savings, for additional personal comfort in illness, his case was the same as that of a patient who was in a position to spend large sums of money in the payment of private fees. The two issues were entirely different and should not be brought in on one resolution. Dr. H. SUTHERLAND (Kensington) said that his Division was anxious that the door should not seem to be closed upon an arrangement whereby at some future time the services of consultants and specialists would be available in a broader way than now.

Mr. NEWELL resisted the amendment. It happened, he said, in municipal hospitals where there was private accommodation that consultants who were whole-time officers of the hospital had to perform an operation on a private patient and received no fee. That was understandable in some ways, though it was a thing he was very much against; but he was even more against the other method whereby the consultant received no fee, having been chosen by someone who

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 16 1943

ANNUAL REPRESENTATIVE MEETING (concl.)

Second Day, September 22 (concl.)
FUTURE OF MEDICAL SERVICES

Central Administrative Structure

With Dr. PETER MACDONALD in the chair, Prof. R. M. F. PICKEN moved, on behalf of the Council, a recommendation that the central administrative structure set up by the State should be a body concerned only with civilian health services, but should be responsible for all such services administered by the central Government; that the Minister should have a medical advisory committee, and that locally there should be administrative bodies covering wide areas, responsible to the central authority, and representative of the community served and of the local medical profession and voluntary hospitals, with advisory committees representative of the local medical profession.

This recommendation, he said, had been most difficult to frame. The Association had studied the subject since 1929 and had issued statements in 1930 and 1938. It was dealt with also by the Medical Planning Commission, which, before the Beveridge report was issued, set up a special committee to consider this matter alone. In Parliament Sir John Anderson and Mr. Morrison made it clear that the Government had certain ideas on the administration of any comprehensive medical service set up in terms of Assumption B. The Minister of Health in 1941 made a pronouncement about co-ordination of municipal and voluntary hospitals in which he accepted for the purpose of administration the local government machinery. There appeared to be a disposition, if not an intention, in official quarters to revolutionize medical practice but to leave the administrative machine as little changed as possible. He believed that the Association was not prepared to accept that position. Half a dozen or more Government Departments were administering uncoordinated medical services of various kinds, and, so far as he knew, no proposal except from the Association had ever been made to clean up that Augean stable. The Government proposals with regard to local administration seemed to be, so far as they were known, rather small modifications of the existing arrangements, something which could be fitted into the existing framework. The present recommendation was designed to set forth the changes both in central and local administration which would be acceptable to the profession.

There was an amendment from Guildford and Holland to refer back the recommendation on the ground that misinterpretation might arise from the present draft. Dr. A. C. DE B. HELME (Guildford) said that the proposed new central body would be another Government Department in effect if not in name. In the work of such a body the function

of professional representation would be purely advisory, with no authority to enforce regulations; the enforcement would be by laymen in exactly the same manner as obtained in any Government Department to-day. The "sop" of being allowed to elect these advisory doctors would be of little value.

Reference Back Defeated

Dr. G. H. STEELE (Worcester) said that the proposed local administrative bodies would be elective so far as the community was concerned but only nominative so far as the profession was concerned—not a very satisfactory procedure. Dr. A. H. PRICE (Reading) said that his Division did not approve of central control as laid down in the recommendation. "To control" meant "to dominate, manage, or check." The profession would find itself under this procedure bound under the Ministry, with an advisory council of medical men. Dr. W. P. GRIEVE (East Suffolk) said that no mention was made in the recommendation of any right of access of the advisory committees to the Minister or to the local authorities whom they were advising. Dr. C. T. ANDREWS (Cornwall) said that they hoped for control by members of the medical profession who had connexion with active practice rather than by the Ministry of Health either as at present constituted or in a modified form.

Dr. N. E. WATERFIELD (Kingston) objected to the proposal to refer back. The effect would be that no proposals could go before the Minister until the next Annual Representative Meeting. Dr. C. F. TURNER (Coventry) said that this "baby" was undoubtedly troublesome, but surely the doctors in that hall could do more with a troublesome baby than pass it back to its mother. Dr. C. N. BINNEY (Reigate) supported the reference back on the ground that the recommendation contained a dangerous proposal. The advisory committees were not a sufficient check on the powers of central and local authorities. Dr. P. M. BRODIE (Edinburgh) hoped the meeting would not refer the recommendation back. The proposal was necessary as a skeleton on which in their future deliberations they might work. Prof. PICKEN reminded the meeting that the recommendation was part of a document which would have to be issued fairly soon and which the Representative Body would not have the opportunity of considering again. It would be most unfortunate to create a hiatus by the reference back of such a fundamental principle.

The motion to refer back was lost. A motion by Leeds was accepted, making the first sentence of the recommendation run: "That the central administrative structure should be a body concerned only with civilian health services and should be responsible for all civilian health services." Dr. W. S. MACDONALD, in moving this, pointed out that the

medical services of the Government were distributed over many Departments. The State had not shown itself capable of constructive administration in this respect, and there seemed something sinister in the phrase in the recommendation, "administered by central Government." Prof. PICKEN said that they should not throw dust into their eyes. It was inconceivable that any administrative organization could be carried out by any other body than the State. If that was understood he had no objection to the alteration.

Advantages of a Corporate Body

Dr. F. GRAY (Wandsworth) moved an amendment:

"That the word 'corporate' be inserted before 'body' in the first sentence of the recommendation, so as to read: 'The central administrative structure should be a corporate body, etc.'"

There were two possible forms of central administrative structure—a Government Department and a corporate body. A year ago, in considering the report of the Medical Planning Commission, the Representative Body expressed a strong preference for the latter. The matter had now become one of urgency. A Government Department was staffed by civil servants and had its political head in a Minister who was responsible to Parliament for every detail of the Department's work. It was the obvious aim of a Department, with every detail of its work liable to be questioned, to avoid such questions and to make the appearance of things pleasant. Again, the permanent head of the Department was appointed by the Prime Minister on the advice of the Treasury, and the Treasury tended always to recommend a safe man, one who would not bring to the post new ideas or schemes or requests for new money. The officials of the Department, knowing that the Treasury was responsible for these appointments, would not wish in any way to come in conflict with the Treasury. A corporate body consisted of a board appointed as a rule by the Minister for a fixed term of years. They were responsible in general through the Minister to Parliament, but the Minister was not responsible for the details of their work. The board, once appointed, was left to manage the corporation without constant detailed Parliamentary criticism; Parliament had control through the Minister in the appointment of the board, in the annual vote for the Ministry through which the board was responsible, and on occasion through a private motion or on a motion for the adjournment.

A comprehensive, co-ordinated, and unified medical service was wanted. At present medical services were scattered throughout Government Departments, and, knowing the petty departmental jealousies, was it likely that the other Departments would agree to giving up their functions to the Ministry of Health or that the Ministry would embark on a controversy with the other Departments to get them to do so? With a corporate

[illegible]

Voluntary Hospitals in Local Administration

Dr. J. C. ARTHUR (Gateshead) moved to leave out the reference to voluntary hospitals as requiring representation on the local administrative bodies. He felt that the voluntary hospital because of its contributory schemes as at present constituted did not fit into the system of a reconstituted medical service. Contributory schemes gave outside lay bodies to some extent a prescriptive right to have patients admitted and treated at the hospital.

Mr. R. L. NEWELL (Manchester) could not agree with the Gateshead proposal. He did not see how the co-operation of the voluntary hospitals could be secured without giving them such representation. After some further debate the Gateshead amendment was withdrawn.

Dr. J. H. STEPHEN (Aberdeen) moved an amendment designed to define more closely the functions of the central-medical advisory committee, but the meeting bowed to Prof. Pickens's desire not to overload the recommendation with details, and the amendment was defeated.

Extension of National Health Insurance & Extension of National Health Insurance & Extension of National Health Insurance &

possible in order that no one might be individually blamed. Doctors did not like the "usual channels" in which civil representation on the local administrative bodies should be equal as between the community served on the one hand and the local medical profession and voluntary hospitals on the other failed to acceptance, Prof. Pickens saying that, while he hoped for a good representation of the profession, he did not think the principle of equality was one on which they should be prepared to fight to the last ditch. A Preston amendment that the chief executive officer of the local medical advisory committee should be a medical man was also unsuccessful. Better fortune attended a motion by Worcester calling for steps to secure that practitioners acting in association with Government or local government medical services should be eligible for popular election as members of local councils; Prof. Pickens said that this had been a preoccupation of the Council for several years.

As finally carried after various amendments the recommendation of Council concerning administrative structure read as follows:

"The Division was largely in favour of some interim change both practicable and desirable, but at a future date, a revision *in statu quo* into the introduction of a complete medical services, in the main, should remain an amendment."

Dr. G. E. Kilmivan (Derby) moved: "A reconstruction of insurance committee would be necessary."

Dr. B. J. Davis then moved for consideration and completion of the foundation in the recommendation concerning administrative structure, just carried. Assumption B should be satisfied, by an extension of National Health Insurance to include dependants and the life and to cover consultant and specialist services and laboratory and hospital facilities. He added that if Parliament was disposed and anxious to provide for those who were able and willing to provide for themselves, such people might come in as voluntary contributors. A number of fresh interests would be concerned in a reconstruction of insurance committee."

Dr. G. E. Kilmivan (Derby) moved: "A reconstruction of insurance committee would be necessary."

Dr. B. J. Davis then moved for consideration and completion of the foundation in the recommendation concerning administrative structure, just carried. Assumption B should be satisfied, by an extension of National Health Insurance to include dependants and the life and to cover consultant and specialist services and laboratory and hospital facilities. He added that if Parliament was disposed and anxious to provide for those who were able and willing to provide for themselves, such people might come in as voluntary contributors. A number of fresh interests would be concerned in a reconstruction of insurance committee."

been agreed upon and approved it should not fail for want of adequate personnel and facilities. The same question applied to the immediate provision of an enlarged consultant and specialist service; and as for hospital facilities, it was well known that in their present form hospitals had not the out-patient accommodation, the beds, or the medical staff to deal with all the cases which practitioners would like to send for investigation and opinion.

Dr. A. S. WIGFIELD (East Hertfordshire) said that his Division favoured the maintenance of the *status quo*. The interim report of the Medical Planning Commission mentioned three alternatives: a State Medical Service, an extension of National Health Insurance, and "some other method." The third alternative was possibly what the majority of the profession would prefer. He came from an agricultural district where the people appreciated primary values, and he had heard no suggestion in that area that any change in the direction of extension of National Health Insurance was desired.

Dr. H. C. BOYDE (Stratford) supported the amendment. Consideration must be given to doctors who were away in the Forces. Although the most conscientious efforts were made by their colleagues to protect the practices of these absent men it was obvious that in any extension of the insurance services their position would be prejudiced, and the difficulty was not adequately met by the reply that this was only a temporary expedient. Dr. P. KIWALD (City of London) said that the Government wanted Assumption B accepted for the whole population. They ought not to be at war with the Government on this issue. He supported the amendment.

Dr. R. FORBES (Hendon) said that the recommendation had been the declared policy of the Association for many years past. It would be foolish to go back on it and would be misinterpreted by the public. Dr. C. M. STEVENSON supported the Derby amendment. He wanted to see the reorganization of the profession on the lines that the meeting had been discussing, and it seemed to him that the interim proposal now put forward on behalf of the Council might torpedo such reorganization. Dr. L. J. PICTON (Crewe) also favoured the amendment. His Division approved the general idea of a two-way extension, which was the old B.M.A. policy, but felt that the policy should be postponed until other changes had been made.

The hour of adjournment having arrived, the discussion was postponed until the following day.

Third Day, September 23 OTHER ASSOCIATION BUSINESS

By previous arrangement, when the meeting resumed on its third and last day the ordinary business arising on the Annual Report of Council, which it had not been possible to complete on the first day, was taken. A short debate took place on a proposal by Bradford to ask the Council to formulate a method of electing the General Practice Committee on a geographical basis in order to arouse more local interest in its proceedings. The proposal was carried by 59 votes to 56.

"British Medical Journal"

Dr. J. C. MATTHEWS presented the portion of the Annual Report under this

heading. Dr. J. A. L. VAUGHAN-JONES (Leeds) moved to request the Council to increase materially the size of the *Supplement*, owing to the vital importance of current and impending events in medical politics. He said that the comparative absence of information of what the Council and its committees were doing made many members, quite unjustly, critical of the central organization. He thought that during the next six months the *Supplement* should have 25% of the total space of the *Journal*. Dr. E. C. DAWSON (Derby) supported this request. Many members, he said, were ignorant of what was being done in their interests, and therefore a spirit of defeatism developed. Dr. H. VICKERS (Harrow) also urged that much more space be devoted to articles and letters on medical planning and public relations than had been available in the past. Dr. W. W. FOX (London) suggested articles on the medical services in other countries. Dr. A. H. PRICE (Reading) complained of secrecy in the discussions of the Council on the subject of the future of medical services.

Dr. MATTHEWS said that the Journal Committee realized the importance of the *Journal* as the organ of the profession during this critical period, but it kept in mind quality as well as quantity, and a well-written leading article was of more value in attracting attention and informing the public than a much greater amount of ordinary matter published in the *Supplement*. He also reminded the representatives of the difficulties occasioned by paper restriction.

The CHAIRMAN OF COUNCIL pointed out that a great deal of the committee discussions was of a kind which it would be inexpedient to publish because it concerned negotiations which were still proceeding with Government Departments or other bodies. But the Council greatly desired that everyone should be as fully acquainted as possible with what was going on at headquarters.

Sir KAYE LE FLEMING said that the Association was extremely fortunate in its finely produced journal. He knew something of the difficulties behind the scenes. He knew that the Council would do its utmost to meet criticisms and requests, but it should not be forgotten how extremely well served the Association was by the Editor and his staff. (Applause.)

The amendments on this question of *Journal* space were referred to Council, as was a further motion relating to advertisements of appointments.

The National Eye Service

Dr. BALFOUR BARROW, on behalf of the Council, introduced the report under that heading and moved its approval. The Committee was at present engaged in the planning of a post-war National Eye Service. Dr. R. LANG (Guildford) moved an amendment that the scale of fees for National Eye Service patients—a scale which had been agreed to but was later cancelled; namely, half a guinea for insured and non-insured with a family income of £250 or less, and one guinea for insured persons up to £420—be put in force at an early date. Dr. LUCAS YOUNG (Eastbourne) said that as there was shortly to be a meeting of the committee the most politic thing to do would be to refer this back for further consideration. Dr. BICKERTON said the Ophthalmic Group Committee had hesitated to enforce the guinea fee because

at that time an announcement was expected from the Minister of Health, but he doubted whether the committee would have agreed to see patients in the higher income groups had it known that the Minister was only going to announce that he had put his plan into the discard. Dr. STEVENSON (Cambridge) asked the meeting to refer this amendment to the Council with a view to its further consideration by the committee. The proposal had been debated *ad nauseam*. Dr. D. F. WHITAKER (Guildford) said that the fees were being dictated by the approved societies. Dr. BALFOUR BARROW said that the whole position of the post-war National Eye Service was *sub judice* and he asked the meeting to reject the amendment.

The amendment was referred to Council.

Hospital Staff Committees

Mr. R. L. NEWELL presented the portion of the Annual Report under "Hospitals."

The only matter which arose was a motion by Mr. HUGH CARSON (Birmingham) to the effect that in all hospitals there should be medical committees composed of the medical staffs above a certain grade, and that where there was a medical superintendent he should be a member of the medical committee and that the decisions of the committee should be communicated to the governing body through him in the first instance. Dr. R. G. COOKE (Derby) said that the Medical Superintendents' Society was in favour of this proposal. Mr. H. J. MCCURRICH (Brighton) said that if the decisions were communicated by anyone at all he would have the liberty to comment on them, and this would be an obvious disadvantage in the case of a medical superintendent who was obstructive. Mr. NEWELL said that the Hospitals Committee was fully in accord with the proposal except for the requirement that decisions should be communicated by the medical superintendent. But he was prepared to accept it if the word "minutes" was used instead of "decisions."

With this modification the Birmingham amendment was agreed to by 74 votes to 63. On the motion of Mr. A. M. A. MOORE (Marylebone) the meeting expressed the view that there should be representation of the medical staffs on the committee of management of all voluntary hospitals. A number of hospitals, he said, including some of the larger ones, had no such direct representation of staffs.

The reports under "Scotland," presented by Dr. G. MACFARLANE under "Medical Ethics," presented by Dr. N. E. WATERFIELD, and under "Science," presented by Mr. ZACHARY COPE, were approved without debate. Under "Medical Benevolence" Dr. J. W. BONE gave some account of the Medical War Relief Fund. Three reports, he said, had already appeared in the *Journal*, and a fourth report would shortly be presented. The amount collected during this period was £50,874, of which £16,600 had been expended. Most of the money had been invested in readily realizable securities, and every penny of it would be needed. This was a joint fund as between the Association and the Royal Medical Benevolent Fund, an arrangement which worked admirably. He appealed for a continuance and acceleration of subscriptions, and for money to buy medical books for prisoners of war.

Interim Policy

The eight members of Council elected for the coming year were: Dr. J. C.

Jones, Fred. W. M., Dr. S. Wand, Dr. W. E.
 Slaveley Gough, Dr. S. Wand, Dr. W. E.
 Thomas, Mr. A. M. A. Moore, Dr. F.
 Gray, Dr. O. C. Carter, Mr. H. J.
 McCuttrich, Dr. J. Hunter, Dr. W. D.
 Frew, Dr. J. M. Hunter.

The following resolution was proposed by Dr. A. T. ROGERS, seconded by Dr. H. GUY DAIN, and carried unanimously:

It was stated that this resolution would be sent to the British Government and to the American, Soviet, and Chinese Embassies for transmission to the appropriate commanders.

members were in countries occupied by the enemy—in Burma, Hong Kong, Federated Malay States, Sarawak and North Borneo, and some islands of the Pacific. There were also the prisoners of war in Germany. He proposed the by whatever methods were possible.

FUTURE OF MEDICAL SERVICES
Debate Resumed

Debate Resumed

ប្រសិនបើ អ្នក មិន ចង់ ទទួល បាន លទ្ធផល ល្អ បំផុត ពី ការ ប្រើប្រាស់ ប្រព័ន្ធ ប្រតិបត្តិការ របស់ យើង ទេ អ្នក គួរ តែ ប្រើប្រាស់ ប្រព័ន្ធ ប្រតិបត្តិការ របស់ យើង ជា ប្រចាំ ។

reports. One newspaper has
e that morning which began
e heading: "Doctors Claim I

control from any body but their
"association." "The Press must kn
Macdonald went on "that that

representing what was done at
the NEWS-CHRONICLE is given
below. (Applause.)

that the conditions in a "front-line area" were such that it was physically impossible for the doctors at present in the area to take on any large number of in-patients in addition to those they looked after already, this in spite of the

“neatious” work. The Derby amendment was lost. Dr.

action would be taken until insurance practitioners had been consulted through their Conference.

both financial and geographical ability. He submitted that, if they were not to be controlled by the State, it was necessary that control should not exist in respect of a proportion of the population,

should read as follows:

That a comprehensive medical service should be available for all who need it, but it is unnecessary for the State to provide it for those who are willing and able to provide it for themselves.

Dr. Gregg thought they might be

The amended wording suggested by Mr. Newell was carried by 149 votes to 37. Dr. I. B. MILLER moved, Dr. W.

Dr. R. A. C. MacNAIR (North Bedfordshire) moved that the contemplated extension of the National Health Insurance

It was agreed to proceed to the new business. Dr. W. N. Leak (Mid-Cheshire) moved that persons with an income above existing limits should be encouraged to make provision by joining mutual insurance schemes. Dr. Davis

The Approved Societies

(Shropshire) said that any insurance committee was liable to be outvoted by approved societies' representatives. Dr. Dain here again thought it would be unfortunate to insert such a recommendation. Approved

to the next business. The next business was the recommendation as it had been reshaped by the acceptance of various amendments. As finally agreed it read as follows:

service should be improved from within. Those recommended by the profession. If Parliament decides to make the service available to every member of the community, he permitted to become a voluntary contributor to the extended service. A necessary.

between the Government and the profession, organized experiments in group practice, including health centres of different kinds. He said that an expert mental attitude to this problem would be acceptable to the profession as long as there was very little cost.

methods of practice, including health centres or hospitals, and general practitioner

units attached to general hospitals." This would provide for the working out of an intraprofessional relationship, and furnish beds for research and study into problems of disease as these in their early manifestations came before general practitioners. Prof. PICKEN said that the Oxford amendment seemed to suggest that general practitioners attached to hospital units would be different from those attached to health centres. The wording should be "health centres of different kinds which should extend to general practitioner hospital units attached to general hospitals," or some such words. Dr. ARNOTT accepted this alteration, and in that form the Oxford amendment was carried.

Dr. HOWIE WOOD wanted a warmer phrasing: "That the meeting welcomes the principle of health centres and group practice and is prepared to collaborate," but he failed to secure acceptance of the words. Dr. A. S. WILSON (Holland) desired to see the word "profession" in the recommendation qualified by the words "local medical"; otherwise there was a danger of an area having such experiments foisted on it by some higher authority. Prof. PICKEN said that it was inconceivable that any experiment of this kind should be carried through without the approval of local practitioners. The Association through its central machinery would wish only to help and collaborate with the local profession.

Dr. R. W. COCKSHUT moved: "That experiments in group practice should be carried out by a central authority, and not by local authorities." It was easy to see that a local authority might be in a hurry to set up health centres. Dr. A. BEAUCHAMP said that this would be in conflict with the motion agreed to last year, that groups should not be formed arbitrarily by any outside body. Prof. PICKEN thought this amendment far too narrow. It ruled out experiments in which the initiative came from the local profession.

The amendment was not carried. An amendment by Bolton, that the Government should be responsible for all the expenses entailed in setting up trial health centres, failed on the ground of what Prof. Picken called its too restrictive character, by which it would preclude some voluntary body from undertaking the experiment.

The amended recommendation read (subject to verbal adjustment):

That there should be initiated, by arrangement and agreement between the Government and the profession, organized experiments in methods of practice, such as group practice, including health centres of different kinds, which should extend to general practitioner hospital units attached to general hospitals. Future developments in group practice should depend upon the results of such clinical and administrative experimentation.

This was agreed to.

Future Procedure and Negotiation

Mr. H. S. SOUTTAR made a statement on future procedure. The White Paper would be considered by the committees of the Council and by the Council itself, which would report to the Divisions in preparation for a Special Representative Meeting. There would be no negotiations with the Government until this meeting had been held. On the publication of the White Paper there would be drawn up a questionnaire, with an analysis in relation to the principles approved by the Representative Body, and this would be sent to every member of the profession serving with the Forces, and to every doctor in this country, whether a member

of the Association or not. Meetings would be arranged by Divisions for members and non-members. The results of the inquiry would be made available to the Council, the Divisions, and the Special Representative Meeting. The plan for the Negotiating Committee, the details of which would be recommended to the Special Representative Meeting, would be in outline: (1) that the size of the committee should be agreed with the bodies at present represented on the Representative Committee; (2) that of the Association's representatives, one-half should be nominated by the Council to the Special Representative Meeting for its approval, and one-half directly elected by that meeting itself; (3) that until the Special Representative Meeting the Representative Committee should continue in being for any discussions that may be necessary, but without power to negotiate.

In reply to a question, he said that it was quite impossible for sixty people to carry on intimate discussions in the hope of arriving at useful conclusions. In the Representative Committee a small body had been chosen to pave the way and thresh out certain problems. That small body kept in the most intimate contact with its parent and took no decisions on its own responsibility.

Dr. W. E. DORNAN (Sheffield) spoke of the dissatisfaction with the composition of the Representative Committee which had been expressed at an earlier stage. The discussions were now concluded, and he believed that the majority of the profession were really surprised at the stand taken. Nevertheless, he was disquieted by the absence of any mention of proportion of representation in the Chairman of Council's statement. Dr. HELME (Guildford) complained of the proposal that half the body should be nominated by Council. He asked the meeting to beware of these tactics of nomination. It was essential that the committee to be elected should be an absolutely democratic body.

After further debate on the composition of the proposed committee, Dr. COCKSHUT said that if, as some speakers desired, names had to be sent in from all parts of the country there might easily result a committee which was not representative in any sense of the term. He himself had been critical of the Council in the past, but now he felt strongly that it comprised a body of men worthy of the trust of the whole membership and that nominations by the Council were far more likely to secure a strong and representative committee than names sent in from the periphery. Dr. A. W. WESTON (Dudley) urged that the more democratic way was by nomination from the Branches.

Mr. SOUTTAR said that he saw no reason why, if the Representative Body so desired, it should not act on a motion by Yorkshire, which called for names to be sent from each Branch to the Representative Body, which would make the final selection. But he admitted that he did not see the object of these complex methods of arriving at the nominations. After all, the meeting had been debating for three days the proposals put forward by the Representative Committee, which was set up by the Council, and had accepted them all with only slight amendments. A pretty good testimonial to the work carried on by that committee! (Applause.) As for the proportion of general practitioners, he thought they

could be quite sure, however the committee was elected, that there would be a majority of such. So far as he had any influence or control he would be happy to see that that was so. But the Representative Committee was not purely a committee of the B.M.A. It included representatives of other bodies covering different branches of the profession, and he thought it was a very great thing to have got together a committee like this which was accepted by the Government as representing the whole of the profession, and that the Association should have had so large a share in its appointment and organization. He did not think that the Special Representative Meeting could be called before about next March, so that if the White Paper appeared in November there would be ample time to communicate to members in the Forces, of whose interest he was vividly aware after meeting many of them during his recent journey to India.

The Yorkshire proposal that nominations from the Branches should be sent to the Representative Body, which would make the final selection, was lost, and, with two or three dissentients, the meeting gave approval to the statement of the Chairman of Council.

The Value of Practices

Dr. H. B. MUIR (Fife) moved as a reference to Council that consideration should be given to the changing value of practices in view of possible future legislation, and in particular in view of the position of practitioners returning from the Services. He said that doctors who had remained in civil practice must feel a special responsibility in this respect, holding the position in trust as they did for their Service colleagues. Another factor which was changing the value of practices was, of course, the movement of population.

The motion was agreed to as a reference to Council.

Question of Legal Assistance

Dr. P. A. MCCALLUM (Torquay) urged that in future negotiations with the Ministry the Association should be represented at every meeting by experienced counsel, so that the best possible legal advice was available when negotiations were being carried on which might change the whole shape of medical practice. Dr. J. A. PRIDHAM (Dorset) supported.

The CHAIRMAN OF COUNCIL said that the Association had its own highly skilled solicitor, to whom reference was frequently made. But the proposal to have counsel at all their discussions showed lack of appreciation of the spirit in which these discussions were carried on. Nothing whatever would be gained, and a great deal would be lost.

Dr. W. E. DORNAN (Sheffield) held that if counsel had been instructed the outcome of the Court of Inquiry on the insurance capitation fee might have been different. Counsel would have been able to deal suitably with some of the evidence which the Ministry of Health tendered on that occasion.

Dr. DAN said that the Council, which must be given credit for a certain amount of sense and responsibility, had power to obtain legal advice whenever it seemed useful and necessary. It was possible that at the Court of Inquiry they would have done better with counsel, but if the Association had instructed counsel the Ministry would have done the same.

Dr. McCallum put his request in the form of a motion, which was lost, but a motion by Dr. J. A. Ireland was agreed to, that the Association should avail itself of the services of learned counsel with medico-political experience, though it was not asked that he should be present at every meeting. He said that to refrain from safeguarding their position by legal training and experience was like going into battle lacking some essential armour. Mr. Souttar said that not only would the Council accept this motion, but it was his common practice. If it employed counsel it employed the best obtainable and could afford to do so. A motion by Gateshead, that the medical officer of health of any area should not act as the general executive officer of the administrative body in that area, was also agreed to as a reference to Council.

Reporting Back

Dr. J. HALLAM (North Staffordshire) asked for an expression of opinion that the Negotiating Committee should make it quite clear to the Minister that it reserved the right to make a full report of all proceedings to the Representative Body. The report of the discussions published by the committee now in existence made no reference at all to the Minister's views, and it came as a shock to his Division when it learned in another way what the Minister's views were.

The CHAIRMAN OF COUNCIL said that a certain amount of discretion must be left to the negotiating body. When negotiations were being carried on it was impossible to state publicly all that was in the negotiating body. When negotiations had expressed an opinion, which it had done at that meeting, it was hardly to be expected that the public could be informed of it.

Among several motions which were referred to Council for consideration was one by West Sussex, that each member of the profession should be asked to sign a legal document that he would refuse to take part in any future service the terms and nature of which were not acceptable to 75% of the profession, the bond not to be binding unless signed by 90%.

Dr. J. A. PRIDHAM (Dorset) called for a vote of confidence

Mr. Souttar, as chairman for the moment of both the bodies named, thanked the meeting and said that the Council could not carry on its work unless it felt that it had the Representative Body and the whole Association absolutely and whole-heartedly behind it. In concluding the proceedings some further motions were referred to Council, including one requesting the Council to take steps, by the formation of a group of other means, to watch the interests of the part-time consultant and specialist. Mr. Souttar said that the Council would receive this motion with the greatest possible sympathy.

This exhausted all the motions on the agenda. The Representative Body had sat, on each of the three days, for an average of eight hours, with brief adjournments. Dr. W. Jope, who described himself as a "cantankerous Scotswoman," proposed a vote of thanks to Dr. Peter Macdonald for his conduct of the chair.

He had carried through, he said, a most difficult and intricate job in a most just and impartial manner.

"Beveridge Entire"

Dr. E. M. DEARNS (East Yorkshire) had a motion strongly depreciating the action of the Government in considering As-nomination B whilst not at the same time tacking the social security plan of Sir William Beveridge as a whole. Dr. Dearn asked whether the mover was in possession of information that the Government had not accepted the whole plan. Dr. Dearn replied that the Government had stated as much; otherwise why was Sir William Beveridge trying to get public opinion to support his plan?

It was agreed to pass to the next business, which was another motion by Dr.

as far as I can gather unanimously. Putting the motion, said: That is lost, the CHAIRMAN (Dr. Macdonald), after

seem to him to be in entirely good taste. reference to an "act of faith" did not

would have withdrawn the motion. The having heard the three-day discussion, Dr. Dearn said he had hoped that the mover, authority of a new referendum. Dr.

any important modification without they would not agree to accept any other upon the best plan for a medical service, considered a referendum and decided

by the Representative Body, the Council, and calling for an "act of faith" where-

interests of the public and the profession, Body and the Council to further the best

tenacity of purpose of the Representative lack of confidence in the resolution and there was, rightly or wrongly, a grave among the members of the Association

shire) had a long motion declaring that Dr. R. A. C. MACNAIR (North Bedford-

tion. Dr. R. A. C. MACNAIR (North Bedford-

at that stage be liable to misinterpretation. Dr. R. A. C. MACNAIR (North Bedford-

make entirely public because they would

transpiring. Things were said in perfect good faith which it was undesirable to

possible to state publicly all that was im-

to the negotiating body. When negotia-

things in action. But until the Associa-

tion had expressed an opinion, which it

had done at that meeting, it was hardly

to be expected that the public could be

informed of it.

Among several motions which were

referred to Council for consideration was

one by West Sussex, that each member

of the profession should be asked to sign

a legal document that he would refuse

to take part in any future service the

terms and nature of which were not

acceptable to 75% of the profession, the

bond not to be binding unless signed by

90%.

Dr. J. A. PRIDHAM (Dorset) called for

a vote of appreciation of and confidence

in the Council and the Representative

Committee; this was seconded by Dr.

R. W. MCCONNER (Buckinghamshire),

and carried unanimously and with ap-

plause.

Mr. Souttar, as chairman for the

moment of both the bodies named,

thanked the meeting and said that the

Council could not carry on its work

unless it felt that it had the Representa-

tive Body and the whole Association

absolutely and whole-heartedly behind it.

In concluding the proceedings some

further motions were referred to Council,

including one requesting the Council to

take steps, by the formation of a group

of other means, to watch the interests of

the part-time consultant and specialist.

Mr. Souttar said that the Council would

receive this motion with the greatest

possible sympathy.

This exhausted all the motions on the

agenda. The Representative Body had

sat, on each of the three days, for an

average of eight hours, with brief ad-

jourments. Dr. W. Jope, who described

himself as a "cantankerous Scotswoman,"

proposed a vote of thanks to Dr. Peter

Macdonald for his conduct of the chair.

He had carried through, he said, a most

difficult and intricate job in a most just

and impartial manner.

It was agreed to pass to the next busi-

ness, which was another motion by Dr.

as far as I can gather unanimously.

Putting the motion, said: That is lost,

the CHAIRMAN (Dr. Macdonald), after

seem to him to be in entirely good taste.

reference to an "act of faith" did not

would have withdrawn the motion. The

having heard the three-day discussion,

Dr. Dearn said he had hoped that the

mover, authority of a new referendum.

Dr. any important modification without

they would not agree to accept any other

upon the best plan for a medical service,

considered a referendum and decided

by the Representative Body, the Council,

and calling for an "act of faith" where-

interests of the public and the profession,

Body and the Council to further the best

tenacity of purpose of the Representative

lack of confidence in the resolution and

there was, rightly or wrongly, a grave

among the members of the Association

shire) had a long motion declaring that

Dr. R. A. C. MACNAIR (North Bedford-

tion. Dr. R. A. C. MACNAIR (North Bedford-

at that stage be liable to misinterpretation.

Dr. R. A. C. MACNAIR (North Bedford-

make entirely public because they would

transpiring. Things were said in perfect

good faith which it was undesirable to

possible to state publicly all that was im-

to the negotiating body. When negotia-

things in action. But until the Associa-

tion had expressed an opinion, which it

had done at that meeting, it was hardly

to be expected that the public could be

informed of it.

Among several motions which were

referred to Council for consideration was

one by West Sussex, that each member

of the profession should be asked to sign

a legal document that he would refuse

to take part in any future service the

terms and nature of which were not

acceptable to 75% of the profession, the

bond not to be binding unless signed by

90%.

Dr. J. A. PRIDHAM (Dorset) called for

a vote of appreciation of and confidence

in the Council and the Representative

Committee; this was seconded by Dr.

R. W. MCCONNER (Buckinghamshire),

and carried unanimously and with ap-

plause.

Mr. Souttar, as chairman for the

moment of both the bodies named,

thanked the meeting and said that the

Council could not carry on its work

unless it felt that it had the Representa-

tive Body and the whole Association

absolutely and whole-heartedly behind it.

In concluding the proceedings some

further motions were referred to Council,

including one requesting the Council to

take steps, by the formation of a group

of other means, to watch the interests of

the part-time consultant and specialist.

Mr. Souttar said that the Council would

receive this motion with the greatest

possible sympathy.

This exhausted all the motions on the

agenda. The Representative Body had

sat, on each of the three days, for an

average of eight hours, with brief ad-

jourments. Dr. W. Jope, who described

himself as a "cantankerous Scotswoman,"

proposed a vote of thanks to Dr. Peter

Macdonald for his conduct of the chair.

He had carried through, he said, a most

difficult and intricate job in a most just

and impartial manner.

It was agreed to pass to the next busi-

ness, which was another motion by Dr.

as far as I can gather unanimously.

Putting the motion, said: That is lost,

the CHAIRMAN (Dr. Macdonald), after

seem to him to be in entirely good taste.

reference to an "act of faith" did not

would have withdrawn the motion. The

having heard the three-day discussion,

Dr. Dearn said he had hoped that the

mover, authority of a new referendum.

Dr. any important modification without

they would not agree to accept any other

upon the best plan for a medical service,

considered a referendum and decided

by the Representative Body, the Council,

and calling for an "act of faith" where-

interests of the public and the profession,

Body and the Council to further the best

tenacity of purpose of the Representative

lack of confidence in the resolution and

there was, rightly or wrongly, a grave

among the members of the Association

shire) had a long motion declaring that

Dr. R. A. C. MACNAIR (North Bedford-

tion. Dr. R. A. C. MACNAIR (North Bedford-

at that stage be liable to misinterpretation.

Dr. R. A. C. MACNAIR (North Bedford-

make entirely public because they would

transpiring. Things were said in perfect

good faith which it was undesirable to

possible to state publicly all that was im-

to the negotiating body. When negotia-

things in action. But until the Associa-

tion had expressed an opinion, which it

had done at that meeting, it was hardly

to be expected that the public could be

informed of it.

Among several motions which were

referred to Council for consideration was

one by West Sussex, that each member

of the profession should be asked to sign

a legal document that he would refuse

to take part in any future service the

terms and nature of which were not

acceptable to 75% of the profession, the

bond not to be binding unless signed by

90%.

Dr. J. A. PRIDHAM (Dorset) called for

a vote of appreciation of and confidence

in the Council and the Representative

Committee; this was seconded by Dr.

R. W. MCCONNER (Buckinghamshire),

and carried unanimously and with ap-

plause.

Mr. Souttar, as chairman for the

moment of both the bodies named,

thanked the meeting and said that the

Council could not carry on its work

unless it felt that it had the Representa-

tive Body and the whole Association

absolutely and whole-heartedly behind it.

In concluding the proceedings some

further motions were referred to Council,

including one requesting the Council to

take steps, by the formation of a group

of other means, to watch the interests of

the part-time consultant and specialist.

Mr. Souttar said that the Council would

receive this motion with the greatest

possible sympathy.

This exhausted all the motions on the

agenda. The Representative Body had

sat, on each of the three days, for an

average of eight hours, with brief ad-

jourments. Dr. W. Jope, who described

himself as a "cantankerous Scotswoman,"

proposed a vote of thanks to Dr. Peter

Macdonald for his conduct of the chair.

He had carried through, he said, a most

difficult and intricate job in a most just

and impartial manner.

It was agreed to pass to the next busi-

ness, which was another motion by Dr.

as far as I can gather unanimously.

Putting the motion, said: That is lost,

the CHAIRMAN (Dr. Macdonald), after

seem to him to be in entirely good taste.

reference to an "act of faith" did not

would have withdrawn the motion. The

having heard the three-day discussion,

Dr. Dearn said he had hoped that the

mover, authority of a new referendum.

Dr. any important modification without

they would not agree to accept any other

upon the best plan for a medical service,

considered a referendum and decided

by the Representative Body, the Council,

and calling for an "act of faith" where-

interests of the public and the profession,

Body and the Council to further the best

tenacity of purpose of the Representative

lack of confidence in the resolution and

there was, rightly or wrongly, a grave

among the members of the Association

shire) had a long motion declaring that

Dr. R. A. C. MACNAIR (North Bedford-

tion. Dr. R.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 23 1943

INSURANCE ACTS COMMITTEE

THE CAPITATION FEE POSITION

A meeting of the Insurance Acts Committee was held at B.M.A. House on Sept. 17, Dr. E. A. GREGG presiding. It was intimated that Dr. R. G. McGowan of Manchester was retiring from the Committee after many years of service. The Committee expressed its regret and its appreciation of his work during his long membership of the Committee.

A report was made on the present state of affairs with regard to the claim for a wartime increase in the capitation fee. The Minister of Health had been told that the Committee did not accept his reply on this question. In the course of discussion some members stated that their Groups were in favour of asking for arbitration and of calling for the handing in of resignations should the request be refused. Some Lancashire representatives complained of the inaction of the Committee. Following a statement made by Dr. Gregg at the Special Panel Conference in March last, in which he had promised resolute action, saying that if there was substantial support from Panel Committees the matter would be pressed to the point of requesting resignations, the Lancashire Committee had withdrawn its own resolution from the Conference agenda, but now, seeing that nothing had been done to implement that avowal, it had passed a resolution expressing a lack of confidence in the Insurance Acts Committee.

The CHAIRMAN said that allowance must be made for the indignation created by the Minister's refusal, but it was unfortunate that such heat should be misdirected; no good purpose was served by attacking one another. He did not withdraw a word of the statement he had made to the Special Panel Conference. During the months before the Conference a committee had been considering the question of reorganization and had reviewed the arrangements to be adopted in the event of a refusal of service. They had agreed that an approach would have to be made to all Panel Committees on the subject in order that the success of the scheme might be fully ensured, and it was with this in his mind that he had spoken at the Conference. He hoped that such a communication would go out; it had been deferred owing to the resolution passed at the last meeting of the Committee, with which he personally was not in agreement, to postpone the matter until the present meeting. Another question had since arisen concerning the payment of war bonuses to civil servants receiving salaries up to £350 a year. This had been made the occasion for a new request to the Ministry to consider the comparable claims of insurance practitioners, and the request had been followed up by an interview at the Ministry in which he and others had taken part. To this so far no answer had been received. Those who had voted for postponement were just as

much as others in favour of resolute action, but it was felt that while they were engaged in certain negotiations it was better to await the result of them.

After some discussion the draft of a letter to go out to Panel Committees was approved. The letter mentioned two major considerations which had led the Committee to postpone the request of Panel Committees to raise the question of resignation in an active form; one of these was the larger issue, now so prominent, of a comprehensive medical service, and the other was the raising of the question of the civil service bonus. The letter concluded:

The position has altered since the last Conference, but the Committee, though as resolute as ever on the capitation question, is seeking to discharge its responsibility to insurance practitioners in a statesmanlike way. Insurance practitioners, like other practitioners, are likely soon to be involved in major questions which go to the root of medical practice. Above all, we do not wish to prejudice the larger issue by action which, though justifiable in itself, might appear to those who wish to see the abandonment of the capitation method a first-class opportunity to introduce an entirely different method of contract and remuneration.

A report was made to the Trustees on the proposed £1,000,000 Defence Trust Fund. Some sixty Panel Committees were mentioned which had up to now indicated their support of the proposal. The Fund stood on August 31 at £286,000.

A Comprehensive Medical Service

The recommendations of the Council on the proposals for a comprehensive medical service, as set out in the Supplementary Report (*Supplement*, August 7, p. 19), were placed before the Committee, which also considered a resolution of the last Conference, that the Council of the Association be asked, in the event of negotiations failing to secure conditions satisfactory to the profession, to have a plan ready to carry on treatment of the sick without participation in the Government plan. It was referred to the executive to explore the possibilities of this.

The Committee further considered a proposal from the Isle of Wight Panel Committee calling for a statement of what the profession itself agreed to be essential factors in an insurance service for the whole community, including the amount of capitation fee and pension considered by the profession to be adequate. In reply it was pointed out that the Representative Committee had declined to discuss the remuneration part of the Ministry's proposals before the form and content of service were settled. No capitation fee or system of payment would be taken up by any negotiating committee before it had been considered by the full Representative Meeting.

Organization of Insurance Practitioners

Suggestions were considered from the London Panel Committee and from one of the Group standing committees for a method of individual approach by means of letter to insurance practitioners, giving

them information and guidance, over and above what appeared in the *Supplement*, though it was appreciated, at all events by the London Committee, that there might be difficulty owing to restriction of paper supplies. The Chairman gave an assurance that sympathetic consideration would be given to such a request.

The question of the groups into which Panel Committees are divided for the election of direct representatives was considered on two requests, one from the Middlesbrough Panel Committee to transfer from the Yorkshire to the Northumberland and Durham region, and the other from the Bristol, Gloucester, and Somerset Committees to form a separate group; at present Gloucester is included with Oxfordshire and Berkshire, and Somerset with Devonshire and Cornwall. It was pointed out that the groups in England and Wales had been arranged with a view to securing approximately the same number of practitioners in each—namely, about 1,100; but that if uniformity of numbers was not insisted on, then it would be easy to arrange the groups on a more convenient geographical basis so as to facilitate communication and meetings. The matter was referred to the executive committee for detailed consideration.

BRITISH MEDICAL ASSOCIATION PROCEEDINGS OF COUNCIL

A meeting of the Council of the Association was held, before the opening of the Annual Representative Meeting, on Sept. 21. Mr. H. S. Souttar presided. Appropriate reference was made from the chair to the death of the former President, Sir Beckwith Whitehouse, which took place with tragic suddenness after the close of the previous Council meeting. The members stood in a silent tribute to the President's memory.

The Chairman said that Lord Dawson of Penn had been approached and had intimated his willingness, if elected, to serve as President. The Council unanimously agreed to recommend the election of Lord Dawson to this position. The Chairman said that it was a great favour which Lord Dawson was doing them. He had many calls upon his time and energy, but it would be a great advantage to the Association to have him in the presidency at this critical time.

Discussion took place on the statement to be made to the Representative Meeting with regard to the setting up of the Negotiating Committee to succeed the present Representative Committee, after the promised White Paper had been published. The Council agreed that the size of the Negotiating Committee should be a matter for the concurrence of the bodies at present represented on the Representative Committee; that one-half of the Association's representatives should be nominated by the Council to a future special meeting of the Representative Body for its approval, and one-half

Council meetings as the Chairman of the Central Medical War Committee the Council nominates members, the actual appointment being by the Ministry of Health. Apart from one or two alterations in personnel, the committee was re-nominated as before, as were the similar committees for Scotland and Northern Ireland.

Salaried Whole-time Service

of the country, and in the Civil Service. I think the service should be contributed to by all citizens, and all should be free to take advantage of it. Should any person wish to make private arrangements for his medical treatment, he could consult any doctor who elected to remain out of the service. Such doctors should, of course, receive compensation for any loss of income caused by creation of the service.—I am, etc.,
C. GODFREY,
Liverpool.

[illegible]

they do not need the spur of economic incentives to provide care. They hear of periodic examinations of all patients, which is a bad example of general experience. They know the need for immediate treatment of the disease, which is extended to the demand for a system of care that is not only effective but also economical. They do not need the spur of economic incentives to provide care.

the adoption of subterfuge, which does not benefit the patients' health, only the doctor's pocket. Surely only in a strained service can the ideal relationship between doctor and patient exist, because there is then no economic barrier between them.

Other objections put forward by opponents of a State service are based on the fear that they will lose (a) money and (b) freedom. An undependable service (as is the present one) would indeed be a tragedy, but this need not be if at the right time we all insist on what we want.

Sir,—I am more than delighted to read that the British Medical Association has decided by a very large majority that the independence of our profession should not be so abused as to make us mere slaves of the State in the *post-bello* world.—I am, etc.,
FREDERICK W. ROQUES,
Middlesex Hospital, W.I.

SIR.—We in the Forces feel rather out of things now that discussions on the future of our medical services are taking place all over the country, and frequently wish we could attend B.M.A. Branch meetings. It appears to me, a temporary onlooker, that the B.M.A. has through-ought Government.

[illegible]

that a number of people have said that their best chance for health lies in the creation of a comprehensive State-salaried service. They cannot see why if this can be done for education it cannot be done for health by doctors to the main objection raised by doctors to this is that in such a service the doctor-patient relationship would automatically be destroyed. That this is a wrong diagnosis is a wrong

the doctor and patient exist, because service can be the ideal relationship be-
doctor's pocket. Surely only in a strained
not benefit the patient's health, only the
the adoption of substitute, which does
"competition causes
"well-being," another for them. This
out of their patients and therefore com-
for as every man to make their living
seems unbusiness-
to me to be

Other objections put forward by opponents of a State service are based on the fear that they will lose (a) money and (b) freedom. An underpaid clerk (as is the present case) would indeed be a tragedy, but this need not be if at the right time we all insist on what we want.

the fear of loss of freedom is equally understandable but again needless. All advocates of a salaried service insist that the doctor must have complete freedom in his treatment of individual patients, and again he has not under N.H.I., and at both patient and doctor must have a right to change when they find themselves unsuited. There is no reason why it should not be accomplished within the framework of the general scheme.

Regarding personal freedom, many of my colleagues in the Army have complained of the endless slavery of general practice, and some even have resolved never to return to it after having found that it feels like to be released from the ranny of the telephone. No doctor will ever refuse to see a seriously ill patient, but under a State scheme some system of regular hours could be worked out enabling each doctor to obtain the leisure to which, it is hoped, every human is a right. A doctor who is not so overburdened with work each day that he has time for regular study and research will surely be the better for it, and so will his patients.—I am, etc.,

P. H. NASH,
Captain, R.A.M.C.

London, W.8.

from the capitation fee end much might be achieved. But such negotiations should mean not a squalid haggle over a paltry sixpence but an attempt to secure a really adequate capitation fee commensurate with the services which should be required. This fee should be at least three times the amount at present allocated. If a fee of two or three guineas were obtainable for medical benefit it might then be possible to include the additional benefit of full specialist services. The profession might also then willingly take over the care of the dependants on a similar basis.

To ensure that adequate provision should become available for industrial and other areas lacking amenities it might be possible to "load" capitation fees for such areas—e.g., by the introduction of three scales: (a) areas with best amenities, lowest capitation fees; (b) areas with least amenities, highest capitation fees; (c) areas of medium attraction, modified capitation fees. In effect the areas with most attractions for prospective practitioners would subsidize service in the less attractive areas.—I am, etc.,

Winchester.

C. J. PENNY.

unable to make full use of it; an increase in the number of doctors' would not solve the problem.

Nurses are trained in the care of patients under medical supervision in hospital, and are fitted to do the same work in domiciliary practice. Training of nurses is shorter than medical training, and large numbers of nurses in the Services and Civil Nursing Reserve will be available after the war. No one with experience of hospitals can doubt that nurses are suited for such work. Can any of us forget the tremendous debt we owe to the ward sisters from whom, as students and house officers, we learnt much about the care of patients? Will this seemingly obvious need be overlooked? Surely not because we are afraid of encroachment by the nursing profession. The general practitioner will still be responsible for his patients, and to the extent to which he can delegate responsibility will depend on the ability of his nurses and on mutual co-operation. The proper use of nurses in domiciliary practice will greatly increase the scope and interest of their work, and will give general practitioners far greater opportunity for making use of their training and developing their faculties. Above all, it will benefit the people whom we serve. Can such service be given except through a properly organized national health service?—I am, etc.,

Redditch.

C. L. POTTS.

Profession and Parliament

SIR.—The Secretary of the B.M.A. in its published address "Evolution, not Revolution" advises the medical profession that if Parliament decides on a 100% scheme, Parliament being the mouthpiece of the people, the profession should accept its decision. Parliament may decide that a full-time salaried medical service is in the best interests of the community. The Representative Body of the B.M.A., on the other hand, has decided that such a service is not in the best interests of the community. Surely, if the majority of the profession agrees with the decision of the Representative Body, it will back up its own convictions by every means at its disposal, whether Parliament agrees or not.—I am, etc.,

Dorking.

CYRIL E. BEARE.

The Future Capitation Fee

SIR.—The nation will get the medical service which it deserves provided it is prepared to pay for it. For an adequate service it will be necessary to recruit many more doctors, and to ensure this more money will have to be made available. In the view of many of us the main fault of the present arrangement lies in the inadequacy of the capitation fee under the N.H.I. Acts. As things are this service is subsidized by fees derived from private practice. In pleasant residential areas this subsidy will be adequate to provide a first-class insurance service, but in industrial areas where no such subsidy exists inducements to enter practice may be inadequate to attract sufficient numbers of practitioners. By reason of this and of the attempt made to do too much work for too little, it may not be possible to maintain the high standard of professional work of which these practitioners are capable, granted adequate facilities and proper amenities.

The Ministry has shown no recognition of this aspect of the situation. It has refused to increase the capitation fee and at the same time it has put into the insured category a section of the population who were formerly helping to subsidize the inadequate emoluments available under the service. If the B.M.A. would start off their negotiations

Sale of Goodwill of Practices

SIR.—In Dr. E. H. Strange's letter (*Supplement*, Sept. 25, p. 49) I can find no suggestion of how he would carry out the internal reform of discontinuing the sale of practices. My 25 years' experience convinces me that these contracts, as with similar ones in most other professions and trades, are usually honest and desirable, and that such investment of money—inherited, borrowed, or saved—is an additional incentive to good service and the maintenance of the good name of a practice.

It is true that the system has a disadvantage which would be removed if loans on easier terms than those now existing could be encouraged, but if general practice is to remain competitive, as I think it should, the only alternative is the use of about the same amount of capital to keep a doctor for some years until his practice keeps him.

Both of these systems are, I think rightly, now in use and act as a corrective to each other, but neither will prove a good investment unless a doctor obtains and maintains the confidence of the majority of his patients, and in my opinion this is a truer test for reward than the approval of a senior medical officer or committee in a State Medical Service.—I am, etc.,

Basingstoke.

CHARLES COBB.

Utilizing Nurses in General Practice

SIR.—Shortage of doctors is used as an argument against any drastic reorganization of our health services. It is true that general practitioners are overworked, but much of our work is not medical, and we are both nurse and doctor to our patients. We general practitioners spend a large portion of our time in routine supervision of illness, which in hospital is done very efficiently by nurses. If we were relieved of some of this we could devote more time to the work in which we have been trained—the clinical and pathological investigation of disease. The work of consultants would be correspondingly reduced. Existing medical training seems rather extravagant for general practitioners who, through lack of time and facilities, are

A Question of Man-power

SIR.—Yesterday I picked up a copy of a Sunday paper in which there was a article that set out to prove the general debility of the medical profession and concluded with the possibly rhetorical question, "What are the doctors going to do about it?" The facts stated in the article were actually fiction, and the writer—like so many others—had no constructive criticism to offer. If any of the old mystery still attaches to the medical profession then this author is purely an iconoclast.

A little clear thinking should make plain that if a State Medical Service is to be a success the first essential is that the doctor shall have time in which to do his work. Under present conditions the doctor has not nearly enough time to do his work as he would wish, and it would be no solution of the problem to take all the doctors in any given town and make them see all their patients in one central clinic as a team.

One reason why there is so little time at present is the general shortage of medical men. The advent of peace will do something to correct this, but there will still be too many patients to allow the proper and careful examination of each one. Further, under a State Medical Service patients will, as under the panel system, resort to the doctor for minor or even imaginary ailments and every doctor knows that it takes much longer to make sure that there is nothing wrong with a patient than it does to diagnose obvious disease.

Therefore, before a State Medical Service can hope to work efficiently it will be necessary for the State to see to it by scholarships, subsidies, or what you will, that an adequate number of students qualify in medicine during the next seven years. When this has been done, and not until then, will a full State Medical Service become a possibility with any hope of success.—I am, etc.,

Workop.

GAVIN DUNLOP.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 30 1943

THE FUTURE OF MEDICAL SERVICES

The Representative Body of the B.M.A., at its meeting in September, amended in varying degree the basic principles which the Council had put before it, and which were set out in the Council's Supplementary Annual Report (August 7, p. 19). The amended versions, with a full report of the discussions which led up to them, are distributed over three subsequent issues of the *Supplement*. For the greater convenience of the profession, therefore, we give below the principles in the order and form in which they were agreed by the Representative Body. The preamble is a reaffirmation of the principles on which the Association planned its General Medical Service for the Nation.

Preamble

(i) The system of medical service should be directed to the achievement of positive health and the prevention of disease no less than to the relief of sickness.

(ii) There should be available for every individual the services of a general practitioner or a family doctor of his own choice.

(iii) Consultants and specialists, laboratory services, and all necessary auxiliary services, together with institutional provision when required, should be available for the individual patient, normally through the agency of the family doctor.

(iv) The several parts of the complete medical service should be closely co-ordinated and developed by the application of a planned national health policy acceptable to the profession as a whole.

Principles

A.—The health of the people depends primarily upon the social and environmental conditions under which they live and work, upon security against fear and want, upon nutritional standards, upon educational facilities, and upon the facilities for exercise and leisure. The improvement and extension of measures to satisfy these needs should precede or accompany any future organization of medical services.

B.—The efficiency of a country's medical services, both preventive and curative, depends upon the available medical and scientific knowledge, upon the character and extent of medical education, upon the sufficiency and quality of personnel, upon facilities for treatment (including institutional accommodation), and upon the absence of any economic barriers that impede the utilization of such services. Thus, the sufficiency and quality of personnel and facilities for treatment (including institutional provision) should be assured; in order to improve the country's medical services the facilities and resources for medical research should be greatly increased and methods devised for their adequate application; medical education, both undergraduate and post-graduate, should be maintained on a high standard, adapted to modern needs, and brought within the financial resources of

any suitable student. Wherever economic barriers prevent an individual citizen taking advantage of medical services such barriers should be removed.

C.—Subject to these general and overriding considerations the functions of the State should be to co-ordinate existing provision, both official and non-official, to augment it where necessary, and to secure that it is available without economic barrier to all who need it. The State should confine itself within these wide limits, invading the personal freedom of both citizen and doctor only to the extent which the satisfaction of these functions demands.

D.—It is not in the public interest that the State should convert the medical profession into a salaried branch of central or local government service. The State should not assume control of doctors rendering individual or personal health service. The profession rejects any proposal for the control of the future medical service by local authorities as at present constituted.

E.—Free choice as between doctor and patient should be preserved as a basic principle of future health services, and no administrative structure should be approved which does not both permit and encourage such free choice.

F.—It is not in the public interest that the State should invade the doctor-patient relationship. The loyalty and obligation of a doctor rendering personal health service to an individual patient should be to that patient and to none other.

G.—Free choice of doctor should be reinforced by a method of remuneration which relates remuneration to the amount of work done or the number of persons for whom responsibility is accepted.

H.—Every member of the community should be free to consult the doctor of his choice either officially, as when he consults the doctor he has selected under an official service, or privately, as when he consults some other doctor, whether that doctor is a member of an official service or not. Nothing should be done to encourage the splitting of the medical profession into two groups—the official doctors and the non-official doctors.

I.—Consultants and specialists should normally be attached to the hospital. For those persons who wish to be treated in private accommodation, whether part of a hospital or not, private consulting practice should continue.

J.—The central administrative structure should be a corporate body concerned only with civilian health services and should be responsible for all civilian health services. This central administrative body should be advised on medical matters, including personnel, by a medical advisory committee representative of the medical profession, which should be at liberty to publish its findings. Locally, new administrative bodies, responsible to the central authority, should cover wide areas and should be representative, directly or indirectly, of the community served and, in appropriate proportion, of

the local medical profession and voluntary hospitals. They should be advised on medical matters, including personnel, by local medical advisory committees representative of the local medical profession, which should be at liberty to publish their findings. These administrative changes should be regarded as foundation changes to be agreed before other changes are initiated.

K.—All branches of medical practice should be regarded as a single service, and it is undesirable that a detailed scheme for general practitioners should be framed and put into operation without corresponding arrangements for other branches of practice.

Interim Proposals

L.—That, pending the consideration and completion of the foundation, administrative changes mentioned in J above, as a step towards the satisfaction of Assumption B there should be extension of national health insurance to include dependants of insured persons and others of like economic status and to cover consultant and specialist services and laboratory and hospital facilities as well as general practitioner service. The service should be improved from time to time as recommended by the profession. Those persons with incomes above an agreed limit could, if Parliament decides to make the service available to every member of the community, be permitted to become voluntary contributors to the extended service. A reconstruction of insurance committees would be necessary.

M.—There should be initiated, by arrangement and agreement between the Government and the profession, organized experiments in the methods of practice, such as group practice, including health centres of different kinds, which should extend to general practitioner hospital units attached to general hospitals. Future developments in group practice should depend upon the results of such clinical and administrative experimentation.

Further Decisions of the A.R.M.

The following additional recommendations relating to the future of medical services were also adopted:

1. In the opinion of the Representative Body the creating of a whole-time salaried State medical service is not in the best interests of the community. (This was carried by 20 votes to 10.)

2. This meeting would not approve of any extension of health services until the medical personnel is again available.

3. A comprehensive medical service should be available to all who need it, but it is unnecessary for the State to provide it for those who are willing and able to provide it for themselves.

4. There shall not be any extension of services under the National Health Insurance Act until satisfactory terms and conditions, including an adequate capitation fee, have been agreed.

5. All practitioners on the *Medical Register* shall have the right to participate in any health service.

COUNCIL AND STANDING COMMITTEES OF THE B.M.A.

FOR 1943-4

The Rt Hon. the Viscount Dawson of Penn,
 President
 Dr H. Guy Dain, Birmingham, Chairman of the Council
 Dr Peter Macdonald, York, Chairman of Representative Body
 Dr J. W. Bone, Luton, Treasurer
 Dr J. B. Miller, Bishopcleeves, Deputy Chairman of Representative Body
 Mr. H. S. Southern, London, Immediate Past-Chairman of Council

COUNCIL

Dr O. Marriot, Merstham.
 Dr H. B. Morgan, London.
 Dr W. Paterson, London.
 Col. A. H. Proctor, Dublin.
 Dr J. P. Shanley, Dublin.
 2 vacancies.

Finance Committee

Dr T. Craig, Dudley, Northumberland.
 Dr J. T. Gardner, Pontefract.
 Dr J. T. McCutcheon, Glasgow.
 Mr. A. M. A. Moore, London.
 Chairman of Organization, Journal, Science, General Practice, Central Ethical, and Insurance Acts Committees.

General Practice Committee

Dr H. W. Bowyer, Bolton.
 Dr O. Carter, Bournemouth.
 Dr R. W. Cockburn, London.
 Dr T. Craig, Dudley, Northumberland.
 Dr I. D. Grant, Glasgow.
 Dr F. Gray, London.
 Dr J. A. L. Vaughan Jones, Leeds.
 Dr H. W. Poole, Ashover.
 Dr A. T. Rogers, Bromley.
 Dr S. Wand, Birmingham.
 1 vacancy.
 1 member appointed by each of the following Committees: Special Practice, Public Health, Hospitals, Insurance Acts.

Hospitals Committee

Prof. A. H. Burgess, Cheshire.
 Mr. W. McAdam Eccles, London.
 Mr. A. S. Gough, Watford.
 Mr. H. J. McCutcheon, Hove.
 Dr. W. S. Macdonald, Leeds.
 Mr. R. L. Newell, Cheshire.
 Mr. F. A. Roper, Exeter.
 Mr. H. S. Southern, London.
 Brigadier A. Hedley Whyte, Newcastle-upon-Tyne.
 1 appointed by the Public Health Committee.
 1 nominated by Medical Superintendents Society.
 With power to co-opt 3 additional members.

Insurance Acts Committee

Dr. P. V. Anderson, Shildon.
 Dr C. Baxter, Liverpool.
 Dr J. A. Brown, Birmingham.
 Dr I. L. McKenzie Brown, London.
 Dr A. Campbell, Ayrshire.
 Dr H. R. Cran, New Malden.
 Dr D. R. Evans, Coodpoth.
 Dr F. Gray, London.
 Dr E. A. Gregg, London.
 Dr C. H. Gregory, Rugby.
 Dr J. Hallam, Stoke-on-Trent.
 Dr H. F. Hollis, Leeds.
 Dr D. L. S. Johnson, Halifax.
 Dr W. Joyce, Blarney.
 Dr W. M. Knox, Glasgow.
 Dr I. F. Lambie, Glasgow.
 Dr J. Leach, Inverness.
 Dr E. Lewis Lilley, Leicester.
 Dr. Moya Macrae, Newcastle-upon-Tyne.
 Dr J. C. Pearce, Diss.
 Dr L. J. Pickett, Holmes Chapel.
 Dr A. T. Rogers, Bromley, Kent.
 Dr C. F. T. Scott, London.
 Dr W. H. Smalley, Huddersfield.
 Dr N. B. Stewart, Edinburgh.
 Dr W. E. Thomas, Ystrad Rhondda.
 Dr D. O. Twining, Salcombe.
 Dr S. Wand, Birmingham.
 Dr D. J. B. Wilson, High Wycombe.
 Dr S. A. Wisniewsky, Wymston.
 Dr H. S. Howie Wood, Isle of Wight.
 6 vacancies.

3 vacancies.
 6 elected by Annual Conference.
 1 nominated by Hospitals Committee.
 1 nominated by Medical Women's Federation.
 1 nominated by Society of Medical Officers of Health.
 With power to co-opt up to 4 non-panel practitioners.

Journal Committee

Dr O. T. Carter, Bournemouth.
 Dr J. C. Clayer, Southampton.
 Dr J. C. Eastmond, Aberdeen.
 Dr D. C. Clark, Surrey.
 Dr L. J. Pickett, Holmes Chapel.
 Dr H. R. Robinson, Bournemouth.
 Dr R. W. L. Ward, Dorchester.
 Chairman, Central Ethical Committee.
 1 member appointed by Organization Committee.

Journal Board

Prof. R. J. A. Berry, Omskirk.
 Col. R. G. Gordon.
 Dr J. C. Matthews, Bournemouth.
 Dr H. Robinson, Bournemouth.
 Major R. Scott Stevenson.
 The Treasurer.

Dumfries Committee

Dr A. Baird, London.
 Mr. R. J. A. Berry, Omskirk.
 Mr. E. R. Bower, London.
 Mr. J. C. Matthews, Bournemouth.
 Dr W. H. Robinson, Bournemouth.
 Dr H. S. Howie Wood, Isle of Wight.

(Lancashire) Committee

Dr A. Baird, London.
 Mr. R. J. A. Berry, Omskirk.
 Mr. E. R. Bower, London.
 Mr. J. C. Matthews, Bournemouth.
 Dr W. H. Robinson, Bournemouth.
 Dr H. S. Howie Wood, Isle of Wight.

Central Ethical Committee

Dr A. Baird, London.
 Mr. R. J. A. Berry, Omskirk.
 Mr. E. R. Bower, London.
 Mr. J. C. Matthews, Bournemouth.
 Dr W. H. Robinson, Bournemouth.
 Dr H. S. Howie Wood, Isle of Wight.

COMMITTEES

The President, the Chairman of Council, the Chairman of Representative Body, and the Treasurer are members of all Standing Committees.
 Dr A. Baird, London.
 Mr. R. J. A. Berry, Omskirk.
 Mr. E. R. Bower, London.
 Mr. J. C. Matthews, Bournemouth.
 Dr W. H. Robinson, Bournemouth.
 Dr H. S. Howie Wood, Isle of Wight.

Scottish Committee

Dr P. Martin Brodie, Edinburgh.
 Dr W. D. Frew, Kilmarnock.
 Dr J. D. Grant, Glasgow.
 Dr J. Hunter, Hove.
 Dr J. F. Lambie, Glasgow.
 Dr D. Dale Logan, Newmains.
 Dr G. Macgregor, Douglas, Lanark.
 Dr K. McEay, Glasgow.
 Dr A. F. W. Milne, Edinburgh.
 Dr G. W. Miller, Dundee.
 Dr A. Smith, Glasgow.
 Dr J. G. B. Shand, Cullis.
 Dr J. T. Simpson, Perth.
 Dr John Young, Edinburgh.
 With power to co-opt not more than 2 members.
 13 vacancies.

Special Practice Committee

Prof. A. H. Burgess, Cheshire.
 Mr. L. Douglas Calder, Doncaster.
 Mr. Hugh Carson, Birmingham.
 Mr. A. S. Moore, London.
 Mr. H. S. Howie Wood, Isle of Wight.
 Mr. D. J. B. Wilson, High Wycombe.
 Mr. S. A. Wisniewsky, Wymston.
 Mr. H. R. Robinson, Bournemouth.
 Dr R. W. L. Ward, Dorchester.
 Chairman, Central Ethical Committee.
 1 member appointed by Organization Committee.

Wales Committee

Dr H. R. Frederick, Port Talbot.
 Dr J. A. Ireland, Shrewsbury.
 Dr W. E. Thomas, Ystrad Rhondda.
 Secretaries of the North Wales and South Wales and Monmouthshire Branches.
 Mr. D. N. Jones, Cardiff.
 Mr. D. N. Jones, Cardiff.
 Chairman and Secretaries of Welsh Central Practice Subcommittee.
 Members elected by Divisions situate wholly or in part in Wales (including Monmouthshire).

Science Committee

Prof. R. J. A. Berry, Omskirk.
 Mr. L. R. Bowers, London.
 Mr. V. Zachary Cope, London.
 Sir Henry Dale, London.
 Mr. W. McAdam Eccles, London.
 Dr C. O. Hawthorne, Hove.
 Prof. Sir Ewen Maclean, Cardiff.
 Sir Humphry Rolleston, Haslemere.
 Prof. R. J. Williams, Newcastle-upon-Tyne.
 Prof. J. Young, Maidenhed.

Public Health Committee

Dr H. S. Brown, Chippingham.
 Dr O. T. Clayer, Southampton.
 Dr W. E. Dorman, Sheffield.
 Dr F. E. Gould, Birmingham.
 Dr J. C. Matthews, Bournemouth.
 Dr H. W. Poole, Ashover.
 Dr F. A. Roper, Exeter.
 Capt. S. Laurie Smith, Brookwood.
 2 vacancies, and with power to add additional members.
 Service members:
 Dr J. Fenton, London.
 Dr T. N. V. Poir, Wakefield.
 2 members nominated by Society of Medical Officers of Health.
 1 member appointed by General Practice Committee.
 1 member appointed by Hospitals Committee.

Organization Committee

Dr H. S. Brown, Chippingham.
 Dr O. T. Clayer, Southampton.
 Dr W. E. Dorman, Sheffield.
 Dr F. E. Gould, Birmingham.
 Dr J. C. Matthews, Bournemouth.
 Dr H. W. Poole, Ashover.
 Dr F. A. Roper, Exeter.
 Capt. S. Laurie Smith, Brookwood.
 2 vacancies, and with power to add additional members.
 Service members:
 Dr J. Fenton, London.
 Dr T. N. V. Poir, Wakefield.
 2 members nominated by Society of Medical Officers of Health.
 1 member appointed by General Practice Committee.
 1 member appointed by Hospitals Committee.

Naval and Military Committee

Dr A. C. L. Burgess, Birmingham.
 Dr A. W. Merrick, St. Helens.
 Representative on Council of R.N. Medical Service and I.M.S.
 Representative on Council of R.A.F. Medical Service and I.M.S.
 R. W. D. Lewis, Nottingham.
 Representative on Council of R.A.F. Medical Service and I.M.S.
 Vice-Marshal Sir Victor Richardson, Gerrards Cross.
 2 vacancies, and with power to add additional members.
 Service members:
 Dr J. Fenton, London.
 Dr T. N. V. Poir, Wakefield.
 2 members nominated by Society of Medical Officers of Health.
 1 member appointed by General Practice Committee.
 1 member appointed by Hospitals Committee.

Correspondence

"Evolution, not Revolution"

SIR.—This is the heading of Mr. Somerville Hastings's letter (*Supplement*, Sept. 25) and he promptly proceeds to propound a revolutionary change in the medical profession because his plan "answers every doubt and difficulty raised by all other partial plans which Dr. Anderson rightly scorns." I like Mr. Hastings better than Dr. Anderson because he has thrown his hat over the fence and boldly jumped off the end of the pier in order to save the nation's health; I hope he is a good swimmer. What Socialists or Tories should give profound thought to is that the moment is the most inopportune for introducing any form of totalitarianism for reasons which must be obvious to all but those who think it might be easier to ram it through while the pick of the manhood and womanhood of the nation are debarred from voicing their opinion. In a Sunday newspaper Mr. Morrison states that the people are in the mood for Socialism. Are they? Wouldn't it be wiser to wait till the war is over and then test them. Leave State medicine alone now, at any rate.—I am, etc.,

St. Ossih.

R. G. CLARKE.

Medical Care of School Children

SIR.—The recent White Paper on educational reconstruction may at first sight appear to be of little more than academic interest to the medical profession, but paragraphs 93 and 94 concern us closely, especially paragraph 94. It reads as follows:

"The setting up of a comprehensive national health service will eventually ensure that all forms of treatment which school children require will be available to them through that service. When this stage is reached it will no longer be necessary for local educational authorities to provide treatment, and their functions will be confined to providing medical inspection and seeing that the children and parents are properly advised and encouraged to seek, through the new health channels, any treatment the children may need. Pending the completion of the new service, it will be necessary for local education authorities to continue their present provision and indeed to provide additional facilities for treatment. It is proposed, therefore, to make it the duty of local education authorities to provide for the medical inspection of all children and young persons attending grant-aided schools, and to take such steps as may be necessary to ensure that those found to be in need of treatment, other than domiciliary treatment, shall receive it. No charge will be made for medical treatment for any of these children or young people."

It is to be noted that the setting up of a comprehensive national health service is taken for granted, and that meantime it is proposed to provide free treatment, other than domiciliary, for all children attending grant-aided schools. This appears to me to constitute a considerable State-subsidized cut into private practice, and also to provide a means whereby very considerable pressure may be brought to bear in favour of the establishment of the already taken-for-granted State Medical Service.

It is nonsense to say that the education authorities are merely going to provide

treatment that the G.P. is unwilling or unable to provide; it is merely another illustration of the way in which public health services invade the territory of private practice. It is at least arguable whether the school medical officer can supply treatment in any way comparable with that offered by the family doctor, with his superior experience of treatment and diagnosis and his incomparably greater personal knowledge of the patient and of his home surroundings. However this may be, much is implied or taken for granted in paragraph 93, that merits consideration by the profession, for the implications have much to do with the larger question before us to-day—the question posed by Assumption B.—I am, etc.,

Wolverhampton.

VICTOR RUSSELL.

Demobilization

SIR.—In recent months many letters have appeared in the *Journal* from serving M.O.s, but none has mentioned the problem of demobilization and future service with the Armies of Occupation; there seems little doubt that the latter will be formed. The general impression prevalent is that those with the longest service will be demobilized first; this seems quite fair at first, but what of those M.O.s whose careers have been such that since qualifying they have had no clinical experience? I know of many young M.O.s who, since qualifying, had approximately 3 months as house officers and then had to join the Forces. Since joining up they have spent their time in field ambulances—the last place where medical duties are performed—and as unit M.O.s. It can be truly said that they have had no experience in medicine since qualifying. Surely they deserve some consideration. One must remember that those who joined the Forces in 1939–40 had had a good deal of hospital and G.P. experience, and should get an early release.

Lastly, who are going to be the M.O.s in the Armies of Occupation? Are the M.O.s with least service going to be retained? Personally I feel that those who have been in the E.M.S. service gaining experience and taking higher qualifications if they so desire should be called up for this job. The question of medical categories will not arise, and in any case there are sufficient A.I. men in the E.M.S.—I am, etc.,

SERVICE M.O.

Coming Events . . .

SIR.—A fitter in an aircraft factory came to my surgery last night suffering from inflammation of the skin over the patella with a large area of erythema spreading around. The body temperature was raised to 101° F. At the factory, he told me, a very nice x-ray plant and electrotherapeutic department had recently been installed. A précis of his story runs as follows: Seven days ago he consulted the works doctor because of a spot on his knee. The doctor glanced at it and ordered an x-ray "to see if there was anything in it." The x-ray showed that there was nothing in it; so after another cursory examination he was relegated to the nurse in charge of electricity for "ultra-rapid wave treatment." This treatment was continued until the patient departed for home.

I do not wish to argue from the particular to the general, nor to lay too much stress on the report of a patient. The value of the story to my mind

depends upon its implications, which I believe lie at the root of much of the fear and distrust among medical men of a comprehensive medical service—money to burn where equipment is concerned: x-rays *ad lib.*, and no need to count the cost; references through a chain of special departments certainly if only to protect oneself: nurses, masseuses, electricians, stenographers, statisticians: everything, in fact, except the doctor.

Now these fears we hope are groundless, but I do not think they are entirely fantastic. It would be a great relief to know in advance, before the old order is broken down, that they cannot, and shall not, be allowed to materialize in the new. This is an age in which the nations bow the head before the machine; and medicine—perhaps because of its peculiar blend of science, art, and craft—seems to be specifically prone to the fuddling influence of the pseudo. Let us then concentrate our thoughts for all we are worth on the central aspect of our calling, in which case we can safely leave the humanitarian side of it to look after itself.—I am, etc.,

Storrington.

W. R. E. HARRISON.

Faults and Remedies

SIR.—The letter from Dr. Terence Turner (*Supplement*, Sept. 25, p. 47) is very much to the point. The majority of the public and medical men agree that there is room for improvement in the health services of the nation, but I maintain that the faults are not to be found in the services or accounts rendered by the general practitioner. What are, then, the predominant faults and immediate needs of our present health services? I will enumerate the chief difficulties which face the general practitioner and hamper the health and happiness of the nation: also, I will endeavour to propound a scheme for their remedy.

The difficulties are: (1) Inability at present to get the necessary laboratory tests carried out on the poorer class of patients without sending them to hospital. (2) The overcrowding of the out-patient departments of our hospitals. (3) The great and crying need for more hospital beds for all classes of patients, but more especially for early malignant and chronic cases. (4) The lack of accommodation for the infirm and old unless they are sent to the Poor Law institution with its prison-like surroundings and its attendant stigma.

The remedies are as follows:

(1) In the great majority of cases where the diagnosis is difficult the practitioner does not lack the knowledge to interpret the meaning of laboratory reports, but he does lack facilities for having these tests carried out except in the case of his more wealthy patients. The whole country should be divided into districts, each of which should be supplied by a central clinical laboratory staffed by appropriate specialists. The general practitioner could then send any patient to have blood examinations, test-meals, x-ray examinations, autogenous vaccines, etc. He would also be able to have a personal interview with any member of the laboratory staff. If after receiving the data thus provided he is still doubtful regarding diagnosis or treatment, the case, together with the full literature, could be sent to hospital for a physician's or a surgeon's opinion.

(2) These arrangements would relieve enormously the number of patients attending the out-patient department of the hospitals, where often at present the

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 6 1943

FUTURE MEDICAL SERVICES

Corrigendum

particularly unfortunate misprint crept to the Supplement of Oct. 30 (p. 75), in motion before the A.R.M., that "a whole-time salaried State medical service is not in the best interests of the community" was carried by the large majority of 200 votes to 10, and not 20 to 10 as stated.

THE AYLESBURY PLAN

BY

RAYMOND GREENE, D.M., M.R.C.P.

*Chairman, Aylesbury Medical Planning Group
(B.M.A.): a Representative of the
Buckinghamshire Division, A.R.M.,
Sept., 1943*

This paper is an abstract of the views which I have expressed from time to time to the Planning Group of which I am chairman.* These views were first formulated during my enforced inactivity during the "phony war." Many of them have since been advanced by others, and some have become almost generally accepted. Nevertheless I give them in full here because, although many of them by no means new, it seems wise to include them in order that the plan which I am presenting may be complete.

It is now generally admitted that the present organization of the health of the country is entirely inadequate and that it should be radically reconstructed. A gradually increasing number, both within and without the medical profession, are tending to the belief that the health of the people can only be ensured by the central control of all relevant services. For many years no suggestion for bringing this about was forthcoming except that of control by the Ministry of Health. Recently a suggestion has been made from many quarters that some other form of central control, based perhaps on one of the semi-autonomous Government boards, would be a feasible alternative.

The ultimate control of the health of the people is a matter for the people themselves, and must therefore be controlled by Parliament and not by doctors or by any medical organization. On the other hand, communal health can only be assured if the medical profession is contented with its terms of service. For this reason I am convinced that an organization centred in the Ministry of Health is bound to be unsatisfactory. The majority of doctors are strongly individualistic and independent in outlook. They have been trained from early years to accept full personal responsibility for all their actions and to maintain direct personal touch with those for whom they work and with those under whom they serve. The Civil Service tradition, adequate though it may be to maintain efficiency in many

branches of public government, is one entirely foreign to the mentality of most doctors. I have had much recent experience of the sense of frustration which Civil Service methods can induce in men who are accustomed to more direct dealings and personal responsibility.

The suggested alternative to the Ministry of Health is one far more likely to secure the support of doctors in general and, I am convinced, far more likely to lead to efficient organization of the public health. In the scheme that follows, this central organization is referred to as the National Board of Health.

National Board of Health

The National Board of Health would consist partly of appointed members, partly of *ex-officio* members, and partly of elected members. Its functions would be the control of medical policy for the whole nation and the control of all medical funds. It would be the adviser to the Government of the day on all medical questions and would have power through its chairman to initiate medical legislation in Parliament. Its chairman should be either a Secretary of State for Health with a seat in the Cabinet or, alternatively, a full-time officer acting as intermediary between the Board and the Secretary of State.

The appointed members would be appointed either by Parliament or by the Privy Council, and would be laymen. It is possible that the majority of them would be laymen who had shown a strong interest in the past in medical organization and were intimately acquainted with its problems. The *ex-officio* members would be the Presidents of the Royal Colleges of Physicians and Surgeons and of the British Medical Association. The elected members would be the chairmen of a number of consultative councils, the constitution of which will be described afterwards.

Regions

For the purposes of all health administration the country would be divided into regions according to the system of the Nuffield Trust. The regional councils would control not only the hospitals in their respective regions but the public health services and preventive medicine and the treatment of the sick—including general practice, the care of the chronic sick and the mentally deficient, health propaganda, and ambulance services. In fact, all questions concerning the health of the inhabitants of the region would be the province of the regional council and of nobody else. The regional councils would be financed by the National Board of Health, and would be to a very large extent autonomous. The National Board would have powers of inspection and, by means of its control of finance, would be able to exercise such ultimate control over the regional councils as it might find necessary.

The Advisory Councils

The National Board of Health would be advised by a number of elected councils, whose chairmen, as explained above, would be members of the Board. These councils would consist of members of the medical profession elected by their peers for periods of five years. It is essential that they should remain active members of the profession, for experience has shown that doctors who become whole-time administrators rapidly lose touch with medical opinion in the world outside. The members of the councils would be adequately paid in order that they might be the gainers rather than the losers by their election. They would be elected on a regional basis.

1. *The General Practice Council.*—This would consist of general practitioners representing the general practitioners of different regions. Its functions would be the supervision of general medical practice throughout the country, its powers being exercised by its right at any time to advise regional councils on the one hand and the National Board of Health on the other.

2. *The Public Health Council.*—This council would consist of representatives of medical officers of health, who would be employed by regional councils. Medical officers of health would in future be the advisers and not the servants of local governments. Their opinions would in this way carry far more weight, and it would be possible for them, through the Public Health Council and the National Board of Health, to bring far greater pressure to bear on local government authorities.

3. *The Hospitals Council.*—The work of this council would be the supervision and inspection of all hospitals, of every kind, throughout the country. The present arrangement by which hospitals are run by innumerable different Government Departments, local governments, and private bodies would cease and their financial control would rest with the council, elected on a regional basis by the hospital physicians and surgeons.

4. *The Research Council.*—This council would be precisely similar to the Medical Research Council as it exists to-day. The Medical Research Council is interesting as an example of the efficiency and lack of friction with which a semi-Government Department may be run by doctors, the majority of whom are part-time administrators.

5. *The Disciplinary Council.*—This council would be, in fact, the General Medical Council as it exists to-day, but concerned only with the disciplinary activities of this council. Consideration should be given to the question whether doctors should have the right of appeal against its decisions to the High Court.

6. *The Council of Medical Education.*—This council, consisting of the elected representatives of the teaching schools, would assume the educational functions of the General Medical Council.

7. *The Council of Popular Education.*—This council, the members of which would be nominated by regional councils and by the Board of Education, would be concerned with health propaganda through schools, broadcasting, cinemas, posters, newspapers, etc.

8. *The Pharmaceutical Council.*—The time is clearly approaching when the high standard of knowledge now required of

* It has been accepted in 1940 by the Aylesbury Group, and in 1942 was largely accepted by the Buckinghamshire Division of the B.M.A.

Correspondence

Medicine under State Control

SIR,—I have received the following letter from a relative serving with the R.A.M.C. in the Mediterranean theatre of war, in reply to questions about his views on medical politics and the future of medical practice:

"Medical politics: A year ago perhaps I might have given you an opinion. Now, however, I feel too divorced from peace and home to give it serious attention or even to remember the problems.

"My impression is that I, and probably most of the general duty M.O.s out here, think in our heart of hearts that complete State control is the only answer. For one thing, we can't hope that the State will finance and not control; for another, the administration of the Army in action is really getting good—it impresses us. We cannot disguise that central control makes for efficiency. In an Army at rest the inevitable red tape and excess paper creep in, of course, and that is how it would be. But none the less, I think complete State control would be the most efficient method and would confer the greatest benefit on the nation.

"Another very big influence with us M.O.s in the field is that almost our entire job is preventive medicine. We maintain health and prevent disease. If a chap gets ill, we have failed. He is evacuated. We never treat. We have no interest in curative medicine. Our whole training is designed to this end. We are all very experienced now in preventive medicine. We are impressed with what can be done by hygiene. We realize its importance in the future. Have you seen the M.E. statistics (medical)? They are incredibly satisfactory. All due to preventive medicine. In our heart of hearts we know that we cannot practise preventive medicine in private practice.

"Individually we don't like the idea of State control. To us peace spells liberty and freedom from control. Also we know that we have forgotten our medicine, that we are getting old. We fear that the State jobs will go to the young chaps at home with higher degrees and specialized knowledge.

"Finally, we should obviously base our 'medical politics' on the results of the experiment made in New Zealand."

The writer of this letter was in general practice for six years before the war, and has served with the R.A.M.C. over-seas since June, 1940. I am not disposed to defend or attack these views, but only to point out that many men with long service over-seas are in no position, and still less in the right frame of mind, to plan for the future.—I am, etc.,

Ipswich.

RONALD JONES.

Locumtenents' Fees

SIR,—At the Fife panel practitioners' annual meeting held on July 18 the question of the increase of locumtenents' fees since 1939 was considered at considerable length. Grave dissatisfaction was expressed at the increased fees demanded and the attitude of the B.M.A. as reflected in the advertisements in the *Journal* by doctors wishing such posts. It was the unanimous finding of the meeting that I should voice strong protest at the continued rise in the fees demanded and at the direct encouragement given by the B.M.A. by inserting such advertisements—e.g., July 10, "a 2-weeks seaside locum, hospitality wife and child, twelve guineas weekly."

We cannot understand our official publication directly encouraging this exploitation of the general practitioner and demand that such advertisements in future

be refused. We realize that this is a democratic country and that the basic principle we are fighting for is freedom, but we also realize that we are at present waging total war which necessitates temporary curtailment of freedom of action in our profession as in other spheres.

The question of locumtenent supply in death vacancies—a heavy drain on the estate—until a purchaser is found, in carrying on a disabled doctor's practice, and in making possible a holiday for the overworked doctor with a relatively small income, has given me considerable thought. So far as I know no concrete scheme has yet been considered to ensure "leave" for the general practitioner who is carrying on his shoulders the additional work of absentee doctors on service, Civil Defence, certification, medical recruiting boards, Ministry of Labour referee work, etc. Every civilian practitioner should find it possible to obtain an annual holiday, not only in the interests of his own health but on the ground that he would do better work. The tendency with many doctors at present must be to become tired both mentally and physically.

I fail to see why a scheme to ensure a locumtenent service for the civilian doctor has not been initiated long ere this by the B.M.A. and the Central Medical War Committee acting in collaboration in each area. Every new graduate in medicine is subject to the National Service Act. I understand the C.M.W.C. has power to direct a graduate into the hospital service but not into civil practice. I suggest that the required number be directed into hospital service and the remainder be available on application as locumtenents for doctors temporarily unfit or in need of a rest. Locum work may be spasmodic at times; I therefore suggest to ensure continuity of service that the Government employ a certain number of doctors in E.M.S. hospitals who would be available when required for such duties. This scheme would ensure a steady supply of young doctors for hospital posts and reliefs for civilian practitioners.

The fee for a locumtenent should be definitely fixed for the period of the war. This would put an end to the pernicious practice at present existing which enables the highest bidder to obtain a locumtenent, and makes it impossible for the doctor in less fortunate circumstances to compete, thus robbing him of the vacation which he usually requires more than his richer colleague who often enjoys the advantages of a partnership.—I am, etc.,

F. McEWEEN SINCLAIR,
Chairman, Fife Panel Committee.

Recollections and Reflections

SIR,—What has been termed group practice, health centre, etc., has not had the necessary time given to its clarification. A few notes from an advocate of over 40 years should be of interest.

As a student I decided that for efficiency of service the general practitioner must form one of a team; experiences of practice confirmed this and indicated the ways of implementing. The proposals by the Government to introduce a scheme for health insurance seemed to present a golden opportunity for the profession to take positive action; the Bill as introduced and the reactions of the profession were grievous disappointments. I condemned the Act as being unworthy of our country and our profession. I put forward my own ideas as

the better alternative—a group practice scheme based upon small general hospitals serving the whole community and financed by insurance, by contributions, and by private payments, practitioners or home doctors being supplemented at the hospitals by consultants, pathologists, psychologists, etc. I was usually listened to with interest and ruled out of order: I realized when it was too late that I ought to have thought out amendments instead of a whole alternative. I stressed the importance of recognition of the rapidly increasing complexity of medical science; adoption by the whole profession of a positive attitude, and acceptance of responsibilities for teaching health of body and mind, regarding the family as the unit; periodic overhauls by the team; compilation of private dossiers to be registered under a number and preserved as secret; the need for lectures and social services under advice by a local medical committee elected and appointed as representative of all types of health services. I made many prophecies, among these that the Act would commercialize a noble profession, lower its status, and lessen people's respect; that it would attract a different type, one less filled by love of humanity; that it would tend to increase functional disorders rather than lead to early discovery of organic diseases; that it would perpetuate rather than correct existent errors; that its gaps and deficiencies, particularly in neglecting the families, would be filled by other State measures; that the profession were throwing away their golden opportunity, possibly never to recur, and were extinguishing the family doctor and replacing him by a medicine-giver and certificate-writer; and that the only good point of the Act was that which they appeared to be chiefly concerned in fighting—namely, the provision of definite payments for a very large class of people previously treated by charity or semi-charity. These prophecies were not approved and undoubtedly cost me sympathy. Have they been fulfilled?

War experience and war service confirmed the rightness of my plans and turned me very strongly against administration under a State service. The Dawson scheme was published in 1919. There were points of similarity, but buildings and architecture and central organization were set forth prominently; in contrast local development around small general hospitals with decentralization or building up from the periphery formed the foundation of the group scheme.

In 1931 a committee for planning a medical service for the nation was appointed by the B.M.A.; on this I was co-opted as an advocate of the group scheme. Many of my points were incorporated, but the scheme as a whole was rejected on the ground that it might be used as a means for introducing a State Medical Service. I endeavoured to show that it was a compromise, substitute, and safeguard, but I was unsuccessful. It is of interest to note that the profession as a whole rejected my points so that most of them were omitted from the amended scheme of 1938. The Planning Commission of 1942 brought ideas of group practice and health centre into the light again; but by reason, I feel, of the use of this term by the Socialist Party, they have not had the sympathetic consideration which they merit.

Nottinghamshire, and Nottingham will be the object of ascertaining their views on a full-time salaried State Medical Service and the extension of national health insurance.

DIARY OF SOCIETIES AND LECTURES
ROYAL COLLEGE OF SURGEONS OF ENGLAND, LINCOLN
ROYAL FIELDS, W.C.—THURS., 3.15 p.m. President and
 Lecture by Mr. H. S. Soutter: Physics and its
 Surgeon.
ROYAL SOCIETY OF MEDICINE.—THURS., 2.30 p.m.
 Section of Experimental Medicine and Therapeutics;
 2.30 p.m. Section of Psychology, *Phil.* 1.15 p.m.
 Section of Physiology, *Phil.* 1.15 p.m.
Clinical Section: 5 p.m. Section of *Ophtalmology*
CHANDLER TRUST.—At Royal Sanitary Institute, 90
Birmingham Palace Road, S.W., THURS., 2.30
p.m. Mr. J. H. Forthwaite: Town Planning and
 Health.
EDINBURGH UNIVERSITY.—THURS., 2 p.m. Col. J. A.
 Macdunnagh, R.C.A.M.C.: Carcinoma of the Rec-
 tum and Sigmoid.
Medical Society of London, H. I. Charles Street,
W.—MON., 4.30 p.m. Prof. H. I. Seldon: Sur-
 vey of the Nerve Gap.

H.M.A.: Day of Central Meetings
 NOVEMBER
 18. THURS. Journal Committee, 2 p.m.
 Branch and Division Meetings to be held
 Newcastle-upon-Tyne and Northern Counties Medical
 Society.

The society at the Royal Victoria Hospital demonstrated
 Thurs., Nov. 11, 7.15 p.m. Clinical demonstration
 and Mr. J. Brummell, 8.45 p.m. Address by Mr.
 H.M. Fowler: Bones are not so dry. Members of
 the society are invited to attend.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 13 1943

ANNUAL PANEL CONFERENCE

The annual conference of representatives of Local Medical and Panel Committees was held in the Great Hall of the B.M.A. House, London, on Oct. 28. Dr. J. A. BROWN (Birmingham) was chairman of the conference and was supported by Dr. E. A. Gregg (chairman of the Insurance Acts Committee) and Dr. H. Guy Dain (Chairman of the B.M.A. Council). At the beginning of the conference a message was sent to Dr. G. C. Anderson, Secretary of the Association, who is ill, expressing the hope that he would make an early and complete recovery.

INSURANCE CAPITATION FEE

Dr. GREGG read the following letter, dated Oct. 21, from the Ministry of Health:

"I am directed by the Minister of Health to refer to your letter of Oct. 8 and previous correspondence relating to the remuneration of insurance practitioners, and to say that he and the Secretary of State for Scotland agree in principle that a wartime increase in the capitation fee should be granted on account of the increase in the cost of living, under conditions as nearly as possible similar to those which apply to the remuneration of civil servants, and they are willing that the increase should operate as from April 1, 1943.

"The circumstances of practitioners who are paid by fees for part-time services differ widely from those of officials remunerated by fixed salaries for whole-time service, and as the Association realize it will not be practicable to devise a scheme which would give every individual doctor precisely what he would receive under civil service conditions.

"It is suggested, therefore, that the most equitable plan would be that a wartime bonus should be granted to insurance practitioners whose total net professional earnings from all sources do not exceed £850 a year.

"The bonus payable to a full-time civil servant who earns between £500 and £850 per annum is £25, but in view of the part-time nature of the services rendered by doctors under the National Health Insurance scheme the actual amount of bonus payable will have to be related in some way to the amount of the capitation fees.

"The calculation of the amount of bonus appropriate to practitioners with National Health Insurance incomes of varying amounts should, therefore, it is suggested, take the form of a percentage of the total amount of the capitation fees received by them—the percentage figure being fixed so as to take account of the fact that some part of these fees is absorbed by practice expenses.

"If the Association accept this offer in principle, the Minister and the Secretary of State will be glad to examine the matter further with them with a view to determining the appropriate percentage."

Dr. Gregg described the letter as an entirely unsatisfactory document, but knowing the Ministry as he did from past experience in other relationships he felt that it might provide a foundation upon which some kind of further discussion might take place.

It was agreed to postpone the consideration of the letter to a later stage

in the meeting after representatives had had an opportunity to study its contents. Meanwhile the discussion on certain motions dealing with the capitation fee in general was taken.

Dr. A. T. ROGERS (Kent) moved to ask the Insurance Acts Committee to press for immediate arbitration with a view to securing a wartime increase. Their case was based on the shift of insurance risk, the increase in short-term sickness, and the number of patients who came to their surgeries debilitated and war-weary and desiring some form of treatment which would enable them to remain at work. The motion was supported by Dr. J. H. BENNETT (Kent) and Dr. H. R. CRAN (Surrey). Dr. S. WARD was doubtful as to the wisdom of instructing the committee to apply for arbitration at the present moment; resort to this procedure should be left to the committee's discretion.

Dr. GREGG said that they were faced with many conflicting issues at the present moment, and it would be inopportune to embark upon the presentation of their case in the existing situation. He would love to do it, but it would be wise to be patient. Dr. ROGERS said that if arbitration were not accepted there were only two other possibilities—to accept the Minister's decision or to withdraw service. The motion was lost.

Dr. K. WATSON (Surrey) moved a resolution deploring the delay on the part of the committee in collecting information from Panel Committees regarding the probable degree of support upon which they could count. Dr. T. J. COSTELLO (Lancashire) strongly supported this motion, especially in view of the Minister's letter. Dr. J. A. PRIDHAM (Dorset) thought this was the wrong way to go about it. When the time came the Insurance Acts Committee must say what they were to do. They had access to information and could take a wide view. Dr. A. CAMPBELL (Accrington) supported the motion. Dr. F. M. ROSE (Preston) said that they were tired of hearing from their constituents that the Insurance Acts Committee did nothing; they wanted to know what their constituents were prepared to do.

Dr. A. S. WINSTANLEY (Lancashire) stated that a few weeks ago the Lancashire Panel Committee, of which he had been chairman for 15 years, passed a resolution of no confidence in the I.A.C. because it had not taken this step. The committee asked him to support that resolution, but he said that he could not conscientiously do so, and as the committee then passed a resolution directing its representatives to support it, he had no alternative but to resign his chairmanship of the Lancashire Panel Committee. He told his committee that there would in the future be a bigger fight than any on the capitation question, and he believed they would have the sympathy of the public in that fight; but if at this stage

they brandished the weapon of the strike they would alienate the public and the Press.

Dr. A. V. RUSSELL (Wolverhampton) said that it would be a tactical advantage to the I.A.C. to know what support could command, but it should be made clear that there would be no strike against their patients or refusal to treat them. Dr. J. HALLAM (Stoke-on-Trent) said that he represented a very militant group of medical men, but his group had not allowed its righteous indignation to war its judgment. In the battle of the capitation fee the rank and file would not be prepared to go the length of resignation. The issue had been overshadowed by the forthcoming White Paper.

The motion by Surrey was lost.

The Minister's Offer

The conference then considered the Minister's offer as expressed in his letter of Oct. 21 quoted above, and Dr. GREGG moved:

That the I.A.C. be instructed to inform the Ministry that its letter of Oct. 21 is most unsatisfactory and to discuss this letter with the Ministry on the basis of an increased capitation fee for all insurance practitioners in consideration both of increased work and of increased cost of living.

Dr. GORDON WARD (Kent) moved a amendment:

That this conference notes with pleasure the declaration of the Minister that he agrees in principle that a wartime increase in the capitation fee should be granted on account of the increase in the cost of living, and instructs the I.A.C. to negotiate accordingly, claiming a further increase on account of increased work and not seeking to relate the amount in any way to the earnings or bonus of civil servants.

He could not agree that this letter was wholly unsatisfactory. An important point in the letter was the acknowledgment that the conditions of insurance practice were entirely different from those of civil servants. It was of no use starting negotiations by declaring that the letter was wholly unsatisfactory. He agreed, however, to a suggestion to delete from his amendment the phrase "with pleasure."

Dr. S. WARD (Birmingham) said that this offer was only equal to the tip which the head waiter at a big London hotel received after a dinner party. The Minister was really offering them £25 which was the bonus payable to a full-time civil servant, divided by half, because it was recognized that practitioners derived about half their income from insurance and half from private practice though this ratio was different to-day when private practice was subsidizing insurance practice to a greater extent than before the war. Therefore it came to an offer of £12 10s., which, less tax was equivalent to £6 5s. To say that this was most unsatisfactory was an understatement.

Dr. Gordon Ward's amendment was lost. The motion by Dr. Gregg was then put and carried with one dissenter. A motion in the name of Fifehire was also

if it more on the lines on which Dr. Leachamp had spoken. Dr. BOYDE said that if Dr. Gregg could give a categorical assurance that there would be no two-way extension without a substantial increase he would withdraw the motion. Dr. GREGG said that before the question of the two-way extension could arise the matter would have to come before the conference and the question of remuneration would then come forward.

The motion was carried.

On a motion by Inverness requesting further information from the Representative Committee with regard to the Government's latest offer, Dr. DUN said that there had been considerable misunderstanding over this question of secrecy. Certain documents were produced by both sides in the conversations with the Ministry, and it was decided not to publish any of these documents. But the results of the conversations and the form they took were not subject to the same privacy. There had not been at any time any formal offer to the profession. In one of the documents a series of salaries was suggested, but received no approval; by some mischance this document got into the hands of the Press. The point of view of the Ministry was to create a number of centres all over the country for the running of a whole-time salaried service, to invite doctors now in practice to take their practices into the centre and work on a part-time basis, and to have newly qualified doctors come in completely whole time. The conversations were on the basis—the only basis the Ministry would then consider—that a service was to be provided for 100% of the population. The Representative Committee made its points, which were set out in the Principles since adopted, with almost no modification, by the Annual Representative Meeting. It was hoped that they had modified the Ministry's original suggestions, but to ascertain this the White Paper must be awaited. The delay had given opportunity for taking the opinion of the Representative Body, which showed that the committee had not misinterpreted the feeling of the profession. There were no "offers" and never had been. When the White Paper came out a questionnaire would be sent to every practitioner at home and abroad.

The Inverness motion was withdrawn.

Dr. J. H. E. MOORE (Leeds) moved that in the event of extension to include dependants the role of the approved societies should be that of collecting and distributing agents only. They did not ask for the abolition of approved societies—only for the limitation of their activities. The approved societies did not represent their members in any democratic sense, though on the claim to such representation they had secured 60% of the membership of insurance committees. Dr. F. R. ROSE supported the motion and was prepared to go further. The whole business of the approved societies should be thrown into the melting-pot and one central agency instituted for medical benefit.

The motion was carried.

Dr. A. W. HALL (Hampshire) had a motion deploring the acceptance by the I.A.C. of the inevitability of a comprehensive medical service. Dr. GREGG said that they had accepted the principle of a comprehensive medical service in association with the State from the time when the scheme for the General Medical Service for the Nation was put

forward. He did not see the bearing of this motion.

The motion was lost by a very large majority.

Preservation of Family Practice

Dr. J. KERR (Cheshire) moved:

That the family doctor should be the pivot of any future system and that all the advantages desired for the patient can be provided if hospitals fully equipped are available in which his doctor can either conduct examination and treatment or remain in touch with him if he places him under the care of a specialist.

Owing to the development of hospitals there had been a decline in the opportunities of the family doctor to give an adequate medical service in the home. Nevertheless, the life of a patient in a grave abdominal emergency depended as much on the skill of the general practitioner who made the diagnosis and initiated the treatment as upon the surgeon. Even midwifery, that stronghold of the family doctor, and at times comparable with major surgery in its skill and hazard, was passing into institutional hands. The Ministry had said that the new health service must be based on the family as a unit and the general practitioner as primary, attendant. If that be so, the family doctor must have a high standard of efficiency and the capacity to render full service to his patients. The young graduate in medicine was launched on his career with a knowledge of the science and art of his profession, but the best general practitioners were those who had undertaken the intensive experience and responsibility which resident hospital appointments could give, and the family practitioner who became honorary medical officer to a general hospital or to his local cottage hospital was thereby enabled to give a more comprehensive medical service. The new health service should provide hospitals fully equipped where the family doctor could conduct the examination and treatment or at least remain in touch with the patient. The proposed new regional hospitals should provide general-practitioner beds.

Dr. J. BARRY BENNETT (Cheshire), in supporting, spoke of the isolation in which general practitioners worked. They sometimes consulted with specialists, but seldom with other general practitioners. Dr. S. WARD said that the motion stressed for the first time an aspect which had not received open attention. He was convinced that the fundamental principle behind all improvements was the constant association of the general practitioner with hospital life. Dr. GREGG said that he was entirely in agreement with the point of view that every doctor should be directly associated with a hospital in his neighbourhood; at the same time there were men who were a considerable distance from a hospital, for whom such association was impossible.

The motion was carried unanimously.

OTHER BUSINESS

The Position of Rural Practitioners

In requesting the I.A.C. to investigate the financial position of the rural practitioner and endeavour to improve it and to investigate the adequacy of the dispensing capitation fee, Dr. J. A. PRIDHAM (Dorset) said he had reason to believe that the total professional income of the rural practitioner from all sources was very frequently not more than £500, and that practically no rural practitioner had an income of more than £850. As to the 3s. dispensing capitation

fee, he mentioned the case of a rural practitioner firm who, during the five immediate pre-war years, spent on the average £196 a year on drugs, whereas the amount for 1940 was £255, for 1941 £246, and for 1942 £338. Dr. G. MACFEAT said that the list of the rural practitioner was as a rule only about half that of his urban colleagues. Travel entailed for him disproportionate expense, time, and discomfort, and possibly even risk, and this was not covered by the mileage allowance. No single improvement in rural practice would have such excellent results as the provision of cottage hospitals linked up with district hospitals. The more expensive drugs of the present day were a severe tax on the rural doctor. Dr. J. L. PICTON said that there would be no difficulty in getting the information about the financial position of the rural practitioner. They had it in Cheshire in respect of 7 practices.

It was agreed to request the I.A.C. to do as Dorset suggested.

Elections

It was announced that Dr. J. A. BROWN (Birmingham) had been re-elected unopposed as chairman of the conference. The announcement was received with applause. It was also announced that the following six members had been elected by the whole conference as members of the I.A.C.: Dr. T. H. BATES (Newcastle), Dr. A. Beauchamp (Birmingham), Dr. G. E. Elkington (Shropshire), Dr. I. G. Innes (Hull), Dr. J. A. PRIDHAM (Dorset), and Dr. F. M. ROSE (Preston).

On the motion of Dr. N. STEVENS the conference with acclamation extended its congratulations to the recently repatriated medical members of the Forces on their return to this country, and expressed its deep sense of gratitude for their self-sacrificing services rendered in conditions of very great hardship.

National Insurance Defence Trust

Dr. J. W. BONE, Treasurer of the National Insurance Defence Trust, said that the invested assets now amounted to £276,000, an increase of £6,000 on the year. So far 66 Panel Committees had agreed to make every endeavour to complete their quota to bring up the Fund to £1,000,000. He drew attention to the fact that the Trust was sharing on equal terms with the B.M.A. the cost of the Public Relations Department.

Dr. GREGG moved the rescinding of a resolution passed at the 1938 Annual Conference whereby grants were made to aged or infirm insurance practitioners whose means were straitened, and against whom, in consequence of such age or infirmity, a complaint had arisen or was likely to arise. He explained that there was no intention to deprive anyone of any allowance, grant, or pension they were already receiving, but it was felt that there was a tendency for this provision, which was of an experimental character, to be looked upon as in the nature of charity.

The motion was opposed by two representatives, but was carried. A motion by Dr. J. G. F. HOSKEN (Gloucestershire), that any financial support granted to practitioners who required it owing to action taken by them in accordance with policy laid down by the conference should be in proportion to the contributions paid by their area, was not carried.

ANNUAL PANEL CONFERENCE

Dr. Dain said that he thought Dr. Pridham's criticism extravagant and very

The *Journal*, in spite of many difficulties, was rendering splendid service to the Association and the profession at this time. ("Hear, hear.") It was not possible to give up the whole of the *Journal* to medico-political matters to the division of scientific and clinical, and of Council it was his intention to balance was

Dr. HOWIE WOOD (Isle of Wight) supported the Dorset motion. The present medical profession, and the *Journal* should be prepared to put on one side the results of consiliencey for the time being articles on such subjects.

school children in other parts of the country. The Representative might be given to measure the showing might be insufficiently reported, and the medical matters. The Representative might have been shown that the decisions which would be an advantage to non-members, to have a detachable Supplement. It would be an advantage to get the medical Association's said to have reached. The Representative might be given to measure the showing might be insufficiently reported, and the medical matters. The Representative might have been shown that the decisions which would be an advantage to non-members, to have a detachable Supplement. It would be an advantage to get the medical Association's said to have reached.

could be an indication later on. It might be a business dinner that would not be wasted. I said that this was no business conference, but he thought present Board should pay some Journal to the decisions of the commission he asked that they be supported, and therefore he asked that they be supported.

The Dorset Medical Association has been asked to consider the possibility of moving its meetings from the old County Hall to the new County Hall, which is now being built. The Association has been asked to consider the possibility of moving its meetings from the old County Hall to the new County Hall, which is now being built.

[illegible]

in each year, made in a short time satisfactory.

The "great first for realized by the I.A.C. to request the journal during the present term illness was believed this to be the effect of travel." There was investigation. Dr. (Mingham) said that

He took as an example the recent Annual Report in his view the report of that meeting should have been in one issue of the *Journal*, instead of over three issues. Members had three weeks before learning the results. He had

...the new Chairman of Coun-
...for three weeks before learn-
...moved to the Ministry the

on the part of such individuals. He estimated that the delay did not on the average involve any individual practitioner financial loss, but it was an intolerable hardship to be made better.

[illegible]

On a motion by Gloucester A. W. Weston (D.) the report approving of medical treatment for the defendants of men in the Government provision of men in the Forces for the further words: "Provided that a guarantee be obtained from the Minister that any agreed capitation fee shall be without prejudice to a motion."

"That every opportunity should be taken by Southampton was also agreed to provide that an adequate capitation fee for insured persons on service in the National Health Insurance Scheme provided that an adequate capitation fee for this group of patients be previously approved."

Dr. G. de Swiet (London) asked the conference to express the opinion that it was undesirable that a pregnant woman should be employed on her work during the last six weeks of her pregnancy, as that financial provision should be made for accordingly. A similar motion was put forward from the last part of the meeting.

[illegible]

Dr. Gregg said that the committee had already been told that there were no special relations between the two men. He said that the committee had already been told that there were no special relations between the two men. He said that the committee had already been told that there were no special relations between the two men.

There were less than a dozen people at the London motion picture

the effect of wartime industrial health reports had already been factored in. Beauchamp (Birmingham) says that he has seen a case for a face mask in a factory and difficult hours and difficult conditions in large measure offset by the use of masks and the wearing of protective clothing. He says that the intervals of confinement would be more frequent than body would prefer and that as many as three months, but as many as a year, might have to be visited, often in a country where the weather would be most disagreeable. He agreed, should be made the least discretion.

Dr. Greco
continue to press this
and the motion was also
by London was also a
the opinion that a
days should not be
the issue of a conval-

series of motions were on the agenda the name of Bournemouth, all concerned with the question of certification. Dr. WARD pointed out that they were the business of the General Practice Committee, which had these questions under its constant supervision. One of the motions related to Form E.D.652 Ministry of Labour and National Service, and what Bournemouth considered the inadequate remuneration agreed for the provision of such information. GREGG said that there were two points in view in the profession with regard to certification. There was nothing to compel doctors to use it if they did not want to do so, but a number of members of the profession had expressed great appreciation of the certificate. This and other motions were all referred to the General Practice Committee.

Miscellaneous Motions

On the motion of Buckinghamshire the conference expressed its great appreciation of the work of the L.A.C., especially as regards the results of the negotiations concerning new entrants, medical records of men discharged from Forces, sickness benefit in relation to pregnancy, certain aspects of certification, and the inclusion in the schedule of appliances of hypodermic syringes and needles for the self-administration of adrenaline for the treatment of asthma. A further motion by Buckinghamshire, that any special fee accepted for treatment of former members of the Forces discharged on medical grounds could be regarded as the basic capitation fee in being, plus a percentage thereof, was scussed with the Ministry. The idea originally was that they should be prepared to accept a payment of 16s. 6d. for these particular cases, but a little later the Ministry wished to apply this only to cases which were demonstrated to have deteriorated as a result of war service. It was now able to inform the conference that in a letter dated the previous day the Ministry had given way and was prepared to pay 16s. 6d. for all men discharged from the Services on these grounds. The matter would be dealt with on the lines of the Buckinghamshire resolution, which was agreed to by the conference.

Several other motions remained on the agenda, but in view of the late hour a motion was agreed to, by 36 votes to 21, that they all be referred to the Insurance Acts Committee for consideration. At an earlier stage a motion by Lancashire had been carried that one day was not sufficient for the Annual Conference, and that in future it should be called for two days. During the later part of the proceedings the time limit for speeches had been considerably narrowed.

The conference concluded with a hearty vote of thanks to its chairman, Dr. J. A. Brown, for his excellent conduct of the business.

practice at the level of the rapidly advancing front of medical science.

The national health service under Communism would be staffed by whole-time salaried officers. No two-way extension of national health insurance could provide a comprehensive service, nor could any employment of doctors on a capitation fee basis give a uniform distribution of doctors in localities in accordance with population needs. Health education by general practitioners or consultants is impossible under the present system. The party concedes, however, that doctors now in practice may be allowed to come in on a part-time basis. The Government must guarantee employment for all who have graduated and who are willing to undertake post-graduate study. There must be no sex or race discrimination.

Some national body, preferably the Ministry of Health, would determine from time to time the terms of service of health workers, including doctors. A Central Medical Board set up for this purpose would take over the duties of registration and assessment of standards of qualification. The General Medical Council would remain a purely disciplinary body and might well be replaced by small peripheral regionally elected tribunals. The Minister would have an advisory committee, including representatives of the universities, environmental health services, and hospitals and health centres. The members might be elected from an annual conference, like the present Panel Conference, which itself would represent local or regional medical committees elected by the doctors employed in whatever capacity in the service.

Bound up with the reform of public health is reform of local government, but the Communist Party view is that the national health service must not be held up to await such reform. It can be adequately operated by regional health boards consisting of elected representatives of local authorities in the region. Regions would have some regard to present county boundaries and populations, varying from one million to, in the case of London, six millions. The regional health boards would consist primarily of laymen, the elected representatives of the people, but should include a number of medical representatives. These latter would have no voting power, but would be able to put forward general and specialist medical opinion to the board. Administration would be carried out through a regional health office to include environmental medicine, and epidemiological, hospital, health centre, mental health, and industrial medical services. The heads of these departments would form a medical directorate, and would be advised by a committee consisting of doctors, nurses, social workers, and others. The public health departments of local authorities, administering environmental services, but not hospitals or health units, would remain as at present.

Voluntary and local authority hospitals should be managed by committees consisting of representatives of local and regional authorities and of all grades of health workers. "When hospitals achieve the maximum efficiency contemplated for a comprehensive service the need for special facilities for the rich will disappear." In each region at least one large hospital must be attached to a school of medicine. Health centres must be places at which health education as

well as treatment is afforded, and at which periodical examinations of the apparently healthy population should take place. They must be built on a generous but not uniform pattern, allowing for variation in local needs and initiative. On free choice of doctor by patients "there is no basis for controversy... the principle is universally accepted, and it is only limited by the number of patients that a doctor can efficiently look after."

Industrial medical services must form part of the comprehensive national health service; mental health services must also be incorporated, and research must be liberally financed.

Correspondence

The White Paper

SIR,—Before the issue of the Government's White Paper on the reorganization of the medical services would it not be possible to have the assurance: (1) That no fundamental changes shall be agreed upon without an opportunity for the whole profession to vote on such changes; surely this basic right cannot be denied. (2) That since capital has been sunk in practices adequate compensation will be paid if the recommended changes absorb such practices.

With these two assurances admitted everyone will be able without bias to consider whatever suggestions the Government may make. Without such assurances which of us can consider them without personal feeling? The suggestion made by the B.M.A. for extension of N.H.I. fails to meet the case, since again private practice will be absorbed into N.H.I. practice without compensation.—I am, etc.,

W. LEES TEMPLETON.

* (1) The Representative Committee, in reporting to the profession on May 22, 1943, asked for the continued confidence of the profession "on the understanding that at no stage will the profession be committed without prior consultation with it through the established machinery" (*Journal*, May 22, p. 641). The procedure to be adopted by the B.M.A. when the White Paper is issued was referred to in the Annual Report of Council (*Supplement*, July 10, p. 5). The Minister has undertaken to allow sufficient time for this consultation with the whole profession. (2) On the issue of compensation the most definite official pronouncement so far made by the Minister is his statement in the House of Commons on April 22 (*Journal*, May 8, p. 587) that the question of compensation for loss of value of practices would certainly be one of the subjects with which his proposals would deal.

B.M.A. Policy: Misunderstanding

SIR.—In the *Yorkshire Post* of Oct. 28 the following passages appeared.

1. In an article headed "B.M.A. Policy": "The B.M.A. Council called a special Press conference to clear up what they regard as misunderstandings of B.M.A. policy. . . . Dr. Charles Hill, Deputy Secretary to the B.M.A. Council, said that in the Association's view the importance of free choice as between doctor and patient could not be exaggerated."

2. In another article headed "Loose Drinkers of Medicine": "Dr. E. Vaughan Jones (member of the B.M.A. Council

FUTURE MEDICAL SERVICES: THE COMMUNIST VIEW

The Communist Party has submitted to the Minister of Health its proposals for a comprehensive national health service. Its plan is prefaced by the statement that it is intended to assist doctors to give their best services to the public, to obtain democracy in the profession, to free doctors from their present commercial relationships, and to keep medical

Communist Party, 16, King Street, W.C.2. (15)

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 20 1943

GENERAL PRACTICE COMMITTEE OF THE B.M.A.

At the first meeting of the General Practice Committee for the new session was held the end of October, and Dr. S. Wand was re-elected to the chair. The sub-committees concerned with colliery and works practice, with Post Office medical officers, with ship surgeons, with public medical services, and with the industrial medical service were reconstituted. A report was made on the committee's proposals, put forward at the last meeting, concerning the fee for examination of employees under the Ministry of Supply. It was stated that the Department had accepted the proposals subject to the overriding maximum of £2 per day being limited to the examination of ten persons on any one day, and that the new rates ad now been in operation as from July and had been made applicable to all appointments. No difficulty was being experienced by the Local Medical War Committees in securing nominations of practitioners for this work.

Post Office and Fire Service: Capitation Fees

The capitation fee for Post Office medical officers had been discussed informally with the Chief Medical Officer of the General Post Office. It had now been agreed by the Treasury that the fee should be raised from 12s. to 12s. 6d., subject to review after the war or earlier if circumstances altered. One point brought out in the correspondence was that, although the Department admitted that owing to wartime difficulties Post Office capitation lists contained a greater proportion of older and more infirm officers than in former times, a very large number of Post Office servants retained after the age of 60 had nevertheless relinquished their established status at that age and as temporary officers were ineligible for free medical attendance. In discussion it was pointed out that the difficulty of accepting a conditioned fee for one section of the people was that it was then used as a precedent for another section. It was agreed, while not subscribing to the view that 12s. 6d. was an adequate capitation fee, to recommend members to accept it at the present juncture.

Following the increase in the capitation fee to Post Office medical officers, a similar increase was proposed by the Fire Service Department, who also suggested that this was an opportunity to bring into operation a graduated scale of payment in respect of higher ranks. The suggested figures were given in Dr. Wand's speech at the Annual Representative Meeting (*Supplement*, Oct. 2). One member of the committee asked whether a graduated scale might not carry awkward implications for the future capitation fee under National Health Insurance, but it was pointed out in reply that there were no means of sorting insured persons into salary classifications, whereas in such a service as the National Fire Service the

actual amount of remuneration is known and the capitation fee can be graded accordingly.

The committee agreed that it was prepared to accept as a wartime measure the suggested rate of 12s. 9d. for leading firemen, section leaders, and company officers, but it was not prepared to accept 12s. 6d. for the ordinary firemen as proposed; the minimum fee for all grades should be 12s. 9d. It was also agreed to ask that those over the income limit of £420 should have provision made for them on an item-of-service basis. The committee further adopted certain proposals made by the Isle of Wight at the Annual Representative Meeting, that it should not be obligatory upon the medical officer to supply drugs and dressings where he did not ordinarily dispense, and that the payment, if he did supply these drugs and dressings, should be not less than that paid under National Health Insurance; also that the provision for mileage should be payable above two miles as in the case of National Health Insurance patients.

Certificate Forms

Some resolutions had been received concerning the Ministry of Labour and National Service Form E.D.652, suggesting that the issue of this form was unnecessary or rejecting the idea of a uniform fee; but the CHAIRMAN of the committee stated that the fee was the ordinary one, used throughout the country more or less, and also that there was no compulsion on the doctor to use the form if he preferred his own, on which he could charge any fee he liked. The DEPUTY SECRETARY said that the idea behind the certificate was that doctors were having difficulty in getting a fee for this type of certificate, and the inclusion of the statement that the fee was the patient's liability was helpful. These certificates laying down the fee also helped to rebut the allegation that doctors were charging unduly large fees for this form of certification.

Discussion also arose on the Ministry of Pensions Form A.O.38. The view of the committee was that it was in the interest of the patient discharged from the Forces that the doctor should give the information required, but it was felt that the fee should be paid by the Ministry of Pensions to the doctor rendering the report.

Health of Women in Factories

Dr. DAIN presented the report of the Industrial Medical Service Subcommittee. Its recommendations regarding pregnant women in factories were adopted—namely, that the question whether work was likely to be detrimental to the normal pregnant woman depended upon its character and each case must be decided after careful consideration of all the factors involved; that ordinary factory work was usually inadvisable during the last six or eight weeks of pregnancy;

that a careful examination should always be carried out before a woman returned to work, and the most suitable time for this examination was at the end of the six weeks following confinement; and that it was desirable that it should be made economically possible for a woman employed in industry to breast-feed her child.

A final question dealt with by the committee was that of surgical belts and corsets. The SECRETARY said that he was meeting the Board of Trade with regard to the issue of certificates for the supply of these and required some guidance. Apparently the supply was being abused, and people were obtaining corsets who were not, on medical grounds, entitled to them. It was stated that there was an increasing tendency for people to go to the doctor and request certificates for all sorts of things which they had not been in the habit of having, and the doctor was often placed in an embarrassing position. It was suggested that it would be helpful if a list of conditions in which certificates for surgical belts and corsets would be justifiable could be drawn up and published in the *Journal* for the guidance of practitioners.

Correspondence

Future of Medical Practice

SIR,—I have long resisted the temptation to rush into print in the *Journal* on the matter of the future of medical practice, but can no longer rest without replying to the letter from the eleven Birmingham doctors, printed in the *Supplement* (Nov. 6, p. 82).

I beg to differ very much from the last paragraph of their letter, in which they state, after enumerating certain conditions, including a salary, that they believe "a full-time medical service, containing these conditions of service, would be welcomed by all doctors who entered the profession as a vocation. . . ." On the contrary, I believe that the great majority of the profession wish to be left alone to carry on general practice very much as they do now, with the addition of certain safeguards and improvements—e.g., easy access to biochemical and pathological investigation, health centres in selected areas, more chance of holidays, possibly pensions, etc. Continuing on this line, I feel certain that a whole-time salaried State Medical Service is not in the best interest of the patient or the doctor.

The "eleven doctors" fall into the common mistake of assuming that because salaried medical service in the municipal hospitals in our city is a great success and furnishes very excellent work, the same will necessarily apply to salaried general practice. In my opinion general practice can be compared with no other profession, trade, or with any other branch of medicine itself. The only possible comparison is with the

WEEKLY POSTGRADUATE DIARY

British Postgraduate Medical School, Dean
Road, Wexham, Bucks. 10. to 4 p.m.,
Daily. — *Ward*, 10. to 4 p.m.,
Surgical Clinics and Operations, Obstet-
rics and Gynaecological Clinics and Operations,
Daily, 1.30 p.m., Post-mortems, *Tues*, 10. to
12 noon, Gynaecological Clinics and Operations,
Pediatric Clinics; *Fri*, 11.30 a.m.,
Ward, Dr E. J. King: Acidosis and Alkalosis,
12 noon, Gynaecological Conference, 2 p.m.,
Dermatological Conference; 2.15 p.m.,
Demonstration on "The Stomach", *Fri*, 11.30
a.m., Surgical Conference; 2 p.m., Neurology,
Ward Clinics; 2 p.m., Sterility Clinic.

DIARY OF SOCIETIES AND LECTURE

ROYAL SOCIETY OF MEDICINE.—*Mon.*, 4.30 p.m. Section of Odontology. *Tues.*, 4.30 p.m. Section of Medicine. *Thurs.*, 5 p.m. Section of Veterinary Medicine. *Fri.*, 3 p.m. Section of Epidemiology and State Medicine.

School, Norfolk Place, Praed Street, Paddington
W. Trav. 1.30 p.m. St. Harold North, R.C.

2. Thurs. Journal Board, 1.45 p.m.
 December
 B.M.A.: Day of Central Meetings
 Disease Control Necessary?
 J. A. Burgess: Is a "New Deal" in Venereal Diseases, 2.30 p.m.
 Diseases, 11. Chas. S. N. Ormwood Price and Medical Society for the Study of Venereal Diseases, 11. George Riddoch: Syphilis.
 Eukaryon - University - Tues., 2 p.m. Board
 and Reminiscences.
 Sir Malcolm Morris.
 Dr. F. W. Pugh.
 Dermatologist - Some remarks.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements is forwarded in advance and should be paid in full with the notice, authenticated with the name and address of the sender, and should reach the advertiser not later than first post Monday morning to ensure insertion in the current issue.

Cockermouth, a son—George Iain Camisic, Hall, Gilmerey—(d) Nov 11 1943 at Addington Hall.

MARRIAGES

GOODWIN—ROBERTSON.—On Oct. 30, 1947, at St.
MARVAGES
H. B. Warren, R.A.M.C., a daughter,
(Josephine Barnes, F.R.C.S.), wife of Captain
Royal Northern Hospital, N.T., to Josephine
Warren.—On Nov. 12, 1947, at St. David's West
Newnham Rd., Cirence, a daughter, both well,
express), wife of Dr. J. K. Waddington, M.B.,
Waddington.—On Nov. 1, 1947, to Eliza (née May-
B.C.H., Scunthorpe, a daughter—M.B. Ch. B.C.H.,
Scunthorpe, wife of Catherine Stanford, M.O. (Det.)
Stanford.—On Oct. 30, 1947, to Rhonda (née O'Donnell)
Gillespie, M.B. M.R.C.P., a son.
O'Donnell, Frances, wife of Squad Ldr. R. O.

LUNAN—HARRISON.—On Sept. 8, 1943, at LUNAN, Agricultural

Murray Luna, B.Sc., A.R.C.S., Registrar,
Office, Tanganyika, to Elizabeth Nora Harrison,
M.B., Ch.B., Medical Officer, Canada.

DEATHS

MARSHALL.—On Nov. 6, 1941, at his residence, T
Miss Mary Lodge, Douglas, late of Man. Robt
Marshall, aged 75 years, dearly beloved by
band of Anne Elizabeth Marshall, married
the Borough Council, Douglas, late of Man.
Stockdale.—On Nov. 2, 1941, at Rodney Stee
Liverpool, I. Ernest Hudson Stockdale, M.R.C.P.
date. (No flowers; no mourning.) By request

Further notice not to submit applications

The Central Medical War Committee has recommended additional posts for the up-grading of house officers. This follows a recommendation of the Medical Personnel and Promotion Committee that wartime medical establishments of hospitals should not for the present be increased and there should be no up-grading. Hospitalists are also asked to do similar proposals affecting medical personnel, pathologists at infectious diseases hospitals—which do not come under Central Medical War Committee's arrangement. The same circular states that war medical officers in whole-time public health appointments who are over military age were born after March 5, 1896, must obtain the permission of the Ministry if they wish to apply for other posts.

MEDICAL-WAR RELIEF FUND

FIFTY-SECOND LIST
Amount previously acknowledged—£50,934 3s. 9d.
and £100 3% Conversion Stock, and £40 3%
Defence Bonds; also £39 4s. for Books for Prisoners
of War.
Individual Subscriptions

ES.—Dr. S. T. Nakib, Iraq.

£3 7s. 6d.—Dr. J. A. Woodman, Darlington.
 £3 7s.—Dr. T. B. Evans, Prescayen (18th dona-
 tion). Major W. Happer, I.M.S., and Mrs. Happer.
 10s.—Capt. G. C. Tresidder, I.M.S.
 £45.9s.—Harrow Division.
 Evacuated Children (138 no. 94).
 £21.10s.—Medical Staff, Bishop's Shortland Hospital.
 £11 10s.—List of Main Branch, net Dr. D. Panfili
 sent £21.

L. D. Woods, £5 5s. (6th donation); Dr.

Dr. R. D. McGeary, £3 3s. (6th donation); Dr. E. E. Brierley, £1 18s. (6th donation); Plymouth Medical Society, £2 10s. (amount already sent £10); Hon. Medical Staff, Eastern Hospital, per Dr. J. W. Ridley, £100; Total—£517 10s. 8d. and £100 3½ Conversion Stock, and £40 3% Defence Bonds.

47.—Leigh Division, per Dr. J. H. Young: 10

171—Dr. E. Crenay, Google;
 172—Capt. S. F. Lindsay, R.A.M.C.;
 173—Major H. Cullumhouse, R.A.M.C.; Mr.
 F. A. Julec, London; Dr. Margaret B. Steel, Tyne
 174—Mrs. Frances Levens Knowles, Turo.
 175—Mrs. J. Lings (Holland) Panel Committee.
 176—Mr. J. Young, H. Tickle, A. McInnes, M. Dillion.
 177—Mr. H. Young, J. Jones, J. S. Martin, G. E. Hayward,
 178—Mr. H. Harris, T. Gray, S. Franks, M. M. McKealand,
 179—Capt. R. D. Gray, S. Patton, R. Hamilton, H. R.

Therapeutic payable to the Medical War Bell

The Fellowship of Medicine announces the following
 postgraduate courses for M.R.C.P. candidates:
 Chest diseases, at Brompton Hospital, 3.30 p.m. on
 Tues. and Thurs. from Nov. 25 to Dec. 21, and
 Fund, should be sent to Dr. G. C. Anderson, Hon.
 Treasurer of the Fund, British Medical Association
 House, Tavistock Square, London, W.C.1.

The National Association for the Prevention of

Utericoinitis is collaborating with the London Medical and Panel Committee and the London Public Medical Service in organizing a refresher course in street general practice for general practitioners. It will be held at the Medical Society of London, 11, Chandos Street, Cavendish Square, W., on the afternoon of Thursday, Dec. 16, and the whole of Sunday, Dec. 19. The lecturers are Drs. Joseph Smart, James Maxwell, H. T. Holmes Sellers, and Dr. Peter Kiley, C. H. C. Townsall, which is the first of a series to be arranged in London and different

A course of instruction for a Diploma in Psychology

Logical Medicine will open at the Maudsley Hospital on Jan. 3.

Health Centres

teaching profession, and I am sure that no one will claim that Government service is satisfactory or productive of the results that we should expect in these enlightened times.

representatives the Deputy Secretary of

[illegible]

designing with every consideration for the privacy of the patient. I have a feeling

One great attraction of the health relationship is the ancillary services that are provided. The great attraction of the health relationship is the ancillary services that are provided. The great attraction of the health relationship is the ancillary services that are provided.

full use for a long time, but I believe it

1. The first step is to identify the problem. This involves understanding the current situation and the goals that need to be achieved.

are present shortage of qualified nurses full use could be made of Red Cross and

St. John nurses. Nurses and secretaries would have to be allocated according to the numbers on a doctor's list. Where doctors are already working in groups no difficulty should arise, but where doctors are working alone a method of sharing might have to be devised. Medical personnel will be short for a good

right there should be a considerable

"I am, etc.,
 "Sincerely,
 "R. C. L. BURGESS.
 "Recording N.H.L. Certificates
 "Sir.—One is seeing many patients who
 "require a "certificate" to cover an ab-
 "sence from the office."

frequency with which a man seeks this

my own practice as a time-saving measure. I have adopted the abbreviation "E. D. 652" (referring to the new certificate) on the medical record card. May I suggest the general adoption of this idea?—I am, etc.

chairman of the St. Helens Insurance Com-

REMARKS: The above is a copy of the original report of the
investigation of the cause of the fire at the residence of
the late Mrs. J. H. Smith, which was destroyed by fire on
the 10th day of March, 1891.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 27 1943

THE NATIONAL EYE SERVICE

A meeting of the Ophthalmic Group Committee of the B.M.A. was held at the end of October, preliminary to the conference of the various ophthalmological societies and other bodies summoned for the following day to discuss a draft scheme for a post-war National Eye Service. Some part of the proceedings of the committee was occupied with matters preparatory to that conference. Mr. O. Gayer Morgan presided.

Ophthalmic Reports for Ministry of Labour

Following upon a letter from a member it was agreed to take up with the Ministry of Labour the question of the fee to be paid to an ophthalmic surgeon when a case was referred back by a medical referee. In the case mentioned the referee had refused to furnish a certificate as he did not feel competent to give an opinion in the particular case, which was that of a workman who desired to make a change of employment. A local officer of the Ministry of Labour had suggested a fee of 10s. 6d. for the examination, and it appeared that ophthalmic consultants were expected to receive the same fee for their opinion as a general practitioner. It was agreed by the committee that the cases referred in such circumstances should be paid for at the recognized consultant's fee of three guineas.

A question was raised as to the position of officers in the R.A.F. in relation to the arrangements for the ophthalmic medical examination and the provision of Mark III spectacles to Services personnel at a reduced fee. The National Ophthalmic Treatment Board had agreed that the reduced fee of 10s. 6d. should apply to other ranks but not to officers, and the Air Ministry now asked whether officers could have the benefit of the reduction. It was added that probably few officers would wish to take advantage of it. The committee decided that the request could not be acceded to.

Fee for Ophthalmic Medical Examinations

The committee had before it a motion which had been referred to the Council from the Annual Representative Meeting for further consideration—namely, "That the scale of fees, for National Eye Service patients agreed to by ophthalmic practitioners, notified to all on the National Eye Service List, but later cancelled—namely, 10s. 6d. for insured and non-insured with family income of £250 or less, and £1 1s. for insured persons up to £420—be put into force at an early date." In the course of a lengthy discussion on this subject the committee was reminded by one member that the Ministry had said that it was not possible to differentiate between insured persons; nevertheless, the approved societies had the power to make a grant-in-aid. The member considered that this was a very important point. He thought that the approved societies should be informed that practitioners felt they had had rather a hard deal over this matter. He

suggested that a small committee be formed to meet representative approved society officials, and that together they should wait as a deputation on the Ministry of Health to get the subject cleared up. The guinea fee, he said, was not an increase; it was the old B.M.A. fee. The secretary of the committee (Dr. Anderson) and other members suggested that it would be reasonable at this stage for the committee to decide definitely that a higher fee was desired than had been received for the past seven or eight years, and to inform the approved societies that the fee would be raised.

It was agreed that the societies be informed that from the beginning of 1944 the fee for all insured persons entitled to be examined under the N.E.S. should be 15s., that for uninsured persons with incomes below £250 it should remain at 10s. 6d.; and that all other persons should be dealt with as private patients and should not go through the N.E.S.

The committee dealt with a considerable amount of other detailed business.

FUTURE MEDICAL SERVICES IN AUSTRALIA

The report (just received) for the year ending June 30, 1943, of the South Australian Branch of the B.M.A. contains the following reference to future medical services in Australia: "Notwithstanding the promise given to the Federal Council [of the B.M.A. in Australia] by the Federal Minister of Health that no major scheme of nationalized medical services would be introduced while so many medical men are serving with the Forces, Sir Henry Newland, as chairman of the Federal Council, was invited to attend a meeting of the National Health and Medical Research Council, at which consideration was to be given whether the whole or any portion of the latter's scheme for a nationalized salaried medical service should be introduced during the war. Sir Henry Newland declined to attend, and on behalf of the profession in Australia protested against the introduction of a salaried or other medical service without the fullest consultation with the profession, and while so many members were absent on full-time active service, as they would thereby be debarred not only from expressing their views on such a service but also from applying for posts in it should they desire to do so. . . . At the last meeting of the Federal Council a resolution was passed that the council is completely opposed to any drastic alteration in the form of medical service to the community during the war and for one year afterwards; also that, having ascertained the views of the medical profession in Australia, the council is opposed to a nationalized salaried medical service with consequent abolition of private practice. The scheme of the council for a General Medical Service for Australia has been recast. The Federal Council feels that a revolution in medical practice is undesirable and unnecessary for Australia, but improvements are obvious as expressed in the policy drawn up and referred to above. . . . The Federal Council is the body to express the views of the profession. . . . To implement any medical service a willing and contented profession is essential, and any revolutionary changes are not likely to be a success."

Correspondence

B.M.A. Policy: Misunderstanding

SIR.—The letter under the above heading (*Supplement*, Nov. 13, p. 87) calls for a reply. In these days of tabloid reporting it is inevitable that misrepresentation as well as misunderstanding should appear in the Press. Any single statement removed from its context may convey an entirely erroneous impression. It is unfortunate that subediting may make such a vital difference.

It is true that Dr. Charles Hill, speaking as the servant of the B.M.A. stating official policy, said that the importance of free choice as between doctor and patient could not be exaggerated—I am assuming he was correctly reported. In my remarks to the Yorkshire Branch of the Pharmaceutical Society I first gave the official policy of the Association as decided at the A.R.M. in September of this year. The Press were then informed that certain subsequent remarks were entirely my own personal responsibility. In quoting from a survey into statutory social services which had previously reported to B.M.A. headquarters and in which the following conclusion had been reached: "The importance of freedom of choice is far more implied than real," I made the statement that "I do not think that freedom of choice of doctor matters to the extent which is sometimes made out."

There was no intention of creating misunderstanding, because members of Council were not aware of the Press conference called by the Public Relations Committee apparently to counter the Press misrepresentation of the A.R.M. in September. Such opinions as I personally hold will be expressed vigorously by me on the occasions on which I am invited to express them, but in the true spirit of democracy the official policy of the Association will always receive the proper emphasis.—I am, etc.,

Leeds.

J. VAUGHAN JONES.

Health Centre Affiliated to Teaching Hospital

SIR.—The first health centre must obviously be experimental, and I have attempted below to give a rough outline of a scheme for the adoption of such a centre by a teaching hospital.

A health centre should be started near a teaching hospital willing to co-operate with a group of established practitioners. If several hospitals were able to take part, experiences could be pooled, and within a reasonably short time a basis for future health centres could be found. The doctors would do the whole or the bulk of their work at the centre, and the hospital staff would be available for evening discussions in addition to their ordinary consulting practice. The advantages of this to the doctor would be enormous, and the inspiration and drive of the teaching hospital would radically alter the scope of general practice. He would be

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 11 1943

THE B.M.A. AND PUBLIC HEALTH

The Public Health Committee of the B.M.A. at its first meeting as a new committee on Nov. 19 (when Prof. M. F. PICKEN was re-elected to the air) was confronted with a specially printed agenda running to forty closely printed pages, and the only way of covering such of it seemed to be by delegation. Accordingly a subcommittee of seven members was set up, with power to invite the attendance of persons with special knowledge of the subjects with which it would deal, to hold its first meeting early in December.

The first matter allocated to this subcommittee was the detailed consideration of two reports, one concerning maternity and child welfare services and the other midwifery. Dame Louise McLroy, who had been the Association's representative on the bodies responsible for these reports, attended the meeting and explained their bearing. One of them was the report of a planning committee appointed as the result of a recent conference under the auspices of the National Association of Maternity and Child Welfare Centres. Dame Louise McLroy said that when he criticisms of the different bodies represented were forthcoming a final report would be published. Various controversial points arose in connexion with the report, such as the staffing of small maternity homes and hospitals and the relation of the small hospital to the large.

The other report was a summary of the conclusions of a joint committee appointed at the instance of the Association of Supervisors of Midwives to consider future developments in the maternity services of the country. Here again certain controversial points arose, especially over the claim made in this report that it should be the duty of the midwife to decide whether or not a home was a suitable place in which to conduct a normal confinement. The feeling in the Public Health Committee was that while the midwife was a fairly good judge of this matter she should not be, as the joint committee apparently desired, the final arbiter. It also seemed to be assumed in this report that institutional midwifery was preferable.

Another question passed to the subcommittee concerned the memorandum recently issued by the Ministry of Health relating to the early diagnosis of, and financial allowances in, cases of pulmonary tuberculosis. Another question remitted—one which had previously been before the committee—was the desirability of securing an amendment of the vaccination law so as to facilitate the carrying out of vaccination at the public vaccinator's surgery. Under existing legislation, if a child is not vaccinated within four months of birth, a public vaccinator must visit the home and offer to vaccinate the child, after giving 24 hours' notice to the parent. To this matter is appended that of vaccination fees, on which there is a considerable

amount of dissatisfaction as revealed by correspondence received at headquarters. The committee had before it for its information a note on the terms of appointment and the duties of public vaccinators, and a summary of the vaccination fees payable in county areas.

Resolutions from the A.R.M.I.

The committee agreed to pass on to the Ministry of Health and the Board of Education the resolution of the Annual Representative Meeting concerning the importance of developing a correct stance and poise among school children as a basis for healthy adult life. Another matter referred to the committee by the Council on a motion from the A.R.M.I. was the desirability of amending in certain directions the present national superannuation scheme applicable to medical officers in the public health and allied services. The directions in which amendment was sought were the extension of the scheme to include the wives of contributors in order that benefits and pension rights might be continued to the widow on the death of the medical officer, and the reduction of the retiring age from 65 to 60. This matter was referred to the appropriate subcommittee of the Representative Committee with a note to the effect, however, that the Public Health Committee did not approve compulsory retirement at 60. It was its view that such retirement should be optional; it was felt that compulsory retirement at this earlier age would impose considerable hardship on some members of the service.

The extent to which the recommended 20% increase in remuneration as a war-time measure has been granted to medical officers employed part-time by local authorities was considered. A list was given of 46 areas from which replies had been received that the Association's recommendation either entirely or in part had been adopted, but, of course, these represent only a small proportion of the total. It was agreed to recommend the Council to approach the associations of local authorities on the subject. It was mentioned that a number of inquiries had been received as to why the 20% increase had not been recommended for members of the whole-time public health services. The committee had already accepted the view expressed by the Society of Medical Officers of Health that no demand for the revision of salaries should be made at the present time, but that any war bonus awarded to the staffs of local authorities should be extended to all medical officers, whole-time or part-time.

A letter from the Medical Women's Federation was considered which raised the question of the difference in the cost-of-living bonus as between men and women doctors in L.C.C. appointments. It was pointed out that it had always been the policy of the Association that women medical officers should be on the same basis professionally as men, but the differentiation in the cost-of-living bonus

awarded to men and women raised wide issues which extended beyond the sphere of professional activities. It was agreed to reply to the Federation in that sense. While sympathetic towards the Federation's view, the committee considered the matter to be outside professional scope.

The Government Milk Policy

In connexion with the White Paper presented to Parliament in July last on measures to improve the quality of the nation's milk supply, the committee expressed disappointment at certain of the proposals about "accredited" milk and also on some matters of administration. It was pointed out that the production of milk would come under the Ministry of Agriculture, the quality under the Ministry of Food, and the conditions under which it was sold would remain under the medical officer of health. This could lead to nothing but confusion. In the view of the committee it was a Ministry of Health matter. The question was referred to the subcommittee already appointed.

A letter from one Division complained of the trifling fee payable under the Medical Practitioners (Fees) Regulations, 1940, for a patient sent by a midwife to a surgery for examination on the ground of a complication of pregnancy. The committee agreed that all fees in this particular scale were inadequate in certain circumstances, but on the whole they "balanced one another out." With such a scale it was necessary to have a medium figure which would represent the average amount of work. It was not long ago that this matter was thrashed out, when the suggestion that there should be a higher fee for complete antenatal examination was turned down. The committee agreed to reply to the Division that while it considered the fee inadequate, yet, as the matter had been considered so recently, it was felt that the time was not appropriate for raising it again.

Correspondence was reported concerning occasional fees (for vaccinations, attendance at inquests, etc.) received by resident medical officers in municipal hospitals. In some areas these fees are now required to be returned to the employing corporation. The view of the committee was that one specific instance, where an officer had been in the habit of receiving these fees for twenty years without being required to return them, was a case in which the doctor's contention should be supported, but that in the case of new men coming into the service there must be adherence to the terms of the agreement: the conditions should be made clear to them at the time of their appointment.

The committee transacted much other business and gave its opinion on various points submitted with regard to appointments and other matters.

Dr. G. E. St. Clair Stockwell is shortly retiring from his post of school medical officer for Leeds.

GENERAL MEDICAL COUNCIL

The General Medical Council concluded its session on November 25; the session had lasted three days. Most of the time was occupied by disciplinary business.

British Pharmacopoeia Commission

The report of the Pharmacopoeia Commission

to the British Pharmacopoeia Commission, stating that the preparation of a seventh *Addendum*

to the *British Pharmacopoeia*, 1922, had been started. It was hoped that the difficult-

ties arising from the existence of patents in the manufacture of synthetic drugs would

be resolved, and that it would be possible to

include monographs in this *Addendum* which

would cover the field of the sulphonamides

now in general use and would provide stan-

dards for other new drugs. A general mono-

graph on certain biological products and

vegetable drugs would be included. In

drawing up the programme the Commission

had had regard to the twelfth U.S. *Pharma-*

copoeia, and an endeavour would be made

to keep the standards as closely in line with

the new monographs as possible. Good progress

had been made in the preparation of matter

intended for the next complete *Pharma-*

copoeia.

Dr. Campbell added that the Pharma-

copoeia Committee had decided to report

to the Council that in selecting drugs for

inclusion in the *British Pharmacopoeia* the

Commission need not

consider its choice restricted by actual or

potential patent rights in manufacture

DISCIPLINARY BUSINESS

Errata after Convictions of Felony

The Council considered the case of

William Alfred Bevis, registered as of Monk's

Road, Lincoln, who was summoned on the

charge that at Lincoln city assizes in June

last he had been convicted, on his own con-

fession, of unlawfully using an instrument

or some other unknown means to procure

the miscarriage of a certain woman, and

in which he was generally held as an up-

right and honourable man. A committee

was formed locally with a view to getting

up a petition in his favour, and Sir Ralph

Wedgwood presented this petition to the

Council. It bore nearly 3,900 signatures,

including those of the local members of

Parliament, the justice who originally heard

the case at the police court, nine medical

practitioners, and several leaders of religious

life in the district.

Mr. Hempsen pointed out that Dr.

Barrow's actions in this case were certainly

not those of a guilty man. He did not know

how many members of the Council con-

sidered that aloe could be described as a

"noxious thing." Certainly that was un-

known to his client, but when he learned that

the medicine was never paid, but the woman

attempting to procure an abortion. The Pres-

ident had the slightest idea. The woman,

Hempsen replied that neither he nor his

client asked how this came about, and Mr.

being called to give evidence that aloe was

a noxious drug, he, very foolishly, pleaded

guilty not only to supplying the pills but to

the miscarriage of a certain woman, and

in which he was generally held as an up-

right and honourable man. A committee

was formed locally with a view to getting

up a petition in his favour, and Sir Ralph

Wedgwood presented this petition to the

Council. It bore nearly 3,900 signatures,

including those of the local members of

Parliament, the justice who originally heard

the case at the police court, nine medical

practitioners, and several leaders of religious

life in the district.

Mr. Hempsen pointed out that Dr.

Barrow's actions in this case were certainly

not those of a guilty man. He did not know

how many members of the Council con-

sidered that aloe could be described as a

"noxious thing." Certainly that was un-

known to his client, but when he learned that

the medicine was never paid, but the woman

attempting to procure an abortion. The Pres-

ident had the slightest idea. The woman,

Hempsen replied that neither he nor his

client asked how this came about, and Mr.

being called to give evidence that aloe was

a noxious drug, he, very foolishly, pleaded

guilty not only to supplying the pills but to

the miscarriage of a certain woman, and

in which he was generally held as an up-

right and honourable man. A committee

was formed locally with a view to getting

up a petition in his favour, and Sir Ralph

Wedgwood presented this petition to the

Council. It bore nearly 3,900 signatures,

including those of the local members of

Parliament, the justice who originally heard

the case at the police court, nine medical

practitioners, and several leaders of religious

life in the district.

Mr. Hempsen pointed out that Dr.

Barrow's actions in this case were certainly

not those of a guilty man. He did not know

how many members of the Council con-

sidered that aloe could be described as a

"noxious thing." Certainly that was un-

known to his client, but when he learned that

the medicine was never paid, but the woman

attempting to procure an abortion. The Pres-

ident had the slightest idea. The woman,

Hempsen replied that neither he nor his

client asked how this came about, and Mr.

being called to give evidence that aloe was

a noxious drug, he, very foolishly, pleaded

guilty not only to supplying the pills but to

the miscarriage of a certain woman, and

in which he was generally held as an up-

right and honourable man. A committee

was formed locally with a view to getting

up a petition in his favour, and Sir Ralph

Wedgwood presented this petition to the

Council. It bore nearly 3,900 signatures,

including those of the local members of

Parliament, the justice who originally heard

the case at the police court, nine medical

practitioners, and several leaders of religious

life in the district.

Mr. Hempsen pointed out that Dr.

Barrow's actions in this case were certainly

not those of a guilty man. He did not know

how many members of the Council con-

sidered that aloe could be described as a

"noxious thing." Certainly that was un-

known to his client, but when he learned that

the medicine was never paid, but the woman

attempting to procure an abortion. The Pres-

ident had the slightest idea. The woman,

Hempsen replied that neither he nor his

client asked how this came about, and Mr.

being called to give evidence that aloe was

a noxious drug, he, very foolishly, pleaded

guilty not only to supplying the pills but to

the miscarriage of a certain woman, and

in which he was generally held as an up-

right and honourable man. A committee

was formed locally with a view to getting

up a petition in his favour, and Sir Ralph

Wedgwood presented this petition to the

Council. It bore nearly 3,900 signatures,

including those of the local members of

Parliament, the justice who originally heard

the case at the police court, nine medical

practitioners, and several leaders of religious

life in the district.

Mr. Hempsen pointed out that Dr.

Barrow's actions in this case were certainly

not those of a guilty man. He did not know

how many members of the Council con-

sidered that aloe could be described as a

"noxious thing." Certainly that was un-

known to his client, but when he learned that

the medicine was never paid, but the woman

attempting to procure an abortion. The Pres-

ident had the slightest idea. The woman,

Hempsen replied that neither he nor his

client asked how this came about, and Mr.

being called to give evidence that aloe was

a noxious drug, he, very foolishly, pleaded

guilty not only to supplying the pills but to

the miscarriage of a certain woman, and

in which he was generally held as an up-

right and honourable man. A committee

was formed locally with a view to getting

up a petition in his favour, and Sir Ralph

Wedgwood presented this petition to the

Council. It bore nearly 3,900 signatures,

including those of the local members of

Parliament, the justice who originally heard

the case at the police court, nine medical

practitioners, and several leaders of religious

life in the district.

Mr. Hempsen pointed out that Dr.

Barrow's actions in this case were certainly

not those of a guilty man. He did not know

how many members of the Council con-

sidered that aloe could be described as a

"noxious thing." Certainly that was un-

known to his client, but when he learned that

the medicine was never paid, but the woman

attempting to procure an abortion. The Pres-

ident had the slightest idea. The woman,

Hempsen replied that neither he nor his

client asked how this came about, and Mr.

being called to give evidence that aloe was

a noxious drug, he, very foolishly, pleaded

guilty not only to supplying the pills but to

the miscarriage of a certain woman, and

in which he was generally held as an up-

right and honourable man. A committee

was formed locally with a view to getting

up a petition in his favour, and Sir Ralph

Wedgwood presented this petition to the

Council. It bore nearly 3,900 signatures,

including those of the local members of

Parliament, the justice who originally heard

the case at the police court, nine medical

practitioners, and several leaders of religious

life in the district.

Mr. Hempsen pointed out that Dr.

Barrow's actions in this case were certainly

not those of a guilty man. He did not know

how many members of the Council con-

sidered that aloe could be described as a

"noxious thing." Certainly that was un-

known to his client, but when he learned that

the medicine was never paid, but the woman

attempting to procure an abortion. The Pres-

ident had the slightest idea. The woman,

Hempsen replied that neither he nor his

client asked how this came about, and Mr.

being called to give evidence that aloe was

a noxious drug, he, very foolishly, pleaded

guilty not only to supplying the pills but to

the miscarriage of a certain woman, and

in which he was generally held as an up-

right and honourable man. A committee

was formed locally with a view to getting

up a petition in his favour, and Sir Ralph

Wedgwood presented this petition to the

Council. It bore nearly 3,900 signatures,

including those of the local members of

Parliament, the justice who originally heard

the case at the police court, nine medical

practitioners, and several leaders of religious

life in the district.

Mr. Hempsen pointed out that Dr.

Barrow's actions in this case were certainly

not those of a guilty man. He did not know

how many members of the Council con-

sidered that aloe could be described as a

"noxious thing." Certainly that was un-

known to his client, but when he learned that

the medicine was never paid, but the woman

attempting to procure an abortion. The Pres-

ident had the slightest idea. The woman,

Hempsen replied that neither he nor his

client asked how this came about, and Mr.

being called to give evidence that aloe was

a noxious drug, he, very foolishly, pleaded

guilty not only to supplying the pills but to

the miscarriage of a certain woman, and

in which he was generally held as an up-

right and honourable man. A committee

was formed locally with a view to getting

up a petition in his favour, and Sir Ralph

Wedgwood presented this petition to the

Council. It bore nearly 3,900 signatures,

including those of the local members of

Parliament, the justice who originally heard

the case at the police court, nine medical

practitioners, and several leaders of religious

life in the district.

Mr. Hempsen pointed out that Dr.

Barrow's actions in this case were certainly

not those of a guilty man. He did not know

how many members of the Council con-

sidered that aloe could be described as a

"noxious thing." Certainly that was un-

known to his client, but when he learned that

the medicine was never paid, but the woman

attempting to procure an abortion. The Pres-

ident had the slightest idea. The woman,

Hempsen replied that neither he nor his

client asked how this came about, and Mr.

being called to give evidence that aloe was

a noxious drug, he, very foolishly, pleaded

guilty not only to supplying the pills but to

Certificates without Seeing Patient

The next case was that of William Grant Maule, registered as of Castle Street, Hereford, who was summoned on the charge at on Nov. 16, 23, and 30, 1942, he had ven intermediate N.H.I. certificates to a patient, A. T. Scott, when in fact he had not seen or examined the patient on those dates, nor at all since Nov. 14.

The Council's solicitor stated that the patient in question had an attack of bronchial influenza which kept him away from work for about seven weeks, for four of which weeks he was in bed. He was taken ill on Nov. 7, and Dr. Maule visited him on the following day and gave a certificate. He visited him on two or three occasions, the last being on Nov. 14, and the certificates of later date were given to the patient's wife, who called for them.

Dr. Maule said that he himself was disabled by an accident at the time in question, which accounted for his inability to visit the patient after Nov. 14. But he was convinced on Nov. 14 that the patient was out of danger, and that it was only a question of rest and time. He admitted that he was wrong in giving the certificates, but the certificates were not untrue. It would take the patient three further weeks to get over the attack. Asked how the complaint arose, he said that the patient's wife came to see him, and gave him a good account of her husband's condition, on which he handed her one of the questioned certificates. She then asked him to sign a card of transference to another doctor, who was the doctor for the rest of the family, but he said that this was not necessary, and the next he heard about the case was that there was an inquiry under the National Health Insurance regulations.

The Council found the facts proved, but postponed judgment for twelve months, during which period they trusted that he would take more care in the issue of certificates.

Charges of Embezzlement

The Council considered the case of Humphrey Manley Hamilton Ashwin, registered as of Wilton Street, London, who was summoned on the charge that he had been convicted at Horncastle petty sessions on Sept. 20, 1943, of feloniously and fraudulently embezzling and stealing certain sums (amounting to £48 8s. in the four charges set out) received by him for his employers, Drs. J. V. Buchanan and G. H. Sanderson, and was sentenced to six weeks' imprisonment with hard labour in respect of each offence, the sentences to run consecutively, the sentences being altered on appeal to quarter sessions to three calendar months' imprisonment with hard labour in respect of each offence, the sentences to run concurrently. Dr. Ashwin was also charged with having been found guilty by a court-martial at Cardiff in April, 1942, of conduct to the breach of good order and military discipline by giving cheques which were not honoured when presented, when he was sentenced to be cashiered.

Dr. Ashwin did not appear before the Council, nor was he represented. It was stated that he had been a locum tenens in a medical partnership at a salary of £750, plus certain fees and a house. A patient who had had an account rendered to him went to see Dr. Buchanan and said that the bill had already been paid. Dr. Ashwin, on being questioned, said that by an oversight he had paid the amount into his own account. Further inquiries were made, and it was discovered that he had failed to account for a much larger sum. At the trial he had pleaded guilty, but declared that while he had been grossly negligent he had not been criminally so.

The Council instructed the Registrar to erase Dr. Ashwin's name from the Register.

Misdemeanours

The Council further considered the case of Hugh McNicholl, registered as of High Road, Mottingham, S.E., who had been found, at the Council's session in Nov. 1942, to have been convicted on two occasions (in 1939 and 1942) of driving a motor-car while under the influence of drink. He now appeared with a number of testimonials to his good conduct in the interval, and the Council dismissed the complaint against him.

The case was considered of Ewen Lovat Fraser, registered as of Paisley, against whom it was charged that he had been convicted at West Sussex quarter sessions in September last of driving a motor vehicle whilst under the influence of drink, and had been fined £100 and 25 guineas costs, and his licence suspended for life. It was stated that Dr. Fraser had been previously before the Council for a like offence in May, 1939. The Council found the conviction proved, but suspended judgment for two years—until the November session, 1945.

In the case of Robert Frederick Martin Trimble, registered as of Stacksteads, Bacup, who was summoned in respect of three convictions, two in 1938 of being drunk, and one in 1940 of being in charge of a motor vehicle while under the influence of drink, and whose case had been postponed on two previous occasions in his absence, Mr. Fortune, his counsel, stated that Dr. Trimble was serving in the Merchant Navy, where he had been for three years, and incidentally was severely wounded in Crete. He gave an explanation of the occurrences, and the Council dismissed the complaint.

Alleged Professional Relationship in Adultery

The Council considered the case of Joshua Posner, registered as of Hyde Park Road, Leeds, who, by decree of the Divorce Division, had been found guilty of adultery in the case of McNulty v. McNulty and Posner, in which he was co-respondent, and against whom it was alleged that at all material times he had stood in professional relationship with the respondent or with her husband or with both of them.

Dr. Posner was represented by Mr. Oswald Hempson, solicitor.

The Council's solicitor put in a transcript from the shorthand note taken in the Divorce Court, in which the husband, Barnard Gordon McNulty, stated, after giving an account of his wife's association with Dr. Posner, that he himself was examined by the doctor, representing an insurance company, when he took out an endowment policy in 1938, and that Dr. Posner attended him for a leg injury, and afterwards became, "in a mild sort of way," a friend of the family. In 1939 his wife was ill and Dr. Posner said that she might need an operation and asked to be given authority to have the operation performed. He thought that Dr. Posner did not actually perform the operation, but he saw her in the nursing home and acted as her medical adviser. In consequence of a letter received from his wife in 1941 he asked both Dr. Posner and her whether they had committed adultery, which they denied.

A statutory declaration from the secretary of a nursing home was put in stating that Mrs. McNulty was admitted to the home by Mr. Bryan Jeaffreson, with whom Dr. Posner's name was coupled, and she assumed that Dr. Posner was the patient's general practitioner. She did not think he gave the anaesthetic.

Dr. Posner, in evidence, said that he first met Mrs. McNulty in 1934, but did not know until 1937 that she was married, nor did he know when he first attended Mr. McNulty that he was her husband. In 1939 when Mrs. McNulty became unwell he refused to treat her and suggested another doctor. He was asked to give the anaesthetic at the operation, but refused to do so. He merely visited her as a friend, and he never discussed her case with Mr. Jeaffreson. The divorce damages were agreed at £500 on condition that the fact that he was a medical man was not mentioned in the proceedings.

Confirmatory evidence was given by Mrs. McNulty and by her mother, and a statutory declaration by Mr. B. L. Jeaffreson of Leeds was put in, stating that although Dr. Posner arranged an appointment for him to see Mrs. McNulty he took no active part in the consultation and no part in the operation or after-attendance.

The Council found that adultery was admitted, but that the charge that at all material times Dr. Posner had stood in professional relationship with Mrs. McNulty or her husband or both of them had not been proved, and therefore dismissed the case.

Erasure under Section 26 of Medical Act

The Council considered a report from its Executive Committee on the question of whether it should, in pursuance of Section 26 of the Medical Act, 1858, which empowers the Council to direct the erasure of a name which has been registered on incorrect information, erase from the Medical Register the entry made therein on Feb. 9, 1942, in respect of Mrs. Astrid Hill, M.D.U.Oslo, 1922, under Defence Regulation 32B and the Medical Register (Temporary Registration) Order (No. 2), 1941. After consideration of the report the Council directed that the name be erased.

Restorations

After a session *in camera* the President announced that the following names had been restored to the Medical Register: Christopher Bastible, Dominic Francis Curran, Richard Christopher Howard, Arthur John Ireland, Charles Liddell McHarg, Antony Alexander Martin, and George Anderson Mitchell.

Other Business

A report by the Education and Examination Committees was presented. It dealt only with the qualifying examinations which have recently been inspected on behalf of the Council, and reported the receipt of observations on behalf of the licensing bodies on previous reports.

The Council considered *in camera* a report from the Executive Committee on the proceedings at a deputation from the Council received by Ministers on June 30 concerning the proposed establishment of a register of specialists, and on subsequent action.

Messrs. Waterhouse and Co. were re-appointed solicitors to the Council for another year.

Men invalided from the Services who are not entitled to a pension but who are admitted for treatment of their disability to an E.M.S. hospital are to be a charge on the Exchequer until treatment is complete or for six months from the date of discharge, whichever is the shorter. Should a patient need further treatment at the end of the six months he should be transferred to a hospital in his home area, when he will become a "civil" responsibility outside the E.M.S. scheme.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 18 1943

DEALING WITH THE INFLUENZA EPIDEMIC

It was briefly announced last week (*Journal*, 768). Service medical officers are to be allowed, so far as their military duties permit, to help civilian doctors during the present influenza epidemic. It has not yet been decided not to call up doctors from the Forces during the next few weeks, though the Central Medical War Committee will continue to issue recruitment notices, and medical examinations and interviews will take place in the usual way.

In a letter to all medical officers of health Sir Wilson Jameson suggests the following procedure for getting the help of Army medical officers. First there would be a meeting of the secretary of the Local Medical War Committee, the county medical officer of health (who would take the initiative immediately in calling this meeting), and the appropriate A.D.M.S., to decide the arrangements most suitable to the area. General practitioners and factory doctors needing help should apply to the secretary of the Local Medical War Committee, stating whether the help is wanted for visits or on the surgery, and the secretary, if satisfied with the claim, will pass it to the A.D.M.S., either through the M.O.H. or, as may be decided locally, direct to the military medical unit in the area. Arrangements for obtaining similar help from medical officers of the R.N. or R.A.F. are not yet completed, but medical officers of health will be informed of any in due course.

The Ministry of Health has also circulated local authorities on the domestic and nursing help they can give to households and the provision of meals from British Restaurants and school canteens. The maternity and child welfare authorities should use to the full the powers they have to provide home helps, while local organizations, both municipal—first-aid posts and rest centres—and voluntary, may be able and willing to supply volunteers. Health visitors and school nurses may also be able to help. The Ministry of Food and the Board of Education have agreed to provide meals from British Restaurants and school canteens, but the extent to which this can be done will depend on the facilities at the canteens themselves. These arrangements for nursing help, etc., will, of course, vary from place to place, but doctors and nurses will no doubt be informed direct by the medical officer of health, or, where applicable, by general local publicity, of those that have been made for their areas. These suggestions, states the circular, are not exclusive; the local authority may be able to make others; but the important thing is to see that everything possible is done to lessen the difficulties inherent in wartime in an epidemic which, "though not virulent in type," is having serious repercussions on war production.

DISCUSSIONS IN THE SERVICES Army Council's Decision

The following letter, which has just been received by the Secretary of the B.M.A., contains the Army Council's permission, subject to certain conditions, for medical officers to take part in organized discussions on the future health services.

The War Office, London, S.W.1.
December 11, 1943.

Sir,

1. I am commanded by the Army Council to inform you that from time to time the guidance of this Department has been sought by administrative medical officers at home and over-seas as to the extent to which Service medical officers may participate in organized discussions and express opinion, both individually and collectively, on the Government's proposals for the reorganization of the civilian health services, which will be outlined in a White Paper shortly to be issued.

2. The Army Council have carefully considered this matter, and have agreed that, subject to the exigencies of the Service and to a clear understanding that such discussions are conducted in off-duty hours, and that Service channels of communication are used neither to promote meetings nor to transmit the opinions of individuals or groups of medical officers, there is not only no objection to but every justification for such discussions being held.

3. I am to inform you that Commanders-in-Chief and General Officers Commanding-in-Chief, both at home and over-seas, have been instructed accordingly, and it is thought that you will wish to know of this decision by the Army Council at the earliest opportunity.

(Sgd.) G. W. LAMBERT.

INSURANCE ACTS COMMITTEE ACTION ON PANEL CONFERENCE RESOLUTIONS

The first meeting of the newly elected Insurance Acts Committee was held on Dec. 2. Dr. E. A. GREGG was unanimously re-elected to the chair. The committee expressed its great appreciation of the work of Dr. D. G. Greenfield, who, after membership of the committee extending over 21 years, did not seek re-election. The executive committee and various subcommittees were reappointed with slight variations of personnel.

Capitation Fee Claim

The Deputy Secretary (Dr. Hill) reported that since the Ministry's letter of Oct. 21 agreeing to a wartime bonus corresponding to the scale for civil servants earning between £500 and £850, the bonus of £25 payable to such civil servants had been doubled, and it was understood that pressure was being brought to bear for the bonus to be extended to those earning above £850. The doubling of the civil service bonus for this group would have the effect of doubling the amount to which practi-

tioners would be entitled under the arrangement the Ministry suggested.

It was agreed to ask the executive committee to revise and to re-present the case to the new Minister of Health for an increase in the capitation fee based on wartime conditions.

A letter was considered from one of the Group standing committees asking the Insurance Acts Committee to state what in its opinion would constitute an adequate capitation fee. The chairman said that an answer might be given by recalling first the figures referred to in previous discussions. At the last Court of Inquiry in 1937 a sum of 12s. 6d. was mentioned as likely to be acceptable, but that, of course, was before the recent economic changes, and in particular before the inclusion of insured persons with incomes up to £420. The increased responsibility, the wider scope of practice, the longer time spent with the individual patient, were all factors to be taken into account, as well as the rise in the cost of living and in practice expenses. In any reply on this point it should also be made plain that in view of the late Minister's assurance that the basic capitation fee would be investigated "from the ground floor" after the war, the committee had not felt the time opportune to enter into the whole question of the basic fee while it was engaged in so many other important tasks.

Present Increase in Sickness

Attention was drawn to a statement in the last Summary Report of the Ministry of Health suggesting that crowded consulting rooms did not necessarily imply an increase in the amount of illness, and that while there appeared to be more visits to surgeries there were fewer visits by doctors to patients' homes. It was asked how the Ministry could know the ratio of attendances to visits. One member suggested that it was time that some protest was made to the Ministry concerning official statements which tended to minimize the prevailing amount of illness and the consequent heavy burden thrown on the medical profession. It was difficult to understand the Ministry's statement that the illness from which many people were now suffering was not the real "flu" virus. It was agreed that some representations should be made to the Ministry.

Comprehensive Medical Service

The committee then turned to the resolutions passed at the recent Annual Panel Conference on the subject of a comprehensive medical service. It was agreed to communicate to the Council of the Association, with the endorsement of the whole committee, a resolution passed at the instance of the Isle of Wight:

"That in all future discussions with the Ministry on a comprehensive national medical service insurance practitioners as such shall be directly

The chairman said that he would especially emphasize this in his report to the Council. Other resolutions of the Conference similarly approved for submission to the Council were those urging the Government to delay the inception of a service until sufficient medical manpower was available to operate it efficiently; calling for adequate representation of the rural practitioner on the Representative Committee; expressing the view that if the service was to be operated by a two-way extension of National Health Insurance there should be a substantial increase in the capitalization; and declaring that the family doctor should be the pivot of any future system, with hospitalists in which he could himself conduct examination and treatment or remain in touch with the patient if he placed him under the care of a specialist.

Medical Treatment of Discharged Personnel

Correspondence with the Ministry of Health on the medical treatment of members of the Forces discharged on medical grounds was placed before the committee, concluding with the transmission to the Ministry of the resolution of the Conference noting with satisfaction that the Ministry was prepared to agree on a special fee of 16s. 6d. for these cases, and recording the opinion that any such special fee should be regarded as the basic capitation fee in being, plus a percentage thereof.

The resolutions of the Conference under this heading were also considered, including those on improvements in Group organization, the presentation of medical views in Parliament, and the allocation of more space in the *Journal* to medico-political matter. On this point the Chairman of Council (Dr. Dain) said that the end to secure was greater elasticity as between the claims of clinical and scientific matter and medico-political matter on *Journal* space, and every effort would be made to ensure that ample space was available on occasions such as Representative Meetings to give a full presentation of the views expressed. On the question of the presentation of medical views in Parliament, it was agreed to request the new Public Relations Committee to draw up a detailed plan.

Certain other resolutions of the Conference concerning improvements in administration of National Health Insurance were noted for bringing before the Ministry at the next interview.

A member of the committee urged that steps be taken to allocate the floating insured population, especially those on camp sites, to practitioners. He said that in his own area these people came to the nearest doctor in their locality only when they were ill, and therefore the capitation system under which the doctor was paid for the family as well as for the sick broke down at all events locally, whatever might happen in the case of the national fund. He suggested that some prominent people should be given to these people to place their medical cards with the doctor of their choice. Various members of

The chairman said that one method would be for Panel Committees to instruct their secretaries to communicate with welfare officers and others on the subject. It was agreed that the attention of Panel Committees be drawn to this course.

received from one Group Committee was an expression of dissatisfaction with the failure of the Insurance Acts Committee to bring about an improvement in regard to the closing hours of pharmacists' shops. The chairman said that in London they had succeeded in getting the Pharmaceutical Committee to institute an inquiry concerning pharmacists' establishments, and now a rota of open pharmacies had been established in London and was being extended. It was also stated that in Liverpool (except in one area, where there was a rota) a scheme had been arranged whereby every

and, as was not, it is in each locality, to take steps to instil a sense of responsibility in the community. The Ministry of Health is aware of the importance of the role of the community in the development of the health service and is taking steps to ensure that the community is fully involved in the planning and implementation of the health service. The Ministry is also aware of the importance of the role of the community in the development of the health service and is taking steps to ensure that the community is fully involved in the planning and implementation of the health service.

A communication was received from one Group Committee urging that an endeavour be made to arrange that all members of the Seamen's National Insurance Society be placed in the same position as all other insured persons. It was agreed to draw the attention of the Ministry to the anomalous administration of the society in this respect.

Correspondence

Panel Committees.

tributions was considered; nevertheless, the trustees thought favourably of the proposal, and referred it to the executive committee to put up a definite scheme which, after approval, might be sent to

It is essential in any scheme for an interested G.P. to acquire further knowledge in any part of medicine, and to have the opportunity to put that knowledge into practice. Refreshment courses have a limited benefit. The younger G.P.s should be assured that after the scheme had started all future specialists would graduate from the ranks, while the older G.P.s, who had not made such an impressive beginning in their careers, could still hope for promotion—a possibility, not, however, attached to the number of years spent in the profession.

Woodford Green, Essex.
- G. FOSTER SMITH.

The most important criticism of the present system is that most patients do not get ideal treatment for the following reasons:

1. The G.P. is overworked. The sovereign remedy here must be the removal of the causes of ill-health. Every suffering from preventable diseases. The answer is in the hands of Parliament, advised, if the Aylesbury Plan be adopted, by the national board of health. Lesser remedies, of some interim value, are to increase the number of doctors; to relieve the doctors of a lot of work which could equally well be done by nurses, dispensers, and secretaries; and to increase collaboration.

2. The G.P. is out of date. This is frequently true, not because he is intellectually incapable of remaining up to date but because he is overworked with his colleagues, and frequents hospitals so seldom. If his work were reduced he would be able to treat effectively many patients whom he now sends to hospital only because he hasn't time for them. He could form and join clinical societies and he could follow his patients into

The most important criticism of the present system is that most patients do not get ideal treatment for the following reasons:

1. The G.P. is overworked. The sovereign remedy here must be the removal of the causes of ill-health. Every suffering from preventable diseases. The answer is in the hands of Parliament, advised, if the Aylesbury Plan be adopted, by the national board of health. Lesser remedies, of some interim value, are to increase the number of doctors; to relieve the doctors of a lot of work which could equally well be done by nurses, dispensers, and secretaries; and to increase collaboration.

2. The G.P. is out of date. This is frequently true, not because he is intellectually incapable of remaining up to date but because he is overworked with his colleagues, and frequents hospitals so seldom. If his work were reduced he would be able to treat effectively many patients whom he now sends to hospital only because he hasn't time for them. He could form and join clinical societies and he could follow his patients into

hospital. He could keep his interest in scientific medicine alive. As it is, in the words of P.E.P., "excessive numbers of panel patients and excessive demands for certificates and returns of one kind and another quickly reduce the G.P. to an agent for making out prescriptions for mere palliatives and for operating something more like a sickness licensing and registration system than a health service." This is true. I did it for seven years.

3. The G.P. is too jealous of his colleagues to collaborate with them. This also is too often true. A very efficient young doctor I know was sacked by his chief because he was seen discussing an interesting case with a member of the rival firm. This is an extreme example, but lesser examples abound. Behind this jealousy, rationalized in a thousand ways, lies fear. It would be interesting to know what proportion of those who have had to buy their practices are out of debt at 40. Many are in the hands of money-lenders (often called insurance companies) all their lives.

The makers of the Aylesbury Plan believe that these conditions can only be cured by a form of group practice, preferably conducted from a health centre, which would not be the robot institution of the diseased imagination of many critics, but a convenient common surgery equipped with all the necessary tools of the trade, with individual consulting rooms, a dispensary, a dispenser, a nurse, and a secretary. The centre would be run by the doctors using it, but the expenses would be paid by the regional council, which would thus have a light control over its efficiency—a necessary safeguard. The G.P.s would take over again the functions which have been taken from them by the local authorities—the care of maternity and child welfare and of patients suffering from tuberculosis, venereal diseases, and infectious conditions.

Many of these health centres would be run in conjunction with Grade III hospitals, staffed by the local G.P.s. The district nursing service would have its headquarters there. Specialists would visit them when required from the larger hospitals. The doctors staffing the centres could have a rota for night work if they so desired, or they could carry on exactly as they do to-day. It would be for them to decide. There would be no interference with them from above if they ran the show well. With such close collaboration it would be easy to arrange holidays, absences on postgraduate courses, and perhaps regular afternoons in the nearest Grade I or Grade II hospitals. It would be easier, too, for a keen man to develop his own specialty, and ultimately to become a part-time assistant in the local Grade II hospital. Thence, if he desired it, could come a transference to whole-time specialist service. It would be an understood thing that G.P.s would be welcome in hospitals of all grades, though obviously the responsibility for the treatment of patients must remain with the man on the spot.

As Dr. Foster Smith says, methods of remuneration are not all, but they are important. In the Aylesbury Plan a G.P. receives: (a) a basic salary dependent upon his qualifications; (b) a yearly increment; (c) a capitation fee for each patient on his list, for to deny the inspiration of money is idealistic claptrap; and (d) a salary for any additional part-time work, such as assistant in a Grade II hospital.

General practice can no longer be entirely uncontrolled. Lack of control has in the past led too often to inefficiency. The control must, however, be light or the spirit will leave the body of medicine. The regional councils will contain G.P.s elected by G.P.s. The general practice advisory council will consist of G.P.s elected by G.P.s, and its chairman, a G.P., will be a member of the national board of health. The power which controls the G.P., so lightly that the rein can hardly be felt, will be a democratic power, held by himself, and not by an anonymous civil servant.—I am, etc.,

Whitchurch, Bucks. RAYMOND GREENE.

Misleading Opinion

SIR.—The four signatories of the letter in the *Supplement* of Dec. 4 (p. 93) contend that the B.M.A. is not "anti-Beveridge." May I advance some arguments which in my submission indicate that the contention is untenable?

The Beveridge plans depend, according to the author's reiterated declarations both in the report and in public speeches, on the fulfilment of, among other items, his Assumption B, which demands the establishment of a full-time salaried medical service covering 100% of the population and therefore involving, as the author admits, the ultimate extinction of private practice, "for which the scope will be so restricted as to make it not worth while retaining."

The constitution of the B.M.A. requires by the Articles of Association that its official policy shall follow resolutions adopted by its Representative Body (even though the Council may disagree with these), just as in our national system of Government the Cabinet must either obey the dictates of Parliament or resign their office. Ten weeks ago the Representative Body, at a meeting which assembled seven-eighths of the entire body of Representatives entitled to vote, passed a resolution by 200 to 10 votes, expressing opposition to the creation of a "full-time salaried State Medical Service." I submit that that resolution is wholly incompatible with the Beveridge scheme for medical services; *ergo* the B.M.A. must be anti-Beveridge. Q.E.D.—I am, etc.,

E. GRAHAM-LITTLE.

** Sir Ernest Graham-Little is, of course, entitled to his opinion, but it is not generally accepted that Assumption B demands the establishment of a full-time salaried service. Indeed, Sir William Beveridge made it clear that he had no recommendations to make on the form the comprehensive service should take.—Ed., B.M.J.

B.M.A. Policy: Misunderstanding

SIR.—Dr. J. Vaughan Jones's reply to a letter from Dr. L. G. Allen (*Supplement*, Nov. 27, p. 91) explains his position, but will not remove misgiving. No one will dispute the right to hold personal opinions, but whether it is wise in the present crisis for those in high office to "express them vigorously" is open to doubt. Such action will not advance the Association's policy, and is sure to embarrass the work of the Public Relations Committee.

On the principle of free choice the profession has come nearer to unanimity than on any other question. All the eleven bodies constituting the Medical

Planning Commission recommended free choice (*Supplement*, Jan. 2 last) and the principle was approved by the Annual Representative Meeting by a very large majority.

Once a decision has been come to on a vital question of policy are we not entitled to expect the co-operation of all members? Dr. Vaughan Jones says that from him the official policy of the Association will always receive the proper emphasis. What is the proper emphasis?

—I am, etc.,
Sheffield.

HENRY BROWN.

Locumtenents' Fees

SIR.—Since no one so far has replied to the letter on this subject (*Supplement*, Nov. 6, p. 91) I have decided to do so. Having been an assistant, had my own practice and employed locums, retired, and returned to work on the outbreak of war, I am able to see all sides, except that I write solely of rural practice conditions. I think the point has been missed that the locum retains only half or even less of what he is paid, for he has either to leave his wife at home with the expense of keeping the house open or else pay someone to attend to certain minor matters. With regard to hospitality to a wife, my case is perhaps unusual, since my wife, being qualified, and I work together with the consent of the principal, which has never been withheld. Two guineas a week has at times been deducted, but I do not think that it really costs as much as that to keep a woman, even if she has the most voracious appetite.

There is another side to the matter. Time was when the locum had only to deal with the patients. He was driven by a man who knew everyone; now a locum is expected to drive himself and find his way in a strange country. All names are foreign to him and often not pronounced as spelt. Also he had better be a mechanic; there are often two cars in a practice, and the principal does not give the locum the better. I don't blame him. Sometimes he is asked to drive his own car. This has advantages, but the usual allowance is £1 a week, and at present prices this covers only a very limited mileage. Further if the locum should be so unlucky as to have an accident he may be without his car for months and the cost of repairs may swamp more than he has earned. Work in a strange place is always hard and at times the organization is not too good—ointments at one end of the surgery, the boxes at the other, labels kept loose in a box, and N.H.I. records in a dark corner. Doubtless the principal prefers things so, but it makes hard work for his deputy.

The wartime assistant or locum-in-charge is a bit better off, since he has more continuity of work. A furnished house is often provided. There is practically no hope that he will get a servant. This means that his wife and he will have to do the housework, look after the car and (if they want vegetables, and who doesn't?) the garden as well. To some, and I include myself, this may not be an insuperable hardship, but it should be taken into account in estimating fees. Again, I don't for a moment blame the principal; he is quite powerless to do anything about it. A month's work at twelve guineas a week brings in about £25. One way and another this may well work out at nearer £20. In peacetime,

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 25 1943

BRITISH MEDICAL ASSOCIATION PROCEEDINGS OF COUNCIL

A meeting of the Council of the Association was held at B.M.A. House, London, on Dec. 15. Dr. H. G. Dain, Chairman of Council, presided, and forty-two members were present.

The deaths of three former members of Council were reported—namely, Dr. William Calwell (Belfast), Dr. R. B. Mahon (Dublin), and Sir William Wheeler—and the Chairman was authorized to send a letter of condolence to their families.

The Council sent a message of warm regard to its Secretary (Dr. G. C. Anderson) in his illness, with the hope for his speedy recovery. It also received with gratification a letter from the President of the Royal College of Surgeons of England conveying the sympathy of the Council of that body. The letter went on: "His illness at this particular time is deeply deplored; and his services on behalf of the profession have been so highly valued that we realize how ill we can spare his wise counsel and guidance."

What was held to be an unsatisfactory reply was reported from the Ministry of Labour and National Service on the subject of doctors' maids, following a letter from the Association conveying the resolution passed at the Annual Representative Meeting. The reply promised sympathetic consideration of difficulties arising in individual cases, but the policy of the Department was "not to issue compulsory directions to take up domestic employment in private households, among which doctors' households are included." The Council took the view that there should be power to "direct" women labour to doctors' households, and instructed the General Practice Committee to follow up the matter with the Ministry.

Ethical Procedure

Dr. N. E. Waterfield, for the Central Ethical Committee, said that a recent dispute between a general practitioner and the local medical officer of health had brought forward the question whether, in cases in which his committee acted as a court of first instance, there should be a body set up to which an appeal from its decision could be made. A resolution, some thirty years old, made the Central Ethical Committee the final court of appeal against a decision of a Branch Council, but no opportunity was given for appeal in a case in which the committee itself made the first investigation (and there might well be cases in which for good and sufficient reasons the inquiry ought to be taken out of the local atmosphere and be made directly by the committee). Therefore it was recommended that an appeal from a decision of the committee should be allowed on certain specific grounds, and that for this purpose there should be set up an appellate tribunal consisting of experi-

enced members of the Association, not necessarily members of Council, but preferably former members of the Central Ethical Committee, and that they should serve by rota to constitute a court of three.

Dr. J. A. Ireland and other members expressed the view that the better course would be to avoid allowing the Central Ethical Committee ever to be a court of first instance, and that many local units of the Association would resent having the ethical procedure taken out of their hands. Mr. A. M. A. Moore thought that the local ethical committee should be the first court, strengthened possibly by an independent representative from headquarters. Dr. Waterfield pointed out that the new procedure now recommended would be called for only in exceptional cases.

After further discussion it was agreed to ask the Central Ethical Committee to reconsider the matter, particularly in view of the possibility that the committee itself might in some instances initiate as well as investigate a complaint.

Election of Vice-Presidents

The Council unanimously agreed to recommend to the Representative Body the election of the following as Vice-Presidents in view of exceptional services rendered to the Association: Mr. W. McAdam Eccles, Mr. N. Bishop Harman, Dr. R. G. McGowan, and Mr. H. S. Souttar. In bringing forward the proposal the Chairman said that in the case of Mr. Eccles, Mr. Harman, and Mr. Souttar the Council was already familiar with their outstanding services in their midst, but Dr. McGowan was not and never had been a member of the Council, and therefore he called upon Prof. A. H. Burgess, as a fellow Mancunian, to speak of his exceptional work in Lancashire. Prof. Burgess said that as long ago as 1902 when the Association changed its constitution Dr. McGowan was appointed honorary secretary of the Manchester Division, and he had remained so until last year, when he was appointed chairman. He was the first honorary secretary of the Panel Committee, and that position also he held until he became its chairman last year. He was the first and only chairman of the Local Medical War Committee; on the Insurance Acts Committee he had been a direct representative for ten years; he was honorary local secretary for the B.M.A. meeting in Manchester in 1929; and he was the representative of general practitioners on the joint hospital committee in Manchester. The Chairman said that the recognition proposed would be a very proper one in view of such a record.

The Forthcoming White Paper

A resolution from the Harrogate Division called for a précis of the present position regarding the future of medical services as reflected in the discussions

with the Ministry of Health to be forwarded to all Service members, and asked that the proposed questionnaire and analysis of the White Paper should not be sent out to members of the profession until 60% of the Service members had answered showing that they had received the précis.

The Deputy Secretary (Dr. Charles Hill) said that as soon as the Government White Paper was published an analysis would be prepared in relation to the principles already adopted by the Association, and would be submitted to a meeting of the Council. In the meanwhile the questionnaire would be in preparation. There would be issued to all members of the profession, whether in the Services or in civil practice, and whether members of the Association or not, an analysis of the White Paper and a questionnaire prepared by an independent expert body, the British Institute of Public Opinion.

The Chairman said that in many areas members in the Services were actively discussing this question. Service people were by no means shut off from what was happening. Prof. R. M. F. Picken endorsed this, but said that there was one group—namely, prisoners of war—which needed special consideration, for he understood that they did not always receive the *Journal*. The Chairman mentioned that it was intended to issue regularly from the office a letter to medical prisoners of war on these subjects.

It was agreed that a statement of the present position—prefaced by a brief historical note—should be sent in advance to doctors serving over-seas, but it was understood that if the White Paper appeared before this work could be completed, the work should be waived in favour of the analysis and questionnaire which it was proposed to issue to all members of the profession.

The Council also approved an estimate from the British Institute of Public Opinion for preparing the questionnaire and checking, tabulating, and assessing the replies. It was understood that the interval between publication of the White Paper and dispatch of the ballots would not exceed three weeks.

General Practice

Dr. S. Wand presented the report of the General Practice Committee. It covered the period from Nov. 20, 1942, to Nov. 20, 1943. The Council adopted a recommendation on the employment of pregnant women in factories: that each case must be decided after careful consideration of all the factors; that ordinary factory work is usually inadvisable during the last six or eight weeks of pregnancy; that a careful examination should always be carried out before a woman returns to work, preferably at the end of the six weeks following confinement; and that it is desirable that it should be made economically possible for a woman employed in industry to breast-feed her child.

Attention was drawn to the representation made by the committee for an increase in the capitation fee of Post Office medical officers. Dr. Ireland said that it was felt in his area that any arrangement now made with regard to the treatment of Post Office servants and porters, but it was such a small item in the whole scale that it seemed rather out of proportion to raise it now. Dr. Ross, Dr. J. B. Miller said that the fee of 2s. 6d., if taken alone, could not be supported, but it was such a small item in the whole scale that it seemed rather out of proportion to raise it now. Dr. Ross, Dr. Ireland, and Mr. A. S. Gough supported the motion to refer back.

National Health Insurance

Dr. E. A. Gregg, presenting the report of the Insurance Acts Committee (which covered ground set out in the report of the meeting of the committee in the Supplement of Dec. 18), drew attention to the resolutions passed by the Annual Panel Conference on a comprehensive medical service, in particular one which said that in all future discussions with the Ministry on this subject insurance practitioners, as such, should be directly represented on the negotiating committee through representatives elected to that committee by the I.A.C. or the Panel Conference. The Chairman said that the procedure would be for the Council to accept from the I.A.C. the nomination of a proportion of members of the negotiating committee. It could not be facilitated—namely, that persons nominated for the negotiating committee should be elected or approved principles adopted at the Representative Meeting. The Chairman said that the Representative Body having adopted this series of resolutions, he saw nothing preposterous in asking people who were proposed as future negotiators to declare whether they approved the principles or not.

Public Health

Prof. Picken presented the report of the Public Health Committee. The various matters in this report appeared in the Supplement of Dec. 11. It seemed to the committee that the present opportunity should be taken of entering into discussions on the payment of practitioners employed part-time by local authorities, and accordingly it proposed that the associations representing local authorities in England and Wales be invited to discuss as a wartime measure an increase of 20% in such pay. This proposal was approved by the Council, and the Chairman of Council and the chairmen of the Public Health, Insurance, Hospitals, and General Practice Committees were appointed to represent the Association in these discussions. A letter from the Wandsworth Division expressed concern at the inadequacy of the fee of 2s. 6d. payable under the Medical Practitioners (Fees) Regulations, 1940, when a patient with a complication of pregnancy was sent by a midwife to a doctor's surgery for examination. Prof. Picken said that it was only in 1940 that the Association obtained considerable increases in the scale of fees payable to doctors called in by midwives, and the Public Health Committee did not think the time opportune for further amendment of the scale. Dr. Wand main-

tained, on the contrary, that the time was never more opportune, and he moved that this matter be referred back to the committee for further consideration. Dr. J. B. Miller said that the fee of 2s. 6d., if taken alone, could not be supported, but it was such a small item in the whole scale that it seemed rather out of proportion to raise it now. Dr. Ross, Dr. Ireland, and Mr. A. S. Gough supported the motion to refer back.

Prof. Picken maintained that the time was inopportune because this was one small item in a scale of fees which had been the subject of prolonged negotiation at the Ministry of Health between the associations of local authorities and the B.M.A. It was not a fee for a complete ante-natal examination. The scale made no provision for such a fee, and to open up the whole question on this one little point seemed futile. If members thought the whole scale inadequate, that was another matter and they should say so. The question of vaccination fees had also been raised, and after discussion with the representatives of public vaccinators it had been agreed to press for the 20% increase. Dr. Wand said that the Ministry of Supply had recognized a 3s. 6d. fee for consultation at the doctor's surgery; this was higher than the fee now under discussion, even if that fee was subject to 20% increase.

The motion to refer back this paragraph was carried, and it was also agreed to ask the Public Health Committee to advise the Council whether fresh approaches should be made to apply the 20% increase to the fees under the Medical Practitioners (Fees) Regulations, 1940.

Medical Services in Scotland

Dr. G. MacFarquhar brought forward a report of the Scottish Committee. He said that the committee had devoted some time to a draft memorandum on the amendment of the terms of service of practitioners under the Maternity Services (Scotland) Act, 1937, and this had been submitted to the Department of Health. He also referred to the supply of menial medical service, which, originally starting on Clydeside, had now been extended to all the industrial areas of Scotland to cover workers of all ages. Since the service was inaugurated in January, 1942, 3,758 persons had been examined under this scheme, and of these 1,573 had been admitted to a hospital or convalescent home under the Emergency Hospital Scheme. The service was established to help young people who had been called up for work in connexion with the war effort and were not standing the strain very well. It provided for expert examination and, where necessary, for hospital and convalescent treatment.

Questions were asked by various members of Council concerning this last arrangement, to which Dr. J. B. Miller and Dr. I. D. Grant replied. It was explained that if a doctor had some case which for one reason or another he did not feel justified in sending to hospital he could apply under this scheme to the regional medical officer to have the case investigated at an E.M.S. hospital. Some members of Council were interested in the function of the regional medical officer in this matter. Dr. Grant said that the R.M.O. acted solely as a filter. It was agreed to ask the Scottish Committee to furnish a statement on this service to the Insurance Acts Committee.

Prof. Burgess, as chairman of the Special Practice Committee, brought forward two recommendations from the Physical Medicine Group Committee. One was that steps be taken to bring to the notice of the Cabinet Corporation making commissioned rank open to male and other physiotherapists serving in H.M. Forces. The resolution of it was accompanied by a memorandum which stated that at present physiotherapist in the Services could not rise to higher rank than sergeant, whereas nurses held commissioned rank, as did orthopodists in the R.A.F., though it had a much shorter training period and their standard of training was not high, particularly in the basic sciences. Major-General R. W. Leslie said that commissioned rank was given not on account of professional status but administrative responsibility. In fact only a very small and selected nursing personnel who were in charge of war field commissioned rank, and they were not officers of the R.A.M.C. Sir Victor Richardson explained the special circumstances under which a very small number of trained orthopodists had been given rank in the W.A.A.F., not in the medical branch of the R.A.F.

It was agreed to remit this matter to the Special Practice Committee for consideration; so far the Committee had merely passed on the Group Corporation's proposal. Another recommendation from the Group—to make representations to the Ministry of Health for supply for delivery of valves for short-wave apparatus—was endorsed by the Council.

Women on the Council

Mr. A. M. A. Moore raised the question of the representation of women on the Council. The Council made decision affecting women practitioners, and yet a woman was a member of its body. It had in mind that the women members of the Association should elect two members of Council. Mr. Zachary Cope, in urgent consideration of this question, said that there were ten men to one woman on the *Medical Register*, and therefore would be difficult under any scheme open general election to secure representation in favour of some special arrangement. Dr. C. J. Stevenson and Dr. Peter Macdonald spoke in favour of some special arrangement to ensure the representation of women.

Dr. S. Wand moved to ask the Organization Committee to consider favourably some method whereby the women members of the Association might elect two of their number on the Council, and this was agreed to.

Home Guard Buries

Dr. J. G. Thwaites moved:

That, in view of the increasing incidence and incidence of minor illness among the people, the Government be pressed to relax to the greatest possible extent competition with safety the severity of Home Guard duties, and in particular to stop all but strictly necessary night guard duty.

He had talked with reasonable and intelligent members of the Home Guard who were his patients and who had expressed the view that a number of Home Guard duties were unnecessary. Mr. H. J. McCurtich, in seconding, said that Home

PROCEEDINGS OF COUNCIL

DEC. 25, 1943

duties could be divided into those due to essential security and those due to a training nature. On the one hand, some commanding officers there were a zeal for unnecessary parades, and a majority feeling of the Council that this was not a question on which could put forward an opinion in view of circumstances relating to the public which could not be fully revealed, a motion to proceed to the next business was adopted.

Treatment by Service Officers

r. McCurich moved:

that the medical officers of the armed forces should undertake more treatment than they do at present so that civil hospitals, working under E.M.S. arrangements but with staffs depleted to supply the Services, may be relieved of some of the Service work, which is of a trivial character, which is sent to them at present, as this prevents them from carrying out their duties to the civil population properly.

He instanced cases of small sebaceous cysts, cut fingers not involving tendons or nerves, haemorrhoids, and varicose veins, which might well be treated by private officers.

Major-General Leslie said that where trivial cases were sent to hospital the matter should be referred to the regional hospital officer, who would bring it to the attention of the A.D.M.S. concerned. But with regard to some of these complaints the Army had not the facilities for treating varicose veins by the injection method, and they lacked the necessary nursing facilities to deal with the cases after the minor surgery had been undertaken.

It was agreed, on an amendment by Prof. Picken, to make representations to the Medical Directors of the fighting Services that the medical officers should be allowed and encouraged to undertake more treatment than they did at present so as to relieve civil hospitals working under E.M.S. arrangements.

Other Business

The Council learned with regret of the death of Mr. S. Coulson, former chief clerk in the Medical Department of the Association, who, until his serious illness which started some years ago, did very efficient work, in particular in the earlier stages of National Health Insurance. His services were often acknowledged by Mr. Alfred Cox and by the present Secretary, and he was said to know more about the Insurance Acts and Regulations than any man inside or outside the government service.

It was reported that on Oct. 23 the Association membership stood at a new high record—namely, 44,558, compared with 41,828 seven months ago. Prof. Picken said that this figure was most gratifying. Remarks were made by people who had other interests to further that the B.M.A. membership was not representative of the profession, as it would be surprised if the membership did not represent well over 80% of the practising doctors on the British Register.

Dr. O. C. Carter was welcomed on his first appearance as chairman of the Journal Committee. On the recommendation of that Committee the appointment of Dr. Donald Hunter as editor-in-chief of the forthcoming *British Journal of Industrial Medicine*, in place of Sir Henry Bashford, who was unable to continue to act as such, was approved. Dr. Carter

said that the committee wished to assure the Council that the importance of adequate publicity for medico-political matter in the *British Medical Journal* was fully appreciated, and that steps would be taken to meet the wishes of the Representative Body and the Panel Conference.

Dr. Dain presented the report of the Public Relations Committee. He said that the development of this work was proceeding very satisfactorily. Divisions had set up committees and had made useful contacts. The committee was anxious to be of service to any Division in this respect. Dr. I. D. Grant and Dr. Martin Brodie said that the work of the Public Relations Committee was much appreciated in Scotland.

CHANGING MEDICINE*

BY

TOM GARLAND, M.D.

We are living in such a welter of change affecting our profession that I feel there is a need to review the position not only in respect of actual changes that are taking place but in a more abstract way as well. We could spend the whole time merely analysing the shake-up that the war has already brought about in the sphere of our work. The changes have varied from trivial matters, such as the use of an English seed and gigantic agar-agar, to the sudden and gigantic eruption at the beginning of the war that produced within a few weeks 190,000 empty beds for the number of doctors in time in history or given service has been a given locality or in proportion to need. Extremely important changes affecting the whole status of the nursing profession have resulted from the Rushcliffe reports and the Nurses Act, 1943. Tremendous developments have occurred in the prevention of illness, particularly in the distribution of food to infants and children. On five days a week now three-quarters of a million children sit down to dinner at school and 3½ millions receive an extra ration of cheap or free milk at school, and there is a further supply of cheap milk to mothers and infants. It must be closely related to this and enormously significant that in 1942 the infantile mortality rate of 49 was the lowest ever recorded and the mortality of children of pre-school ages 1-5 was 2% lower in 1942 than the previous low record of 1939. At long last over half the child population 0-15, numbering about 8½ millions, have been immunized against diphtheria.

Resistance to Change

The mention of diphtheria brings to my mind the violent controversy that is associated with change. Most doctors will have been infuriated at the enormous expenditure of labour and material that has obviously gone in placarding the country with huge posters denouncing diphtheria immunization. However, the success of the immunization campaign emphasizes that this opposition is largely overcome. When we analyse, however, the district by district, we find that the acceptance of immunization for those needing it varies from over 90% in a district like Hornsey to 30% in certain other districts.

These differences reflect the varying power of the forces pushing for immunization, as opposed to those resisting it. This is a phenomenon that cannot be too closely examined. We must realize that to effect change the forces that oppose the change or profit by the *status quo* must be overcome. All the big names associated with combating disease—Semmelweis, Chadwick, Florence Nightingale, Lister—are also associated with epic battles that had to be fought and won before changes were established. We can see conflicts arising over minor matters daily: whether floors shall be polished or oiled; whether a nurses' council shall be established; whether medical committees shall overrule hospital superintendents; and we well know that quite startling changes sometimes develop over trivial changes.

It is necessary to emphasize this association of change with conflict, because so often when we try to mobilize support for some change, the reason given for not participating in the effort is that we shall provoke opposition. Let us appreciate that it is impossible to contemplate change of any importance that won't upset someone. In planning change we do need to assess what forces will oppose or obstruct, not in order to weigh up and defeat the opposition. In our own profession we have a particularly rich heritage of men and women who have effected change in the face of opposition. Health, moreover, is of such universal interest and application that a big issue in this sphere is a matter upon which none can remain neutral. Not to assist the progressive side makes it all the easier for the obstructors to claim that the progress is not wanted.

We know well as doctors that upon the health of an individual depend all manner of other personal characteristics—his temperament, initiative, courage, and even honesty and kindness of heart. Change a man's health and all manner of related features also change. Any single change, in fact, cannot be isolated. It is to this obvious fact that we must look to-day for an explanation of the tremendous stirrings that herald big changes in the organization of health services. A major war is itself a gigantic struggle between forces trying to effect or resist changes. To mobilize bigger and bigger forces in the main conflict all manner of related changes have to be effected; the tempo of change everywhere quickens: this is inevitable and quite understandable. It is inevitable no longer be necessary for us to ask, "Why must we wait for a war?" etc. We don't have to wait for a war; but war does hasten changes, some good, some bad.

A particularly important force to mobilize in war is one which is termed morale—a term hard to define exactly, but which can be taken in part at least to mean a mental attitude that adjusts the person to accept willingly, and even enthusiastically, the hardships and sacrifices entailed by war. One important way of doing this is to offer compensations in the future for these sacrifices. This might be taken as the positive line: the negative line would be to rouse fear of the future that would follow defeat. Now all men, including doctors, value security, and, as members of the Forces and civilians ask, "For what are we fighting?" a valuable aid to morale is to offer greater social security in the

* An abridged version of the Chairman's address at the annual general meeting of the Medical Society.

future. The Beveridge plan and its timing have to be understood like this: it is not "just a political ramp," Beveridge rightly sees the need for associated change in health services, employment, family allowances, etc. I think that doctors, with the intensity of interest and the fulness of satisfaction that may lie in their work, need to be warned against "sticking too closely to their last." When advocating a change in nutrition, we must appreciate its relation to family allowances, or to wages, and the relation of these in their turn to methods of production, the national economic system, and even international tariffs. Thus, when we come to assess the value of any particular change, the more we have studied and the better we are informed upon closely related, and even distantly related, changes, the better we are likely to be able to assess the amount of our energies we should direct to promoting or resisting that particular change.

Gradualness of Revolution

Finally, I would like to say a word about the much-favoured slogan "evolution not revolution." From many discussions I think it implies a fear that changes will be too drastic, too sudden, or, as it is often expressed, too revolutionary. Many people, including doctors, are fond of stating that they are in favour of gradual change, implying almost that automatically they would oppose sudden change. It is necessary to establish that this may lead to an almost unconsciously obstructive attitude, for change cannot always remain gradual. We can find many examples of this from our clinical experience. The tension of a cell can only increase gradually for a certain time before the wall bursts; the bowel is a relatively sudden change, "stretching" its wall, relatively suddenly, to accommodate the bursting aneurysm, the infectious haemophysis, and a host of other examples can be quoted. Our very birth is a relatively sudden change, occurring long and gradual foetal growth; death also. Wherever one watches change, if progress is maintained, one sees the inevitability of coming to this breaking point. The date upon which numbers of pensionable casualty cases appearing for medical adjudication. The lessons learned from the last war show this adjudication to be an intricate and responsible business, requiring doctors who have had experience in this work and at least 10 years of civil general practice. No two cases are quite alike, and it must be remembered that the country owes a debt to each soldier or sailor to see that his future earning capacity shall be maintained at normal level. Up to the present the selection of medical appraisers has not been on any definite plan; rather has it been a matter of personal selection by locally appointed pension officers. The Ministry of Pensions will no doubt turn to central medical authority for doctors possessing the best qualifications. We should therefore be prepared to respond with an organized scheme conceived on sound lines. The medical recruitment boards have done their work satisfactorily, and it is from this source that examiners for the Ministry of Pensions should not be difficult. In every large city or centre to the Ministry of Pensions should not

Correspondence

Medical Appraisalment of Pension Disabilities

SIR.—The end of the war will see large numbers of pensionable casualty cases appearing for medical adjudication. The lessons learned from the last war show this adjudication to be an intricate and responsible business, requiring doctors who have had experience in this work and at least 10 years of civil general practice. No two cases are quite alike, and it must be remembered that the country owes a debt to each soldier or sailor to see that his future earning capacity shall be maintained at normal level. Up to the present the selection of medical appraisers has not been on any definite plan; rather has it been a matter of personal selection by locally appointed pension officers. The Ministry of Pensions will no doubt turn to central medical authority for doctors possessing the best qualifications. We should therefore be prepared to respond with an organized scheme conceived on sound lines. The medical recruitment boards have done their work satisfactorily, and it is from this source that examiners for the Ministry of Pensions should not be difficult. In every large city or centre to the Ministry of Pensions should not

Correspondence

Medical Appraisalment of Pension Disabilities

SIR.—The end of the war will see large numbers of pensionable casualty cases appearing for medical adjudication. The lessons learned from the last war show this adjudication to be an intricate and responsible business, requiring doctors who have had experience in this work and at least 10 years of civil general practice. No two cases are quite alike, and it must be remembered that the country owes a debt to each soldier or sailor to see that his future earning capacity shall be maintained at normal level. Up to the present the selection of medical appraisers has not been on any definite plan; rather has it been a matter of personal selection by locally appointed pension officers. The Ministry of Pensions will no doubt turn to central medical authority for doctors possessing the best qualifications. We should therefore be prepared to respond with an organized scheme conceived on sound lines. The medical recruitment boards have done their work satisfactorily, and it is from this source that examiners for the Ministry of Pensions should not be difficult. In every large city or centre to the Ministry of Pensions should not

H.M. Forces Appointments

ROYAL NAVY
Surgeon-Lieutenant, P. A. Allsopp, A. Coull, J. D. Gowers, and P. Jones have been transferred to the Emergency List.
ROYAL ARMY MEDICAL CORPS
Lieutenant-Colonel (Temp.) D. C. Scott, O.B.E., having attained the age for retirement, has been retained on the active list supernumerary.
Lieutenant-Colonel (Temp.) J. M. Savage to be a general.
Lieutenant-Colonel (Temp.) J. M. Savage to be a general.
Lieutenant-Colonel (Temp.) J. M. Savage to be a general.

BIRTHS, MARRIAGES, & DEATHS
The charge for inserting announcements under this head is 10s. 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Editor not later than five days after the date of the event.
BIRTHS
McCart.—On Nov. 27, 1943, at Belfast, to Margaret and Mr. J. B. A. O., D.R.H., wife of a son, a daughter.
Baird.—On Dec. 14, 1943, at Park Gate, Rye, Sussex, to Mr. and Mrs. W. B. Baird, a son.
Lynch.—On Dec. 14, 1943, at Rye, Sussex, to Mr. and Mrs. W. B. Lynch, a son.
DEATHS
Cunningham.—On Dec. 13, 1943, at 7, Hurstman Street, London, beloved husband of Miss Cunningham, London, a daughter.
Katharine, F.R.C.S.(Edn.), a daughter.
Cunningham.—On Dec. 10, 1943, William Herbert Cunningham, London, a daughter.
Cunningham.—On Dec. 10, 1943, William Herbert Cunningham, London, a daughter.
Cunningham.—On Dec. 10, 1943, William Herbert Cunningham, London, a daughter.

BIRTHS, MARRIAGES, & DEATHS
The charge for inserting announcements under this head is 10s. 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Editor not later than five days after the date of the event.
BIRTHS
McCart.—On Nov. 27, 1943, at Belfast, to Margaret and Mr. J. B. A. O., D.R.H., wife of a son, a daughter.
Baird.—On Dec. 14, 1943, at Park Gate, Rye, Sussex, to Mr. and Mrs. W. B. Baird, a son.
Lynch.—On Dec. 14, 1943, at Rye, Sussex, to Mr. and Mrs. W. B. Lynch, a son.
DEATHS
Cunningham.—On Dec. 13, 1943, at 7, Hurstman Street, London, beloved husband of Miss Cunningham, London, a daughter.
Katharine, F.R.C.S.(Edn.), a daughter.
Cunningham.—On Dec. 10, 1943, William Herbert Cunningham, London, a daughter.
Cunningham.—On Dec. 10, 1943, William Herbert Cunningham, London, a daughter.
Cunningham.—On Dec. 10, 1943, William Herbert Cunningham, London, a daughter.

INDEX TO SUPPLEMENT FOR VOLUME II, 1943

A
ALCOCK, S. C. (and T. STANSFIELD): Medical Certification Boards, 25
ALLAN, L. G. (and others): B.M.A. policy: misunderstanding, 87
ALLISON, O. R. (and others): Special Representative Meetings, 14
ANDERSON, G. C.: Evolution, not revolution, 29
Anti-freeze, 90
Appointments, 44, 78, 90, 92, 100
Army Council's decision on future health services, 101
Aschwin, Humphrey Manley Hamilton, disciplinary case of, 99

SOCIATION, BRITISH MEDICAL:
Committee, General Practice: Meeting, 89
Insurance Acts: Report, 1943, 45—Capital fee position, 71—Meetings, 101
Liason, between B.H.A. and B.M.A., 8
Ophthalmic Group, 91
Public Health: Meeting, 97
Committees, Local Medical and Panel: Conference, 83
Standing: Members, 1943-4, 76
Correspondence, 79
Council: Proceedings, 10—Elections, 10—Supplementary Annual Report, 19—Members, 1943-4, 76
Library: List of new books, 1, 38, 74, 96—Order cards, 18, 21
Annual General, 24, 26, 56
Meeting, Representative, 10, 11, 12, 16, 34, 40, 51, 59, 65, 72; correction, 79
Policy, 40, 57, 91, 103
Public Relations, 8, 28
Representative Body: Meetings, 75
Association, Royal Sanitary: Annual congress, 47
ATKINS, T. W.: Travel facilities for Merchant Navy officers, 17, 74
Australia: Future medical services, 91
Aylesbury Plan (Raymond Greene), 79; correspondence, 102

B
BENOCH, A. G.: Evolution, not revolution, 40
LECK-FOOTE, J. A.: "Bargaining" with the State, 57
BERNARD, Geoffrey: "Blindfold elections," 14
BERNARD, M. (and others): Future of medical practice, 82
Richard Murray: Name restored to Medical Register, 99
BEACH, A. A. W. (and J. W. RAE): State Medical Service, 40
BEARE, C. E.: Profession and Parliament, 73
BEDALE, F. S. (and others): Special Representative Meeting, 14
BELL, J. G.: The doctor and the public, 57
BENJAMIN, Doris (and others): Special Representative Meeting, 14
Beveridge scheme: Safeguarding the finance, 17
Bevis, William Alfred: disciplinary case of, 95
"Blindfold elections," 14
BRADSWORTH, C. C. (and others): Future of medical practice, 82
BRAITHWAITE, E. Wisley: 1912. Can it happen again?, 14
BREACH, A. C. E.: Key problems, 14
Brierley, James: disciplinary case of, 95
Block, A. J.: Help for the doctor's house, 78
Block, A. J.: Evolution, not revolution, 39
BROSTER, E. D.: B.M.A. policy: misunderstanding, 103
BROWN, Henry: B.M.A. policy: misunderstanding, 103
BURGES, F. A. L.: Health Centres, 82
R. C. (and others): Future of medical practice, 82
R. C. L.: Health Centres, 90

C
CAMPS, P. W. L.: Recollections and reflections, 81
Capitation fee, the future, 73—For Post Office medical officers, 64
Car repairs, 80
CASPER, W. M.: The "inevitable" future, 57
CATTO, P. T.: Faults and remedies, 77
Catto, P. T.: Exemption from national service, 17—Certification: And compulsory national service, 17—Evidence of incapacity, 18—Exemption from Fire Guard duties, 35—What price prestige?, 57—Home Guard, 88, 94—Panel, 88—Recording N.H.I. certificates, 90

Ceylon Branch: Annual report, 38
CIDAWICK, B. E. (and others): Special Representative Meeting, 14
Changing medicine (Tom Garland), 107
CLARK, S. A.: The panel certificate, 88
CLARKE, R. G.: Evolution, not revolution, 77
COBB, Charles: Sale of goodwill of practice, 73
Coming events: (State Medical Service), 73
Committees, Local Medical and Panel: Annual Conference: resolution, 82
Consultant, free choice of, 14

CORRESPONDENCE:
Association, British Medical Council's Recommendations, 27, 39—Proceedings of Council, 27—Policy, 40—Decision of A.R.M., 72—Policy: misunderstanding, 57, 91, 103
Aylesbury Plan, 102
Beveridge scheme: Safeguarding the finance, 17
Blindfold elections, 14
Capitation fee, 73
Certificates and compulsory national service, 17—What price prestige?, 57—Panel, 88—Home Guard, 88, 94—Recording N.H.I. certificates, 90
Coming events, 73
Consultant, free choice of, 4
Council, General Medical: Certification cases before, 12
Demobilization, 77
Doctors: Free choice of, 3—Clearing-house for future, 15—Ex-Service, 26—And the public, 57—Evolution, not revolution, 39, 48, 77—Three questions for answer, 58
Government pledges, 50
Health Centres, 48, 82, 90—Affiliated to teaching hospital, 100
Interpreting the Principles, 100
Locumtenents' fees, 81, 103
Medical Certification Boards, 25
practice, future of, 82, 89
profession: Universal contract practice, 3—A problem of the profession, 15—Freemission? 4—Control by the profession, 15—Achieving unity, 36—Sale of goodwill in medical practice, 47—Bargaining? 49, 73—Competition in medical practice, 58—And Parliament, 73—Faults and remedies, 77
Service, Regional, 93
Services: State control of, 2, 81—Whole-time salaried, 14, 72—Local authority control, 14—State salaried: a problem of man-hours, 23—State provision without control, 25
superintendents, 74
Medical, Physical, Diploma in, 27
Merchant Navy officers, travel facilities for, 17, 74
Milk, certificates for extra, 48
Misleading opinion, in general practice, 73
Nurses, utilizing, in general practice, 103
Panel scheme, truth about, 58
Pension disabilities, medical appraisal of, 93
Provident schemes in future medical services, 93
Recollections and reflections, 81
School-children, medical care of, 77
Scotland: Maternity Services, 97
Sense with sensibility, 47
State Medical Service: Labour and, 11—Key problems, 14—1912: Can it happen again? 17—Second thoughts? 23—Rotherham's views on, 25—An R.M.O. on, 27—Then and now, 35—Serving medical officers, 40—Politics or statesmanship? 49—Bristol's view, 49—Opinion in Preston, 50—Shropshire and Mid-Wales vote, 50—"Inevitable" future, 57—The public's choice, 72—A question of man-power, 75—Nationalization of medicine, 82—Opinion of insurance practitioners in Derbyshire, 82—Eight years' experience of miniature, 93—G.P.s work under, 102
Voicing opinion, 11
White Paper, 87
Corrigendum, 104

COUNCIL, GENERAL MEDICAL:
Certification cases before, 12
Commission business, 98
Spackman case, 94
Winter session, 94

Council, Leeds Joint, on Industrial Medicine, 95
Cox, U.: Future of medical practice, 82

Curran, Dominic Francis: Name restored to Medical Register, 99
CYRIAX, I. H.: Diploma in Physical Medicine, 27

D
DAVIES, D. J. (and others): Opinion in Preston, 50
Demobilization, 77
Derbyshire Panel: Benevolent and Educational Trust (H. W. Pooler), 35
Dias, G. J. B. (and others): Opinion in Preston, 50
DICK, I. Staveland: Conservatism in medical practice, 48
DIMOCK, E. M.: Health Centre affiliated to teaching hospital, 91
DIX, R. H.: Free choice of doctor, 3
Doctors: Free choice of, 3—Clearing-house for calls, 15—Ex-Service, 26—Termination of future, 26—And the public, 57
DUNCAN, R. Reid (and others): Special Representative Meeting, 14
DUNLOP, Gavin: A question of man-power, 73

E
East Yorkshire Branch: Annual Meeting, 15
ENGLISH, W. L.: Ex-Service doctors, 26
Evolution, not revolution (G. C. Anderson), 29; correspondence, 39, 48, 58, 77

F
Foods, extra, for expectant mothers, 15
FORBES, S. A.: Domestic help: "direction" to doctors' houses, 3
FRANKLIN, L. M.: Freedom or control? 57
Fraser, Ewen Lovat: disciplinary case of, 99
FRERE, Philip: Provident schemes in future medical services, 93
Fund, Medical War Relief, 26, 44, 74, 90, 104

G
GARLAND, Tom: Changing medicine, 107
GILLIES, J. C.: Labour and State medicine, 11
Glasgow Division: Practitioners' meeting, 34
GODFREY, C.: Salaried whole-time service, 72
GOULD, F. E.: Future of medical practice, 89
Government pledges, 50
GRAHAM, J. S.: Scottish maternity services, 92
GRAHAM-LITTLE, Sir Ernest: Misleading opinion, 103
GRAY, G. D.: Medical appraisal of pension disabilities, 108
GREENE, Raymond: The Aylesbury Plan, 79, 102
GRIEVE, W. P.: State provision without control, 25
GRIFFITHS, J. V.: Future of medical practice, 82

H
HADLEY, E. C.: Medical superintendents, 74
HARRISON, T. (and others): Opinion in Preston, 50
—W. R. E.: Coming events, 77
HARTLEY, Leslie: Voicing opinion, 11
Health Centres, 48, 82, 90—Affiliated to teaching hospital, 91
—Minister of: The family doctor, 56
—services, future, seen from R.A.M.C., 25
HEALY, E. (and others): Special Representative Meeting, 14
HENDRIE, A. S.: Discharge from Home Guard, 94
HERBERT, B. (and others): Future of medical practice, 82
Hill, Astrid: disciplinary case of, 99
Home Guard, medical attendance on, 15
Hospital Saturday Fund: Free maternity treatment for members, 38
Hospitals: Medical education and hospital system, 13—Medical Personnel (Priority) Committee recommendations, 90—Recruitment of A and B2 officers, 95—Treatment of men invalided from Services but not pensionable, 99
Howard, Richard: Christopher: Name restored to Medical Register, 99
HUNTER, W. L. (and others): Special Representative Meeting, 14

I
Influenza epidemic, 101
Insurance: National Health: Capitation fee position, 71—Annual Panel Conference, 83—Action on resolution, 101

JAMES, F. W.: Why a whole-time salaried service? 14
G. H.: State control of medical services, 2
JACHA, F. J.: Control by the profession, 15
JOHNSTON, B., and others: Special Representative-Meeting, 14
JONES, E. B. and others: Special Representative-Meeting, 14
MEETING, 14
— J. C.: Competition in medical practice, 58
— I. V.: B.M.A. policy; misunderstanding, 91
— RONALD: Medication under State control, 81
— W. H.: Regional medical service, 93
22, 100

LONDON: Colwell de C. W. (and others): Special Representative Meeting, 14
LAST, M.: Certification cases before the G.M.C., 12
LEWIN, S.: Certification for the Home Guard, 88
— (and others): Future of medical practice, 82
LEY, LEONARD: Universal contract practice, 3
LINCOLN Division: Annual meeting, 15
LIPPERT, S.: Then and now, 35
LISTER, R.: Nationalization of medicine, 87
93
Local authorities: Appointments under, 24
LOOMAN, H. A. (and others): Special Representative Meeting, 14
London doctors' views, 28

M

MACKENZIE, P. E. B.: Authority under D.D.A. withdrawn, 78
— G. W. M.: Interpreting the principles, 100;
correction, 104
MACDONALD, Peter: Special Representative Meeting, 23
McGOWAN, K. G.: Resignation from Hon. Secretaryship of Manchester Division, 80
McFARLANE, Charles Liddell: Name restored to Medical Register, 99
MacKEY, J. F. B.: Authority under D.D.A. withdrawn, 78
— G. W. M.: Interpreting the principles, 100;
correction, 104
MACTODD, R.: Local authority control, 14
McNIBBOL, Hugh: disciplinary case of, 99
MACWILLIAM, E. U.: Evolution, not revolution, 40
MARTE, W. N.: Government pledges, 50
MANCHESTER Division: Resignation of Hon. Secretary, 80
MARKSON, A. (and others): Future of medical practice, 82
MARSH, Anthony Alexander: Name restored to Medical Register, 99
MARLBOROUGH Branch: Annual general meeting, 16
MARBLE, William Grant: disciplinary case of, 99
MEDICAL Certification Boards, 25
education and the hospital system, 13
Insurance Agency, annual meeting, 2
practice, future of, 82, 89
protection: Universal contract practice, 3
A problem of finance, 3—Trust the politician? 4
Control by the profession, 15—Freedom or control? 25, 57—Achieving unity, 36—Conservatism in medical practice, 47—Sale of goodwill of practices, 49, 73—“Bartering” with the State, 57—Competition in medical practice, 77
Parliament, 73—Pauis and remedies, 77
records of men discharged from Forces on medical grounds, 18
— Service, Remonaal, 93

N

NEEDHAM, Arthur John: Name restored to Medical Council, 27
INTERPRETING THE PRINCIPLES, 100
INVARLD, P. (and W. V. FOX): Proceedings of Council, 27

O

O'BRYEN, J.: The position of the medical profession, 10
O'DONOGHUE, J.: The position of the medical profession, 10
O'DONOGHUE, J.: The position of the medical profession, 10

Medical societies: State control of, 81.—Whole-time
 salaried, 14, 72.—Local authority control, 14.—
 State started: a problem of man-hours, 23.—
 State provision without control, 25.—Future of:
 amendment of basic principles of Representative
 Body, 75; corrigendum, 79.—The Communist
 view, 87
 —superintendents, 74
 —Medicine, Physical, Diploma in, 27
 —Mid-Career Division: Meeting, 14
 —Milk, certificate for extra, 48
 —Miscellaneous: Meeting, 33, 103
 —Miscellaneous: George Anderson: Name restored to Medi-
 cal Register, 99
 —Moore, A. E.: A problem of finance, 3
 —Morton, H. J. S.: Politics or statesmanship? 49
 N
 National Eye Service: Draft scheme discussed, 91
 —Nash, P. H.: The public choice, 72
 —Northern Ireland Branch: Annual general meeting, 38
 —Norwood Medical Society: A local view of State
 medical service, 18
 —Nurses: utilizing, in general practice, 73
 O
 O'Brien, Agnes, S. (and others): Special Repe-
 sentative Meeting, 14
 —O'Connell, W. J. (and others): Miscellaneous opinion, 93
 —Olivey, Prof. T. H.: Medical education and the
 hospital system, 13
 —O'Neill, C. S. (and others): Special Representative
 Meeting, 14
 —O'Rourke, G. S.: Nottinghamshire Panel Com-
 mittee's views, 82
 P
 Paine, L. B.: Evolution, not revolution, 39
 —Pallier, T. E.: presentation to, 13
 —Palmer, W. H.: Evolution, not revolution, 39
 —Panel system, truth about, 58
 —Conference, annual, 83
 —PENNY, C. J.: The future capitation fee, 73
 —Percison, L. J.: Safeguarding the finance, 17
 —Pooter, H. W.: Derbyshire Panel Benevolent and
 Educational Trust, 35
 —Porter, C. L.: Utilizing nurses in general practice, 73
 —Posner, Joshua, disciplinary case of, 99
 —Proctor, A. H.: Achieving unity, 36
 —Provident schemes in future medical services, 93
 R
 Rae, J. W. (and A. W. Beard): State Medical
 Service, 40
 —Recollections and reflections, 81
 —Rees, J. O. M.: Freedom or control? 25
 —Reichenbach, L. E.: Cleaning-house for doctors'
 calls, 3
 —Ripley, J. J.: Three questions for answer, 58
 —Roberts, William Goodacre, disciplinary case of, 90
 —Rooke, A. B.: Doctors and the future, 15
 —Roussell, A. V.: Evolution, not revolution, 39
 —Victor: Medical care of school-children, 77
 S
 Sarratvala, D.: Recording N.H.I. certificates, 90
 —School-children, medical care of, 77
 —Scott, J. A. (and others): Future of medical prac-
 tice, 82
 —Seowewick, G. H. (and others): Misleading opinion,
 Sense with sensibility, 47
 Services:
 —Air Force, Auxiliary Air Force, 16, 18, 78, 88, 96
 —R.A.F.M.S., 16, 18, 78, 96
 —Reserve of Air Force Officers, 18, 34, 58, 78, 88, 96,
 100
 —Daniel Branch, 4, 78, 96
 S

Services: R.A.M.C. (continued). 88, 95, 104, 108
Army: R.A.M.C., 12, 18, 24, 26, 44, 50, 64, 78, 88, 95, 104, 108
Consulars, 40
Territorial Army, R.A.M.C., 10, 16, 22, 23, 24, 26, 44, 50, 64, 78, 88, 95, 104
T.A. Reserve of Officers, 78, 95, 104
Colonial Medical Service, 4, 18, 22, 23, 24, 34, 44, 50, 64, 74, 88, 95, 104
Navy: Emergency List, 4, 24, 50, 74, 88
R.N.M.S., 10, 22, 44, 50, 74, 88, 95, 108
R.N.V.R., 10, 22, 44, 50, 74, 88, 95, 108
Women's Force, 95, 104
64, 70, 96, 100, 104
Shackleton, R. P. W.: The Council's Recommendations, 27
Shaw, S. C.: Free choice of consultant, 4
Simson, T. E. N.: Bristol's Locumtenent, 103
— W. A. (and others): Opinion in Fiction, 50
Sinclair, F. McKewen: Locumtenent's fees, 81
Smith, G. Fowler: Same Medical Service, 102
South Africa, Medical Association of: Report of Cape Western Branch, 13
South-Eastern Counties Division: Annual meeting, 16
Starkey, T. and S. C. Atcock: Medical Certificates, 17
Stark, M. C.: The truth about the panel system, 58
Items, 14—1912: Can it happen again? 17—Second items, 23—Locumtenent's views on, 24—R.A.M.C. on, 27—Then and now, 35—Serving medical officers, 49—Politics or statesmanship? 53—Bristol's view, 50—The "in Shopshire" and Mid-Wales' voice, 50—The "in Shopshire" future, 57—The public's choice, 72—Power, 73—Nationalization of medicine, 82—Combinable events, 87—A question of man and machine, 93—The public's choice, 93—The future, 97
Stoll, C. Lawson: Shopshire and Mid-Wales' voice, 50
Strange, E. H.: Sale of goodwill of practices, 4
T
Taylor, Alan: Rotherham's views on State Medical Service, 25—Miscellaneous opinion, 93
Templeton, W. Lees: The White Paper, 87
Thomson, T. H. (and others): Special Representative Meeting, 14
Tobin, J. A. F.: Authorization under D.D.A., with drawn, 22
Trimble, Robert: Frederick Martin, disciplinary committee, 99
Tuck, Ivy M.: Second thoughts? 23
Turnbull, H. M. (and others): Future of medical practice, 82
Turner, Terence: Sense with sensibility, 47
Type permits, application for, 16
U
Unsworth, L. F. (and others): Opinion in Fiction, 50
V
Vinter, N. S. B.: Certificates and compulsory national service, 17
Volting opinion, 11
W
White Paper, 87
Wissmann, A. (and others): Future of medical practice, 82
Women students: Conditions for approved course of study, 27
Wray, S.: B.M.A. policy, 40
Yates, Henry: What price practice? 57

